THE ROLE OF SPIRITUALITY IN ETHNIC MINORITY PATIENTS WITH COPD

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COPD is the third leading cause of death in the United States and is the sixth leading cause of death for low-to middle income countries (Downs & Appel, 2006; GOLD, 2011). COPD is a largely preventable disease due to the lifestyle factors that heavily contribute to disease onset and severity. Although traditionally COPD research has focused on health outcomes related to risk factors, compliance, comorbid psychological and physical conditions, and treatment interventions, a growing body of research suggests religious and spiritual factors may play an equally important role in health outcomes for several medical conditions, including pulmonary disease. However, studies of this kind have not specifically examined COPD nor have they examined the role of religious and spiritual beliefs in COPD management among ethnic minority patients. As such, the current study aimed to examine whether spiritual ethnic minority patients with COPD hold religious fatalistic attitudes and less active religious problem solving. A sample of 35 ethnic minority patients from the Louis. B. Stokes Cleveland VA Medical Center (LSCVAMC) Outpatient Pulmonary Clinic in Cleveland, OH. were recruited to participate in the study. Due to the acknowledgeable limitations of the present study, results are preliminary but convey associations between religious health fatalistic beliefs and religious problem solving approaches. Implications and areas of future study are discussed.
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CHAPTER 1

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a progressive condition that affects approximately 24 million Americans and costs billions of dollars to treat annually, with disease exacerbations accounting for a substantial portion of annual healthcare expenditures (Downs & Appel, 2006). COPD is the third leading cause of death in the United States and is the sixth leading cause of death for low-to middle income countries (CDC, 2012; Downs & Appel, 2006; GOLD, 2011). COPD is largely preventable as tobacco use accounts for approximately 75% of COPD cases (CDC, 2011). Consequently, strategies for smoking cessation and lifestyle behavior changes have been of particular interest to healthcare providers and researchers. Several studies have indicated that persons with COPD are also likely to have comorbid depressive and anxiety symptoms, which can negatively impact disease management if not controlled (Pauwels 2004; Hansen 2007). Furthermore, extrapulmonary effects, such as systemic hypertension, may also negatively impact disease course (GOLD, 2011). Research also indicates that Caucasians and males have greater prevalence and mortality rates for COPD than minorities and females, respectively (American Lung Association, 2010). However, a recent study indicates that African Americans may present with similar disease severity despite lesser smoking activity and earlier age (Chitala 2004, Eisner et al. 2009). Although the COPD literature base is quite expansive, efforts to more fully understand compliance issues in minority patients has received little attention. Likewise, examination of the role of spirituality in compliance to treatment has received even less attention. Thus, investigation of spiritual factors that may underlie poor treatment compliance in ethnic minority patients with COPD is warranted.
Chapter 2

LITERATURE REVIEW

Overview/Economic Burden

Chronic Obstructive Pulmonary Disease (COPD) is a constellation of respiratory diseases that impede airflow (GOLD 2011). COPD is characterized by chronic inflammation of the lungs and airflow obstruction that is not fully remitting (Downs & Appel, 2006; Centers for Disease Control, 2011). COPD is a serious illness that may lead to structural changes in the lung over time as well as extrapulmonary effects such as osteoporosis and hypertension which may contribute to disease severity (GOLD, 2011). Patients with COPD tend to have an abnormal inflammatory response of the lungs when exposed to noxious environmental elements, such as fumes, tobacco smoke, dust, or gases, which limits airflow and impairs normal breathing (GOLD, 2011; CDC, 2011). The two most prevalent forms of COPD are emphysema and chronic bronchitis; however asthma and bronchiectasis may also fall within the COPD spectrum (McCrory, et.al 2011; Downs & Appel, 2006; ). Chronic bronchitis occurs when chronic inflammation leads to the narrowing of small airways, while emphysema is characterized as parenchymal damage that leads to impaired dilation of the airways during expiration (GOLD, 2011). While each disease has its own pathophysiological process, both diseases share similar symptomatology, such as sputum production, chronic cough, wheezing, and shortness of breath (CDC, 2011). Discontinuation of exposure to noxious agents may result in improvement in respiratory functioning ; nonetheless, it is important to note that COPD is not curable but its symptoms can be treated to improve overall quality of life (GOLD, 2011).
COPD affects approximately 24 million Americans and is responsible for over 100,000 deaths per year (Downs & Appel, 2006). COPD is now the third leading cause of death in the United States (CDC, 2012). Incidence rates are expected to rise as the population ages, which warrants special consideration regarding treatment and compliance issues (Downs & Appel, 2006; ). COPD is a disease that is thought to occur later in life due to the accumulative effects of environmental exposures and the slow progression of symptom presentation (Hansen et al 2007; ). Research indicates that males are more likely to carry a diagnosis of COPD and also die from the disease than females (CDC, 2011; Hansen et al 2007, Chitala et al 2004). However, women have greater disease related hospitalizations (CDC, 2011) than men. Furthermore, research suggests Caucasians have higher prevalence and mortality rates as compared to other ethnic groups (American Lung Association, 2010), yet one study has indicated that African American patients may present with more severe disease progression than their White counterparts (Chitala et al 2004, Eisner et al. 2009). For example, Chitala et al (2004) conducted a retrospective record review of patients with advanced COPD seeking tertiary treatment in a pulmonary clinic. Results indicated that African American patients tended to be younger at presentation, have fewer pack-year smoking history, and later onset of smoking behavior than Caucasians patients (Chitala et al 2004). Despite the decrease in smoking activity, African Americans had higher disease severity (Chitala et al 2004). Explanations for these differences have yet to be fully understood, but researchers speculate that differences may be attributable to potential early life exposure to air pollutants and airway sensitivity in conjunction with smoking behavior (Chitala et al2004).

Eisner et al. (2009) also found that African Americans had greater disease severity and risk for acute exacerbations compared to Non-Hispanic Whites, Hispanic Americans, and Asian
Americans, but these differences disappeared after the researchers controlled for SES (Eisner et al. 2009). However, differences regarding physical limitations remained for African Americans after researchers controlled for SES (Eisner et al. 2009).

Risk Factors

COPD is a largely preventable disease (CDC, 2011; GOLD, 2011). There are several risk factors associated with the development of the disease that can be separated into host factors (e.g., sex, genetics) and environmental factors (Celli et al. 2004). It is estimated that cigarette smoking accounts for approximately 75% of COPD cases (CDC, 2011). Other contributing factors include occupation-related exposures (accounting for approximately 15% of COPD cases), asthma, genetic factors (e.g., antitrypsin-1 deficiency), and air pollutants, which account for the remaining cases of COPD (CDC, 2011). Furthermore, some research suggests that mental health disorders may also play a role in acute exacerbations of COPD and disease severity (Laurin et al. 2012).

Environmental factors. The relationship between cigarette smoking and respiratory function /COPD is well documented (GOLD 2011; Jimenez-Ruiz 2001; Hudson 2010). Cigarette smoke is believed to impair respiratory function by causing oxidative stress, deterioration of the lung structures, irritation and inflammation to the airway, and destruction of parenchyma, resulting in airway constriction (Gold 2011; Scanlon 2004). Research indicates that the duration and amount of tobacco use is associated with COPD disease onset and severity (Scanlon 2004; Jimenez-Ruiz 2001; Pauwel 2004; Nazir 2009).

Several studies have shown that certain respiratory symptoms such as dyspnea, productive cough, wheezing, may improve following discontinuation of tobacco use
reductions in acute exacerbations have been noted as well (Au 2009; Luker 2007; ). Despite the known health risks, it is estimated that as high as almost three-fourths of COPD patients continue to smoke (Schofield & Tolson 2007) and approximately 80% of patients who successfully quit often relapse within a year (Richmond & Zwar, 2003). Consequently, many researchers have examined potential factors that contribute to continued tobacco use such as social stress (Colby 1994), behavior change techniques (Bartlett et. al 2014), health beliefs (Schofield & Tolson, 2007), mental health disorders (Mikkelsen et al 2004), and nicotine dependence (Goodwin et al 2011). In particular, one study qualitatively examined continued tobacco use among six patients diagnosed with COPD who were unable to successfully quit smoking. The results indicated that participants experienced reduced quality of life and felt a need to discontinue smoking but faced feelings of guilt, low motivation, resignation due to the advanced nature of the disease, and reported dependence on cigarettes for support (Wilson et. al, 2010). Likewise Halding et al (2010) conducted a longitudinal study examining self blame and stigma on tobacco use in 18 COPD patients and found that participants experienced feelings of guilt, felt stigmatized due to their health status, and felt unsupported and blamed by significant others and health care professionals. The researchers speculated that such feelings may impact patient motivation to quit smoking and contribute to concealment of and poor adjustment to their illness (Halding 2010). Both Wilson (2010) and Halding et al (2010) highlight the importance of considering experiential factors related to behavioral change in patients with COPD.

Exposure to passive cigarette smoke has been identified as a risk factor for COPD and may also contribute to respiratory illness (GOLD 2011). Tobacco exposure in utero or during childhood may affect lung development and reduce pulmonary function (GOLD 2011; Stern et al
Several studies have demonstrated positive findings relating passive smoking and respiratory illness in infancy (Ladomenou 2009; Jaakkola & Jaakkola 2002). Children under the age of three exposed to second hand smoke may have greater risk of respiratory infections, asthma, wheezing, and chronic respiratory conditions in later life (Keil et al 2009). In one longitudinal study, Keil et al (2009) examined the interaction between second hand smoke and genetic predisposition for risk of allergic and asthma symptoms. The authors found that maternal smoking was not associated with risk for children without allergic predisposition (Keil et al 2009). However, children exposed to consistent maternal smoking and whose parents had allergies were five times more likely to develop asthma symptoms and allergic sensitization during the first 10 years of life than children who were not exposed to maternal smoking (Keil et al 2009). Risk increased two-fold for children exposed to maternal smoke who had one parent with allergies (Keil et al 2009). Similarly, Goksor et al (2007) examined the long-term effects of uterine and postnatal exposure to passive smoke and found increased risk of asthma in early adulthood for individuals with both exposures, increased risk for bronchial hyper-responsiveness for individuals with uterine exposure, and increased risk of smoking behavior for those with post-natal exposure.

Workplace exposure to dusts and chemicals may place individuals at risk for COPD (GOLD 2011). Occupations involving construction, mining, crematory services, or manufacturing of textiles, plastics, rubber, or leather place workers at greater risk for developing COPD (Boschetto 2006;). For example, risk of COPD related death is higher in construction workers exposed to dusts and fumes than in those who are unexposed (Salvi 2009). Kuempel (2009) autopsied 722 coal miners (N = 616) and non miners (N = 106) and found a significant inverse relationship for coal miners between the amount of coal present in the lungs and emphysema.
severity after adjusting for smoking history and demographic variables. In a retrospective study, Trupin et al (2003) sampled 2,061 workers with occupational exposures and found that exposure was associated with increased risk of COPD after controlling for demographics and smoking history. Of the participants diagnosed with COPD, approximately half self-reported occupational exposure to vapors, gases, dusts, or fumes (Trupin et al 2003). Likewise, animal studies have demonstrated a causal relationship between certain hazardous inhalants (e.g., silica, coal, and cadmium) and chronic obstructive bronchitis (Boschetto et al 2006).

A number of studies have related air pollution to COPD risk and acute disease exacerbations (GOLD 2011; Salvi et al 2009). Indoor air pollutants such as biomass fuel (e.g., charcoal, wood, animal dung) may attribute to the development of COPD, particularly for individuals in developing countries (Salvi et al 2009). However, rising energy costs have prompted citizens of developed countries like the U.S. and Canada to employ biomass materials for heating as well (Salvi et al 2009). It is estimated that 3 billion individuals worldwide use biomass materials for household uses such as cooking and heating and the resulting indoor pollution is speculated to outweigh vehicle emissions in COPD risk (GOLD 2011). The biomass smoke contains pollutants such as carcinogens, carbon monoxide, formaldehyde, and sulphur dioxide (Salvi et al 2009). In a study on wood smoke related lung disease, Moran-Mendoza et al (2008) found that females residing in rural dwellings of Mexico exposed to decades of wood smoke were likely to have obstructive lung disease comparable to that of smokers. Outdoor air pollutants, such as exhaust fumes, have been linked to COPD exacerbations and reduced pulmonary function, although the mechanism of action is not well understood (GOLD 2011; Pauwels 2004).

Host factors (Antitrypsin). Genetic factors are thought to account for variability in COPD disease susceptibility (Salvi et al 2009). Perhaps the most well documented genetic risk factor is
Alpha-1 antitrypsin deficiency, which is a rare genetic disorder that accounts for less than 3% of COPD cases (Ioachimescu & Stoller 2005). Alpha-1 antitrypsin (A1AT) is a glycoprotein manufactured in the liver that neutralizes certain proteolytic enzymes, such as neutrophil elastase, that are involved in the degradation of lung parenchyma (Ioachimescu & Stoller, 2005; Fromer 2010). Individuals who are A1AT deficient are susceptible to the harmful effects of these enzymes and are at increased risk of developing emphysema (Ioachimescu & Stoller 2005; Fromer 2010; Fairbanks 2008).

A1AT deficiency is caused by mutations of A1AT during its coding sequence which results in abnormally shaped variants of the glycoprotein (Fairbanks 2008). Mutations have been categorized by their impact on A1AT serum levels as follows: Normal (normal A1AT plasma levels); Deficient (plasma levels under 35%;); Null (undetectable A1AT serum levels; rare); and Dysfunctional (alleles associated with normal A1AT plasma levels but the protein is dysfunctional) (Ioachimescu & Stoller, 2005; Fairbanks 2008). Some A1AT variants accumulate in the liver rather than being secreted into the system, resulting in lowered circulating serum levels of A1AT (Fairbanks 2008; Teckman 2006). Accumulations of A1AT variants in the liver may lead to inflammation and cirrhosis (Fairbanks 2008). As a result, A1AT deficiency has also been implicated in liver damage (Teckman 2006).

A1AT deficiency is diagnosed using laboratory assays and treatment often involves augmentation therapy via IV infusion to elevate A1AT serum concentrations (Fairbanks 2008). Liver biopsy is an additional diagnostic technique, but is not necessary for the diagnosis while genetic counseling is used to detect carriers of the deficiency (Teckman 2006). Individuals who carry two defective A1AT genes, one from each parent, are said to have the deficiency (American Lung Association 2010). Individuals with ZZ, SZ, or SS allelic variants are
considered deficient, whereas individuals with MS and MZ phenotypes are considered carriers (Fairbanks 2008). The disorder is more prevalent in individuals of European descent (Ioachimescu & Stroller, 2005; Mulgrew 2007). Symptoms include respiratory infection, shortness of breath, coughing, phlegm, wheezing, and (Mulgrew 2007). It is believed that many individuals may unknowingly have A1AT deficiency as symptom presentation tends to have later onset (Fromer 2010).

Carrying defective A1AT genes may not independently predict development of lung disease (Ioachimescu & Stroller, 2005; ). For example, non-smoking carriers of the MZ and SZ allelic variants are not believed to be of greater COPD risk; however, consensus on this conclusion has yet to be reached (Ioachimescu & Stroller, 2005). Studies report interaction effects regarding environment and A1AT deficiency (; Ioachimescu & Stroller, 2005; Mulgrew 2007). Interaction effects between environmental exposures, especially with regards to smoking, and defective A1AT genes are speculated to account for variability in the development of pulmonary dysfunction (Ioachimescu & Stroller, 2005). Researchers have found that individuals with A1AT deficiency usually develop emphysema in their thirties or forties, a much earlier onset than traditional COPD patients, and also have a history of cigarette use (Mulgrew 2007). Furthermore, some studies have found that individuals with A1At deficiency and who are smokers are more likely to present with symptoms earlier in life (Reilly, Silverman, & Sherman 2010). Therefore, it appears that A1AT deficiency may increase susceptibility to pulmonary disease through parenchymal damage to the lungs and interaction effects of environmental exposures.

**Gender.** Researchers have examined the role of gender differences in elucidating the
variability in the development of COPD, yet this topic is not well understood (GOLD 2011). Men are believed to have higher prevalence rates of COPD due to greater smoking behavior and increased risk of occupational exposures; however this line of demarcation appears to be fading as smoking and employment rates increasingly rise among women (Caracta 2003). Yet other disparities remain. For example, women may have increased risk of developing COPD earlier than men and with greater disease severity despite similar exposures to risk factors (Nazir 2009). Additionally, women may develop smoking related COPD despite fewer smoking years than men (Tam et al.2011). Although little is known about the exact etiologic role, researchers allude to interplay between the environment and certain genes on the X chromosome as an explanation for the noted differences (Nazir 2009; Gan 2006).

Hormonal differences may also attribute to dissimilarity between males and females in expression of COPD (Tam et al.2011; Real 2008). Findings from animal studies suggest that certain female sex hormones may contribute to oxidant damage of the lungs, namely estrogen and progesterone (Tam et al.2011). Estrogen and progesterone have receptor sites located in the lungs and are implicated in lung differentiation, development of alveolar sectors, and modulation of lung recoil pressure (Tam et al.2011). Animal studies have evidenced more rapid alveolar changes in female mice chronically exposed to cigarette smoke than in male mice (Tam et al.2011). Likewise, female rats exposed to cigarette smoke had greater expression of cytochrome P450 (CYP) enzymes, which increase metabolism of cigarette smoke in the lung, and greater accumulation of oxidants in the lungs (Tam et al.2011). Researchers believe that a naturally occurring type of estrogen in women called estrodial is related to greater expression of CYP and increased oxidative stress in females (Tam et al.2011). Estrodial is thought to increase
metabolism of CYP enzymes but not the excretion rate of these metabolites, which leads to accumulation of potentially toxic CYP enzyme metabolites in the lung (Tam et al. 2011).

In terms of COPD risk factors, although men may be more nicotine dependent, women tend to view their nicotine dependence as being greater (Jonsdottir 2006). Additionally, women may feel less confident in their ability to abstain from smoking and are likely to relapse more quickly and frequently after discontinuation than men (Jonsdottir 2006). Relevant factors that may impact relapse include higher weight concern in women, increased feelings of distress, and opportunity to talk about smoking and cessation with others (Jonsdottir 2006).

Mental Disorders and COPD. Depression and anxiety often occur in patients with COPD and may negatively impact prognosis (Pauwels 2004; Hansen 2007). Patients with COPD are likely to have one or more psychological disorders (Laurin 2009). If left undiagnosed or untreated, these mood disturbances may contribute to poor treatment adherence and poor quality of life (Coventry 2007). Furthermore, depression, anxiety, and negative attitudes have been related to number of COPD related hospital admissions and duration of stay (Laurin 2009). Prevalence of co-morbid depression and anxiety in COPD patients range from 2%-50% (Mikkelsen 2004). The considerable variability in prevalence rates of depression and anxiety among COPD patients highlights methodological issues related to diagnostic instrumentation and sampling procedures (Mikkelsen 2004; Cafarella 2012). Rates of depression and anxiety are said to increase dramatically for individuals in the end stage of COPD (Cafarella 2012).

COPD patients have increased risk for morbidity and mortality (Cafarella 2012; Nazir 2009). The rate of comorbid depression has been shown to increase as severity of COPD increases and can negatively impact compliance to treatment (Cafarella 2012; Norwood 2005). Attempts to quit smoking and likelihood of relapse are negatively impacted by recent or past
history of depression (Norwood 2005). An estimated 37% of elderly patients with COPD have anxiety and report reduced quality of life (Nazir 2009). Co-morbid anxiety is associated with dyspnea, frequent hospital admissions, increased disability, and poor compliance to treatment (Cafarella2012; Nazir).

Although research in the area of in COPD and comorbid mood disorder appears to be expanding, researchers have been unable to conclude whether mood disturbances are a part of the disease state itself or indirectly related to COPD due to stress of the illness (Hansen 2007). Some researchers have noted a possible connection between depressive symptoms and losses in functioning due to COPD (Mikkelsen 2004). For example, in a qualitative analysis, Panos et al (2013) identified the presence of low self-esteem, depressed mood, and anxiety regarding loss of control among veterans interviewed. Yet other researchers have sought to identify pathogenetic mechanisms through which mood disturbance is likely to occur in COPD patients (Mikkelsen 2004). One explanation for the relationship between COPD and depression is that COPD causes hypoxia which can lead to vascular damage and disruption of functioning of multiple neurotransmitters, resulting in depressed mood as well as cognitive impairments (Norwood 2005; Mikkelsen 2004). Smoking has also been implicated in producing hypoxia in COPD patients (Mikkelsen 2004). Likewise, it is believed that anxiety symptoms such as hyperventilation may contribute to dyspnea and that this relationship may be conversely related (Cafarella2012).

Diagnosis

Diagnosis of COPD is typically confirmed by spirometry, which is the amount of forced air exhaled from lungs within one second (Celli 2004). During spirometric testing, patients are asked to expire forcefully, are then given a bronchodilator, and asked to expire forcefully again (Downs 2006). Individuals are diagnosed with COPD when the amount of forced expiration
post-bronchodilator is below 0.7, which indicates airflow obstruction (Celli 2004; Downs 2006). Although spirometry confirms obstruction, the diagnostic process itself involves several steps (Celli 2004). First, an adequate medical history should be taken during which breathlessness, sputum production, and cough are assessed and risk factors are identified (GOLD 2011; Rodriguez-Roisan 2006; Celli 2004). Secondly, physical examination should confirm respiratory impairments such as shallow breathing, wheezing, or peripheral edema (Rodriguez-Roisan 2006). Thirdly, other possible causal factors should be identified and lastly, administration of appropriate diagnostic procedures such as blood tests or lung function tests (Rodriguez-Roisan 2006).

Based on diagnosis, COPD can be classified into the following stages: Stage 0 (at risk but do not have airflow obstruction); Stage 1 (mild COPD, >80% of air expired in one second); stage 2 (moderate COPD, 50% - 80% expired); stage 3 (severe COPD, 30% - 50% expired); and stage 4 (very severe COPD, either <30% expired or <50% expired combined with chronic respiratory breakdown (Nazir 2009).

Several predictors have been identified in COPD risk of mortality (Berry 2010). These predictors have been combined into a composite index known as the BODE index, whose acronym stands for BMI, (height/weight ratio), air way Obstruction (spirometric testing; FEV1%), Dyspnea (Subjective report of Modified Medical Research Council Dyspnea Scale; MMRC), and Exercise capacity (6-minute walk test) (Berry 2010). This index ranges on a scale of 0, indicating low risk and 10, indicating high risk. The BODE Index is considered a powerful indicator of COPD mortality (Berry 2010).

Several factors appear to influence prognosis including stage of disease and comorbidity (Reilley, Silverman, Shapiro 2005; Berry 2010). Latter stages of COPD, or greater disease
severity, involve symptoms such as cough, phlegm production, and breathlessness continue to progress (GOLD 2011). Later stage disease is also associated with rib fractures due to coughing, weight loss, hyperinflation, greater incidence of wheezing, cyanosis, and longer periods of expiration (GOLD 2011; Reilley, Silverman, Shapiro 2005). Furthermore, disease severity has been linked to greater mood disturbances (Cafarella 2012). Individuals with COPD may be at risk for other comorbid illness such as hypertension, diabetes, cardiovascular disease, and osteoporosis (Chitala 2008; Berry 2010). These disorders are thought to increase visits to the hospital (Chitala 2008). Risk factors such as smoking has been implicated in a large number of COPD related comorbidities and as noted previously successful smoking cessation is difficult for many COPD patients as many continue to smoke, (Chitala 2008; Hilberink 2005; Richmond, 2003; Goodwin 2011).

Interestingly, research suggests treatment adherence to inhaler use is low among the veteran patients with COPD (Huetsch 2012). Researchers speculate that the side effects of certain medications along with costs may contribute to poor adherence (Huetsch 2012). However, said researchers admit that cost is an unlikely factor as VA care should absorb some of the medical costs (Huetsch 2012). Yet other studies have cited poor clinical practice as contributing to poor treatment outcomes, such as underuse of spirometry and non-adherence of practitioners to GOLD standard treatment protocol, (Seaman et al 2010). Additionally, comorbid psychological disorders are common in COPD patients and are known to have negative effects on treatment compliance, which is a poor prognostic indicator (Mikkelsen 2004; Cafarella 2012).

Treatment
Treatment for COPD involves several different approaches that involve drug therapy and lifestyle behavior change (GOLD 2011). The goals of effective management of COPD involve reducing symptoms such as breathlessness, decreasing progression of the illness, and increasing likelihood of smoking cessation (Downs & Appel 2006).

**Pharmacological Treatment for COPD.** COPD is often treated with bronchodilator medications to reduce inflammation and airway constriction (GOLD 2011; Downs & Appel 2006). Bronchodilators vary in duration and can be either short (4-6 hours) or long acting (24 hours) (Downs 2006). Mild COPD is treated as needed with the use of short acting bronchodilators, such as Albuterol, whereas moderate COPD is treated with short and long acting bronchodilators (such as Spiriva) in combination with pulmonary rehabilitation therapy (Downs 2006). Pulmonary rehabilitation therapy is an outpatient service that involves education, psychosocial support, exercise training, and nutritional supplementation (Coventry 2007). It has been shown to improve dyspnea and mood disorder symptoms (Coventry 2007). Severe cases of COPD may involve the use of oxygen therapy in addition to both short and long acting bronchodilators; surgical options such as lung replacement therapy may be an option as well (Downs 2006).

**Psychosocial Treatments for COPD.** Comorbid anxiety and depression may be treated using either or both pharmacological and non-pharmacological approaches (Cafarella2012; Mikkelsen 2004). COPD patients may respond favorably to antidepressants and anxiolytics in the treatment of depression and anxiety; however the effects of pharmacological treatments in COPD patients are inconclusive due to methodological issues involved in research (Cafarella2012; Mikkelsen 2004). SSRIs are typically the preferred drug of choice for COPD patients and if poorly tolerated, tricyclic antidepressants may be an alternative (Cafarella2012) However, many
elderly patients with COPD are prescribed medications that may be contraindicated with tricyclic antidepressants so caution is warranted (Cafarella2012). Antidepressants and anxiolytics such as benzodiazepines may be considered for treating anxiety symptoms; however benzodiazepines should be considered secondary to anxiolytics with fewer adverse side effects (Mikkelsen 2004).

In terms of non-pharmacological therapies, Cognitive Behavioral Therapy (CBT) is recommended in the treatment of depression and anxiety and has been related to positive outcomes such as reduced depression and anxiety and improved exercise tolerance (Mikkelsen 2004). CBT is a psychological approach that involves cognitive and behavioral techniques to help patients better understand the relationship between thoughts, emotions, and behaviors and better manage symptoms related to their illness (Cafarella2012). Relaxation therapy be also be used adjunctively with CBT to reduce physiological symptoms related to COPD (Cafarella2012). Similarly, COPD education and smoking cessation programs have been shown to improve quality of life (Nazir 2009; Niedoszytko, 2008).

Religiosity and Spirituality

Religiosity and Spirituality have been conceptualized as a meaning making system for many individuals (Park 2007). Research indicates that spirituality is a mechanism through which instrumental, emotional, and psychological support can be obtained (Polzer & Miles, 2005). Ellison & Levin (1998) assert that spiritual principles may help individuals interpret life situations from God’s point of view which can foster a greater sense of self-worth and control. Research suggests that adjustment to stressful events such as chronic illness may be helped via faith based methods of coping such as use of sacred text, prayer, meditation, and support from members of the faith community (Bergin and Richards, 2000).
Literature in the area of spirituality and religiosity suggests that there are both positive and negative methods of religious and spiritual coping that can have differential outcomes on physical and mental health (Pargament 1997). For example, research on religious coping styles indicates that collaborative and self-directing coping styles (associated with positive methods of religious coping) are related to higher levels of social and psychological resourcefulness, higher self-esteem, and a greater sense of personal control (Pargament, 1997). Collaborative coping style refers to partnering with God to solve life’s problems, whereas self-directing religious coping describes one’s belief that s/he has been provided the resources to cope with life’s problems by God (Pargament, 1997). Collaborative coping has been associated with intrinsic religiousness and a higher rate of prayer. The converse was true for the deferring coping style- a belief that God is responsible for solving one’s problems – which is associated with negative patterns of coping, lower personal control, and decreased self-esteem (Pargament 1997). However, it is important to note that individuals may use a combination of positive and negative spiritual coping mechanisms to cope with illness and that no one coping style is better than the other (Kelley et. al, 2010; Pargament 1997). For example, the deferring coping style has been associated with better success outcomes for alcohol abusers, whereas the converse was true for the self-directed coping style (Pargament 1997). Pargament (1997) speculates that deferring to God may be a more viable choice in situations where an individual may feel little personal control. The literature discussed in the following section appears to support the notion that use of spiritual beliefs may have positive effects on health outcomes, including pulmonary disease.

Spirituality and Health Outcomes

It is estimated that 94% of hospital patients consider spiritual and physical health as equally important and 40% utilize their faith to cope with health concerns (Saguil et al 2011).
Spiritual beliefs may be a potential resource for patients suffering from chronic illness as this framework may allow for greater appreciation for the important things in life, commitment to living according to a belief system, and motivation to address modifiable attributes of their condition (Karekla, & Constantinou, 2010; Quinn, Cook, Nash, & Chin, 2001). Boyatzis and Walsh (2006) speculated that participants with strong religious beliefs are possibly more respectful of their bodies. Mahoney et al (2005) concluded that thinking of the body as a manifestation of GOD and as possessing sacred qualities was related to greater efforts to protect health. For example, research evidence suggests that religious and spiritual beliefs positively impact physical and mental health, namely in helping individuals adjust to illness (Meisenhelder and Chandler 2002). Positive health outcomes have been noted in regards to physical health such as immune function, mortality, glycemic control, and recovery following cardiac surgery (Meisenhelder and Chandler 2002; Newlin et. al, 2008). Similar effects are noted for mental health as well, namely social support, depression, anxiety, alcohol use, and self-esteem (Meisenhelder and Chandler 2002; Saguil et al 2011). Additionally numerous studies suggest an inverse relationship between spirituality and mortality and heath care utilization and expenditures (Saguil et al 2011). Yet, research examining the relationship between COPD and spiritually is considerably scarce. Koenig (2002) examined religious involvement (i.e., church attendance and private religious activities) and disease severity among a sample of 196 Congestive Heart Failure (CHF) and Chronic Pulmonary Disease (CPD) patients and found an inverse relationship between religious involvement and severity of illness, dyspnea, and physical impairments. The authors speculated that private religious activities such as prayer and scriptural readings may offer CHF and CPD patients a sense of tranquility that leads to increased relaxation and physical functioning (Koenig 2002).
Although little evidence exists in relation to COPD, it is likely that many of the general physical and mental health benefits mentioned earlier may be applicable to COPD patients as well. Therefore, it is paramount that researchers begin to investigate this area. One possible explanation for the lack of research in the area is a climate of uneasiness regarding religious and spiritual issues within the medical community (Saguil et al 2011). Studies report that both physicians and patients regard spiritual beliefs as important and many patients would like their physicians to convey interest in their spiritual needs and even pray with them (Saguil et al 2011). Physicians have reported several barriers impeding such patient requests including time constraints, contradictory to defined role, and inexperience (Saguil et al 2011). However, as Koenig (2002) suggests, the use of a spiritual beliefs questionnaire may provide physicians with a tool to overcome these barriers. There is evidence to support that patients may draw upon their religious and spiritual beliefs when making decisions about their medical treatment (Koenig 2002). Thus, communication regarding spiritual beliefs may facilitate clarity, understanding, and collaborative effort between patient and provider.

Religious Fatalism

There appears to be a growing body of research aimed at examining the role of religious fatalistic attitudes on health outcomes, particularly in minority patients. The concept of Religious Health Fatalism (RHF) is an outgrowth of previous research on fatalism. Fatalism can be defined as a belief that health is outside of one’s control and is determined by some external force such as luck or fate (Franklin 2008). Accordingly, research in the area of fatalism suggests fatalistic attitudes are negatively associated health outcomes such as cancer screening, smoking activity, treatment adherence, and alcohol consumption (Franklin 2007; Franklin 2008). Franklin (2007) defines religious fatalism as a “belief health outcomes are inevitable and/or determined by God”
The author speculates that such beliefs may negatively impact healthy behaviors for some religious individuals (Franklin 2008). Data from a preliminary study examining the utility of the Religious Health Fatalism Questionnaire (RHFQ) in predicting health care outcomes (N = 1273) suggest religious fatalistic beliefs may be related to greater incidence of chronic illness and poorer eating behaviors (Franklin 2007). No significant relationship was found between smoking behavior or health care utilization (Franklin 2007).

An interesting finding of Franklin’s (2007) study suggested that religious fatalistic beliefs were greater for minority and older participants. This is commensurate to previous findings that indicate cultural differences in religious/spiritual beliefs (Franklin 2007). In explaining the insignificant findings between religious fatalism and health care utilization, Franklin (2007) acknowledged methodological limitations such as temporal precedence and reliance on subjective measures. She also acknowledged the possibility that fatalism may be a reaction to chronic illness rather than a predictor of unhealthy behaviors; future researchers were urged to continue research in the area (Franklin 2007).

Aim of Study

The rationale for the current study is to shed light on ethnic minority patient factors that may be impacting their COPD treatment. Although research suggests Caucasians have a higher prevalence and mortality rates as compared to other ethnic groups, there is research to suggest that some ethnic minorities (such as African Americans) have higher COPD disease severity (American Lung Association 2010; Chitala 2004; CDC, 2011; Eisner et. al 2009). Furthermore, while COPD is a common condition among veteran patients receiving care at VA hospitals, little is known about how this condition effects their lives (Panos et al 2013). As such, it is important to examine psychosocial factors that may be contributing to greater disease severity in ethnic
minority patients. Traditionally, COPD research has focused on health outcomes related to risk factors, compliance, comorbid psychological and physical conditions, and treatment interventions. Unfortunately, there is a lack of research in the area of spirituality and COPD and especially so regarding the role of religious and spiritual beliefs among ethnic minority patients with COPD. Research in the area of spirituality and religious faith suggests that there are both positive and negative methods of spiritual and religious coping that can have differential outcomes on mental health (Pargament, 1997) and even pulmonary function (Maselko et. al 2006; Koenig H.G., 2002; Grossoehme et. al, 2013). Although research suggests both physicians and patients regard spiritual beliefs as important and many patients would like their physicians to convey interest in their spiritual needs (Sanguil et. al 2011), examination of spiritual and religious issues in patients with COPD has received little attention. There appears to be a growing body of research aimed at examining the role of religious fatalistic attitudes on health outcomes, especially among ethnic minority patients. Research in this area suggests that Religious Fatalism (“belief that health outcomes are inevitable and/or determined by God”) may negatively impact healthy behaviors for some religious individuals and that such beliefs may be greater for ethnic minority and older patients (Franklin, 2008, p. 323; Franklin , 2007). As such, efforts to more fully understand the relationship between religious/spiritual beliefs and health outcomes among ethnic minority patients is warranted.

Therefore, owing to the paucity of research in the area of religious/spiritual beliefs and COPD, the current study aims to examine whether spiritual ethnic minority COPD patients who hold fatalistic attitudes toward spirituality have greater risk of mortality. It is also the author’s hope that consideration is given for the use of a spiritual beliefs questionnaire in clinical practice
as it may foster clarity, communication, cultural sensitivity, and collaborative effort between VA patients and providers.

Research Hypotheses

Initially, a total of five hypothesis were formulated. However, sample size limitations precluded the use of more advanced statistical analyses to examine predictive relationships of all five hypotheses. As such, Hypotheses One and Two (below) were chosen to be the focus of statistical analysis. Overall, it was expected that individuals who endorsed certain religious fatalistic attitudes regarding their illness (e.g., I have little or no control over my health because God is the one who has control over my health”) would likely have greater COPD mortality risk (as measured by COPD severity). Likewise, it was expected that individuals who are more deferring in their religious problem solving approach would likely hold more fatalistic attitudes regarding their health while those who take a collaborative approach would likely endorse fewer fatalistic attitudes. As previously mentioned, the available clinic data precluded the current study from calculating a BODE Index as originally intended. This index was replaced with FEV1% scores.

Original Study Hypotheses

**Hypothesis One: Correlations between Religious Problem Solving Style and Religious Health Fatalism**

1a) Individuals who are deferring in their religious problem solving approach are likely to endorse religious health fatalistic attitudes. 1b) Individuals who are collaborative in their religious problem solving approach are likely to endorse fewer fatalistic attitudes. Both hypotheses are based on the research findings of Pargament (1997); Koenig (2002); Franklin (2007); and Franklin (2008);
Hypothesis Two: Correlations between Religious Health Fatalism and COPD mortality risk

2) Individuals who endorse fatalistic attitudes related to Helpless Inevitability and Destined Plan are likely to have greater risk for mortality as measured by FEV1% (originally BODE Index scores). This is based on the research findings of Saguil (2002); Pargament (1997); Koenig (2002); Franklin (2007); and Franklin (2008);

Hypothesis Three: Correlations between Religious Problem Solving Style and COPD mortality risk

3a) Collaborative type is expected to be negatively correlated greater risk for mortality as measured by the BODE Index; 3b) Deferring type is expected to be positively correlated with greater risk for mortality as measured by the BODE Index. Both of these hypotheses are based on the research findings of Pargament (1997) and Saguil (2002);

Hypothesis Four: Correlations between Religious Problem Solving Style and Mood

4a) Collaborative type is expected to be negatively correlated with depression scores; 4b) Collaborative type is expected to be negatively correlated with anxiety scores 4c) Deferring type is expected to be positively correlated with depression and anxiety scores. Both of these hypotheses are based on the research findings of Pargament (1997); Cafarella(2012); and Nazir (2009);

Hypothesis Five: Correlations between Mood and scores on the BODE Index

5a) Individuals with greater depression scores are expected to have higher BODE Index scores. 5b) Individuals with greater anxiety scores are expected to have higher BODE Index scores. These hypotheses are based on the research findings of Cafarella (2012) and Nazir (2009).
CHAPTER 3

METHODOLOGY

Participants

Approval for the current study was granted by the University of North Texas and the Louis. B. Stokes Cleveland VA Medical Center (LSCVAMC) Institutional Review Boards (IRB). Participants were recruited from the Outpatient Pulmonary Clinic at the LSCVAMC in Cleveland, OH. Participants were recruited via study flyers placed in the pulmonary clinic, mailed surveys, or in-person recruitment at their scheduled pulmonary office visit. The results of an A-priori G-power analysis indicated a participant pool of 95 patients. Based on LSCVAMC pulmonary clinic data, approximately 20% of patients seen each month are of ethnic minority status (i.e., 49 patients/month). A total of 178 participants were invited to participate (58 in person and 120 via mail). A total of thirty-five participants agreed to participate in the study. A summary of demographics information can be found in Table 1. Data collection occurred one to two days out of the week for a six-month period. This study was advertised to ethnic minority patients who considered themselves to be religious/spiritual. Participants met the following inclusionary criteria: ethnic/racial minority adults 18 and up with a previous diagnosis of COPD receiving treatment for COPD in the pulmonary clinic at LSCVAMC. Exclusionary criteria included first time patient status and patients with severe psychopathology (i.e., schizophrenia spectrum disorders).

The majority of participants (91.4%) considered themselves to be spiritual or religious persons while 5.7% (two participants) did not. Approximately 2.9% (one person) of participants left this question unanswered. However, this individual responded to all faith-based items and did not appear to have a random response pattern. As such, this data was retained. Participants who
answered no to being spiritual clarified either taking a less ritualistic approach to faith or having mixed feelings about their faith. In fact, a handful of participants who considered themselves to be spiritual or religious also inquired whether this demographic question pertained directly to church attendance. Of note, if participants had denied faith in a higher power altogether, they would have met exclusionary criteria. Given that this study aimed to capture a range of religious attitudes, it was determined to retain study data of the two respondents who answered no.
Table 1.
Summary of Demographic Information

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
<td>97.1</td>
</tr>
<tr>
<td>Female</td>
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<td><strong>Race/Ethnicity</strong></td>
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<td></td>
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<tr>
<td>African American</td>
<td>31</td>
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</tr>
<tr>
<td>Hispanic American</td>
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<td>2.9%</td>
</tr>
<tr>
<td>Native American</td>
<td>2</td>
<td>5.7%</td>
</tr>
<tr>
<td>Multiracial</td>
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<td>2.9%</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Married</td>
<td>12</td>
<td>34.3</td>
</tr>
<tr>
<td>Single</td>
<td>11</td>
<td>31.4</td>
</tr>
<tr>
<td>Divorced</td>
<td>11</td>
<td>31.4</td>
</tr>
<tr>
<td>Separated</td>
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<td>2.9</td>
</tr>
<tr>
<td><strong>Religious Denomination</strong></td>
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<td></td>
</tr>
<tr>
<td>Baptist</td>
<td>13</td>
<td>37.1</td>
</tr>
<tr>
<td>Apostolic</td>
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<td>2.9</td>
</tr>
<tr>
<td>Pentacostal</td>
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<td>2.9</td>
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<tr>
<td>Holiness</td>
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<tr>
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<td>2.9</td>
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<tr>
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<td>2.9</td>
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<td>Protestant</td>
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<td>8.6</td>
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<tr>
<td>Unanswered</td>
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<td>14.3</td>
</tr>
<tr>
<td>None</td>
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<td>8.6</td>
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<td><strong>History of health program</strong></td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>20</td>
<td>57.1</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>42.9</td>
</tr>
<tr>
<td><strong>Adherence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very often</td>
<td>22</td>
<td>62.9</td>
</tr>
<tr>
<td>Often</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td>Sometimes</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td><strong>MMRC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 0</td>
<td>3</td>
<td>8.6</td>
</tr>
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<td>Grade 2</td>
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<td>Grade 3</td>
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<td>17.1</td>
</tr>
<tr>
<td>Grade 4</td>
<td>4</td>
<td>11.4</td>
</tr>
</tbody>
</table>

1 History of participation in any programs to improve health
2 Following up with doctor’s recommendations
3 Subjective report of breathlessness
Table 2. Means and Standard Deviations for Study Variables (N = 35)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHFQ-HI&lt;sup&gt;1&lt;/sup&gt;</td>
<td>5.37</td>
<td>1.95</td>
</tr>
<tr>
<td>RHFQ-D Prov&lt;sup&gt;2&lt;/sup&gt;</td>
<td>36.80</td>
<td>8.90</td>
</tr>
<tr>
<td>RHFQ-D Plan&lt;sup&gt;3&lt;/sup&gt;</td>
<td>11.74</td>
<td>3.32</td>
</tr>
<tr>
<td>RPSS- C&lt;sup&gt;4&lt;/sup&gt;</td>
<td>35.66</td>
<td>11.46</td>
</tr>
<tr>
<td>RPSS-SD&lt;sup&gt;5&lt;/sup&gt;</td>
<td>21.44</td>
<td>5.98</td>
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<td>RPSS-D&lt;sup&gt;6&lt;/sup&gt;</td>
<td>28.76</td>
<td>7.94</td>
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<td>BAI&lt;sup&gt;7&lt;/sup&gt;</td>
<td>14.77</td>
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<td>BDI&lt;sup&gt;8&lt;/sup&gt;</td>
<td>14.30</td>
<td>9.54</td>
</tr>
<tr>
<td>FEV1%&lt;sup&gt;9&lt;/sup&gt;</td>
<td>54.91</td>
<td>15.73</td>
</tr>
<tr>
<td>BMI&lt;sup&gt;10&lt;/sup&gt;</td>
<td>26.43</td>
<td>6.28</td>
</tr>
<tr>
<td>MMRC&lt;sup&gt;11&lt;/sup&gt;</td>
<td>1.89</td>
<td>1.15</td>
</tr>
<tr>
<td>Age</td>
<td>65.14</td>
<td>8.21</td>
</tr>
</tbody>
</table>

**SPSS did not compute SD for pooled imputated data. As such, Means and SDs below represent imputation five.**

<sup>1</sup> Religious Health Fatalism Questionnaire - Helpless Inevitability  
<sup>2</sup> Religious Health Fatalism Questionnaire - Divine Provision  
<sup>3</sup> Religious Health Fatalism Questionnaire - Destined Plan  
<sup>4</sup> Religious Problem Solving Scale- Collaborative  
<sup>5</sup> Religious Problem Solving Scale- Self Directing  
<sup>6</sup> Religious Problem Solving Scale-Deferring  
<sup>7</sup> Beck Anxiety Inventory  
<sup>8</sup> Beck Depression Inventory  
<sup>9</sup> Forced Expiration Volume in 1 second  
<sup>10</sup> Body Mass Index  
<sup>11</sup> Modified Medical Research Council
In fact, a handful of participants who considered themselves to be spiritual or religious also inquired whether this demographic question pertained directly to church attendance. Of note, if participants had denied faith in a higher power altogether, they would have met exclusionary criteria. Given that this study aimed to capture a range of religious attitudes, it was determined to retain study data of the two respondents who answered no.

Measures

The measures in this study included a demographic questionnaire, FEV1%, Modified Medical Research Council Dyspnea Scale, the Religious Health Fatalism Questionnaire, the Religious Problem Solving scale, the Beck Depression Inventory, and the Beck Anxiety Inventory. Administration of all protocols was approximately 25-30 minutes.

Demographic Questionnaire. The demographic questionnaire was used to obtain information about the participant’s age, ethnicity, marital status, education level, and whether or not they considered themselves to be religious.

Spirometry. FEV1% (forced expiratory volume in 1 second) is a pulmonary function test that measures the degree of airway obstruction after post bronchodilator use during a breathing exercise (Doherty 2008). FEV1% is used by the Global Initiative on Obstructive Lung Diseases (GOLD) and the American Thoracic Society (ATS) to classify the severity of airway obstruction (Doherty 2008). Obstruction ranges from Stage 1 (mild COPD; FEV1% equal to or greater than 80%) to Stage 4 (very severe COPD; FEV1% less than or equal to 30%) (Doherty 2008). Spirometry reading and interpretation were performed by qualified pulmonary staff according to ATS and GOLD standards.

Body Mass Index (BMI). BMI measures weight based on a height-to-weight ratio formula (CDC 2009). It was originally collected to be used as a component of calculating
BODE Index. BMI data is a routinely assessed at the LSCVAMC and, as such, was pre-collected for all participants in the study.

**Modified Medical Research Council (MMRC).** The MMRC is a 5-item subjective report measure of dyspnea (Kim 2013). It was originally collected to be used as a component of calculating BODE Index. Responses range from Grade 0 (“I only get breathless with strenuous exercise”) to Grade 4 (“I am too breathless to leave the house or I am breathless when dressing”) (Launois, et al 2012).

**Religious Health Fatalism Questionnaire (Franklin 2008; RHFQ).** The RHFQ is a 17-item questionnaire that assesses health beliefs that may inhibit health care utilization and healthy lifestyles (Franklin 2008). Three subscales comprise the measure including Divine Provision, Destined Plan, and Helpless Inevitability (Franklin 2008). The Divine Provision scale (11 questions) measures the belief that God will provide good health, which can be achieved through means such as prayer or faith, or can be given by God out of favor (Franklin 2008). The Destined Plan Scale (four questions) measures the belief that an individual’s health status is part of a plan that God has determined and is thought to serve a purpose in the individual’s life (Franklin 2008). Lastly, the Helpless Inevitability Scale (two questions) measures the belief that a person has little or no control over their health because God is the one who has control over health (Franklin 2008). As such, personal action is believed to be less important because health outcomes are thought to be inevitable (Franklin 2008). This scale is thought to contribute most to prediction of health behaviors (Franklin 2008). Psychometric properties for the three subscales are adequate, with alpha coefficients of .52 for Helpless Inevitability, .89 for Divine Provision, and .64 for Destined Plan (Franklin 2008).
The Religious Problem Solving scale (RPSS; Pargament et al., 1988). The RPSS is a Likert type scale that measures an individual’s religious style of attaining control in the problem solving process (Pargament et al., 1988). The RPSS has three 12-item subscales that measure three problem-solving styles (self-directing, collaborative, and deferring) that ask the individual about their method of coping (Pargament et al., 1988). Individuals with a Self-Directing approach are actively engaged in solving their problems, relying less on God and more on their own abilities and resources (Fox et al 1998). Conversely, individuals with a deferring style of coping, rely on God to solve problems and are less active in the problem-solving process (Andrews et al 2011). Lastly, Collaborative problem solvers take an approach of partnering with God to solve problems (Fox et al 1998). Item responses range from 1 (never) to 5 (always) and total scores range from 12 to 60 for each of the three subscales (Pargament et al., 1988). The RPSS has demonstrates good internal consistency (Collaborative .94, Self-Directing .94, and Deferring .91 (Pargament et al., 1988).

The Beck Depression Inventory, Second Edition (Beck 1961, BDI-II). The BDI-II is a 21-item self-report measure of symptoms of depression (Yuan-Pang, & Gorenstein, 2013). The questions are on a Likert type scale with higher scores reflecting increased severity of symptoms (Yuan-Pang, & Gorenstein, 2013). The BDI-II has a reliability coefficient of .90 (Yuan-Pang, & Gorenstein, 2013).

Beck Anxiety Inventory (Beck 1988, BAI). The BAI is a 21-item self report measure of anxiety symptoms (Beck et al 1988). The questions are on a Likert scale with higher scores reflecting increased severity of anxiety symptoms (Beck et al 1988). BAI has a reliability coefficient of .75 and internal consistency ranging from .92 - .94 (Beck et al 1988).
Measures not utilized in this study

**Bode Index.** The BODE Index comprises several predictors of COPD mortality risk summed to a composite score, including, BMI (height/weight ratio), air way obstruction (spirometric testing; FEV1%), dyspnea (Subjective report Modified Medical Research Council Dyspnea Scale; MMRC), and exercise capacity (6-minute walk test; 6MWT) (Berry 2010).

Exercise capacity (6MWT) is not a routine diagnostic test administered to all pulmonary patients in this clinic setting. Accordingly, patients were not asked to undergo this procedure as it was not indicated for the treatment of their illness. In collaboration with the Pulmonary Clinic Director, it was determined that FEV1% would be a more meaningful indicator of COPD progression and one that meets ATS and GOLD COPD diagnostic and staging criteria.

**Design**

Eligibility was assessed via CPRS (Computerized Patient Record System) chart review prior to the participant’s pulmonary office visit and prior to any survey mail outs. The following information was reviewed to determine eligibility: demographic information, ethnic minority status, BMI, Problems list (to confirm COPD diagnosis and absence of severe psychopathology), Pulmonary function notes (Spirometry and 6MWT results; confirm treatment for COPD at LSCVAMC confirm absence of COPD related to A1AT deficiency). Pulmonary function notes disconfirmed A1AT deficiency for all participants in the study and indicated all participants had a smoking history (although both duration and consumption were not recorded for all patients).

Participants were recruited in one of two ways:

1. Recruitment at scheduled appointment (N = 17) via advertisement fliers placed in the pulmonary clinic and via in-person recruitment by the study investigator. Survey materials were
placed in envelopes and onto clipboards in advance. Each envelope was assigned an alphanumerical code number which corresponded to an identical code number on the participant log in sheet. Once ethnic minority patients arrived for their appointment the check in clerk provided them with a study flyer and asked about their interest in participating in the study. Participants who expressed interest were approached by the study investigator and given the oral consent form to review. As patients consented to participate in person, the study investigator recorded their names and the last four digits of their SSN onto the participant log in sheet next to an alphanumerical code number that is identical to the code number written on their envelope. The study investigator then detailed the parameters of their participation in the study, including access of their medical records in CPRS. Once patients agreed to participate by giving verbal consent, they were informed to keep their research brochure and oral consent and instructed to open their packets and begin the survey. Upon survey completion, the study investigator stored all hardcopy data in a locked cabinet in a locked office in the psychology service office in room 3AC-345. If a patient was unable to complete the survey packet before their office visit ended, pre-paid postage was placed on their survey envelope and they were instructed to mail in once completed.

2. Recruitment via mailed survey packets (N = 18). Eligible individuals received a survey packet in the mail which included a cover letter, a “volunteering in research” brochure, consent form, survey questionnaires, and a pre-metered return envelope. All materials were enclosed in a pre-metered envelope with pre-paid postage. Each mailed envelope has a preassigned an alphanumerical code number which corresponded to an identical code number on the participant log in sheet. Individuals who received mailed surveys had their first and last initials and last four digits of their SSN pre-recorded onto the participant log. As survey packets were returned,
the study investigator completed recording their names onto the log. The consent form detailed
the parameters of their participation in the study, including access of their medical records in
CPRS and specific instructions for returning the completed packet. Participants were advised not
to place any identifying information on their survey packet. Individuals who consented to
participate completed the survey packet and returned it via mail. The study investigator
retrieved returned packets and stored hardcopy data in a locked cabinet in a locked office in the
psychology service office in room 3AC-345.

CHAPTER 4

RESULTS

Measures

Data Accuracy. IBM SPSS Statistics version 23.0 was used to conduct all statistical
analyses. Descriptive and Frequency distributions were conducted to assess the accuracy of the
data. All variables were entered according to their prescribed ranges. No discrepancies were
noted regarding data coding or entry.

Outliers. Graphical displays (boxplots and stem and leaf plots) along with the 1.5 X
Interquartile Range (IQR) Rule (aka, Tukey’s Method) indicated the presence of potential
univariate outliers for BMI (one outlier), RPSS - Self-Directing (one outlier), RPSS -
Self-Directing (one outlier), RHFQ-Divine Provision (one outlier), RHFQ-Destined Plan (three
outliers) BDI (two outliers) and BAI (two outliers). Outliers were corrected with modified
winsorization (i.e., only winsorizing those values flagged as outliers). No new outliers emerged.
Descriptive statistics of the original sample and the winsorized sample were commensurate, with
the exception of skewness and kurtosis statistics which was higher for variables in the original
sample. As a result, it was decided to proceed with the winsorized sample.

Multivariate outliers were evaluated using Mahalanobis Distances (Mahalanobis $D^2$), which measures the standardized distance between a given data point and the mean (Enders 2010). Squared distance and chi-square p-values were computed in SPSS for each case in the dataset. No observations met the chi-square critical values threshold of $p = > .001$. This suggests the absence of multivariate outliers.

**Normality.** The Shapiro-Wilk test of Normality indicated non-normal distribution for three variables: RPSS-Self Directing ($S-W = .928$, df = 29, $p= .049$), BDI ($S-W = .847$, df = 28, $p= .001$), and BAI ($S-W = .881$, df = 29, $p= .003$). All other variables were normally distributed. Skewness and kurtosis values fell within the acceptable range of +/- 1.96 for most variables. Two variables fell outside of this range for skewness (BMI, +1.97; RPSS-Self-Directing, 2.38). Small sample size coupled with the presence of missing values may be contributing to the asymmetry in the abovementioned variables.

Square root transformations corrected non-normality, skew, and kurtosis in BAI ($S-W = .964$, df = 29, $p=.407$) and BDI ($S-W = .937$, df = 28, $p=.093$), whereas the winsorization procedure discussed in the previous section corrected non-normality in RPSS-self-directing ($S-W = .950$, df = 29, $p=.183$) and skewness in BMI. Scatterplots were used to inspect linearity and homoscedasticity. Both assumptions were met.

**Missing Values.** Frequency statistics indicated observations were missing for several survey question items (BDI, BAI, RPSS-Collaborative, RPSS-Self Directive, RPSS-Deferring, RHFQ-Divine Provision). Missing values were due to non-response. A Missing Values Analysis (MVA) was conducted in SPSS to determine overall patterns of missing data. The analysis
indicated that a total of 5.516% missing values in the entire data set. Graphical displays (pattern frequencies) corroborated this indicating that the most frequently occurring pattern in the dataset was that of no missing values present (94.48%). At the sublevel, 74.78% of variables and 34.29% of cases had at least one missing value. Chart displays indicated that missing values were missing in a random way rather than in a systematic way. Little’s test of Missing Completely at Random (MCAR) was used to further inspect missingness. Little’s MCAR is a statistical procedure developed by Roderick Little (1988) to assess the probability that missingness is completely random and unrelated to other variables in the study (Newman 2009). Little's MCAR test indicated non-significance which suggests missing values are missing completely at random rather than due to an identifiable pattern between variables ($\chi^2$ = 396.100, DF = 1158, Sig. = 1.000).

Given that missing data is MCAR, there were several options available to address this issue including, deletion strategies (listwise and pairwise), maximization likelihood approaches (e.g., expectation maximization), and imputation methods (e.g., single or multiple) (Graham 2012). Of the methods listed above, Multiple Imputation (MI) was chosen as the missing values strategy for the current study based on its utility with small datasets, its unbiased estimates, and its low threat to further reductions in statistical power (Wayman 2003; Hoyle, 1999; Newman 2009; Dong 2013). MI is a procedure that estimates different sets of probable values for each missing observation in the database (Wayman 2003). The different sets of estimates are based on the observed values in the data set and are merged into one data set following imputation (Pigott 2001). Unlike other strategies, MI accounts for error by combining and averaging parameter estimates of the imputed dataset (Schlomer et al. 2010).
One limitation of MI is that not all SPSS procedures support multiply imputed data due to its use of pooled estimates (IBM 2014). Other limitations include lengthiness of computation (especially for large datasets) and generation of different sets of imputed values each time the procedure is repeated on the same dataset (Allison 2012; Cox 2014).

In the current study, the Multiple Imputation technique was conducted using SPSS with the MCMC (Markov Chain Monte Carlo) option selected. The imputation model generated five imputations and included all the variables in the study. Transformed variables were back-transformed once the imputation procedure was complete.

**Group differences.** Given that location of study completion differed (at home vs. in person), a One way ANOVA was used to determine any group differences across the study variables. Results indicated there were no group differences: RHFQ-Helpless Inevitability \(F (1, 33)= .840, \ p = .366\); RHFQ-Divine Provision \(F (1, 33)= 2.945, \ p = .096\); RHFQ-Destined Plan \(F (1, 33)= .554, \ p = .462\); RPSS-Collaborative \(F (1, 33)= .179, \ p = .675\); RPSS-Self Directing \(F (1, 33)= .004, \ p = .947\); RPSS-Deferring \(F (1, 33)= .695, \ p = .411\); BMI \(F (1, 33)= .046, \ p = .832\); MMRC \(F (1, 33)= 1.423, \ p = .241\); BAI \(F (1, 33)= 2.748, \ p = .107\); BDI \(F (1, 33)= 2.498, \ p = .124\).

**Internal reliability.** As mentioned previously, not all analyses are supported in SPSS for pooled data. Internal reliability analysis could not be performed on pooled estimate data. Alternatively, internal reliability was measured using Cronbach’s alpha on the original data set with pairwise exclusion for missing values. Reliability coefficients in the original data set were commensurate to those previously reported in the literature. Table 3 provides these results.
Table 3. Cronbach’s Alpha for Religious Health Fatalism, Religious Problem Solving, Depression, and Anxiety

<table>
<thead>
<tr>
<th></th>
<th>Helpless Inevitability (RHFQ)</th>
<th>Divine Provision (RHFQ)</th>
<th>Destined Plan (RHFQ)</th>
<th>Collaborative Self Directing (RPSS)</th>
<th>Deferring Self Directing (RPSS)</th>
<th>BAI</th>
<th>BDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
<td>.583</td>
<td>.934</td>
<td>.868</td>
<td>.929</td>
<td>.815</td>
<td>.872</td>
<td>.948</td>
</tr>
</tbody>
</table>
**Table 4.**

*Correlation Matrix of Study Measures*

<table>
<thead>
<tr>
<th></th>
<th>RHFQ-HI</th>
<th>RHFQ-D Prov</th>
<th>RHFQ-D Plan</th>
<th>RPSS-C</th>
<th>RPSS-SD</th>
<th>RPSS-D</th>
<th>BAI</th>
<th>BDI</th>
<th>FEV1%</th>
<th>BMI</th>
<th>MMRC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RHFQ-D Prov</strong></td>
<td>0.690**</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RHFQ-D Plan</strong></td>
<td>0.670**</td>
<td>0.582**</td>
<td>0.00</td>
<td>0.00</td>
<td>0.08</td>
<td>0.00</td>
<td>0.02</td>
<td>0.011</td>
<td>0.293</td>
<td>0.369*</td>
<td>0.163</td>
</tr>
<tr>
<td><strong>RPSS-C</strong></td>
<td>0.442**</td>
<td>0.505**</td>
<td>0.429*</td>
<td>0.08</td>
<td>0.017</td>
<td>0.086</td>
<td>0.00</td>
<td>0.364</td>
<td>0.429</td>
<td>0.439</td>
<td></td>
</tr>
<tr>
<td><strong>RPSS-SD</strong></td>
<td>0.305</td>
<td>0.293</td>
<td>0.369*</td>
<td>0.08</td>
<td>0.017</td>
<td>0.086</td>
<td>0.00</td>
<td>0.364</td>
<td>0.369</td>
<td>0.364</td>
<td></td>
</tr>
<tr>
<td><strong>RPSS-D</strong></td>
<td>0.164</td>
<td>0.412*</td>
<td>0.298</td>
<td>0.08</td>
<td>0.017</td>
<td>0.086</td>
<td>0.00</td>
<td>0.364</td>
<td>0.683**</td>
<td>0.145</td>
<td></td>
</tr>
<tr>
<td><strong>BAI</strong></td>
<td>0.720</td>
<td>0.231</td>
<td>0.19</td>
<td>0.157</td>
<td>0.128</td>
<td>0.305</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BDI</strong></td>
<td>0.285</td>
<td>0.348</td>
<td>0.188</td>
<td>0.303</td>
<td>0.205</td>
<td>0.362*</td>
<td>0.702**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FEV1%</strong></td>
<td>0.092</td>
<td>0.132</td>
<td>0.038</td>
<td>0.092</td>
<td>0.201</td>
<td>-0.052</td>
<td>-0.102</td>
<td>-0.037</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BMI</strong></td>
<td>0.602</td>
<td>0.456</td>
<td>0.828</td>
<td>0.610</td>
<td>0.252</td>
<td>0.771</td>
<td>0.573</td>
<td>0.841</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MMRC</strong></td>
<td>-0.133</td>
<td>-0.167</td>
<td>-0.240</td>
<td>-0.211</td>
<td>-0.220</td>
<td>-0.249</td>
<td>0.099</td>
<td>0.007</td>
<td>-0.111</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Religious Health Fatalism Questionnaire - Divine Provision
2Religious Health Fatalism Questionnaire - Destined Plan
3Religious Problem Solving Scale - Collaborative
4Religious Problem Solving Scale - Self Directing
5Religious Problem Solving Scale-Deferring
6Beck Anxiety Scale
7Beck Depression Scale
8Forced Expiration Volume in 1 Second
9Body Mass Index
10Modified Medical Research Council

*Correlations represented as r-values, with significance levels indicated as follows:

* = p < .10
** = p < .01
*** = p < .001

*p = .05
**p = .001
Analytic Strategy

Several issues arose during data cleaning that were addressed with careful consideration. It was the author’s goal to reduce as much noise in the dataset as possible. However, limitations regarding sample size and power remained and precluded the use of certain statistical analyses. For example, several sources suggested that the current study may be underpowered to perform regression analyses. The current study has an N of 35. A-priori G power analysis conducted for this study indicated a sample size of 95, whereas experts suggest an N of at least 50 for regression analyses (Tonidandel et al, 2014; VanVoorhies. and Morgan, B .,2001 ). Studies indicate that although most researchers aim for power of at least .80, published studies in psychology tend to have an average statistical power estimate of .50 for medium effect (Tversky and Kahneman 1992 ). However, the Post Hoc G Power Analysis for the current study indicated an achieved power of .44. Taken together, the current study may be insufficiently powered to detect true effects using a regression analysis. As such, a bivariate statistical analysis was conducted to examine hypothesized relationships and to also conduct exploratory analysis.

**Correlation Matrix.** A bivariate correlation matrix was constructed to examine relationships among total scores on the RPSS, RHFQ, BAI, BDI, FEV1%, MMRC, and BMI. A Pearson Product-Moment correlation coefficient was used to measure strength of relationship among each variable. Significant correlations were found between Body Mass and Dyspnea ($r=.377; p=.025$); Collaborative and Deferring Problem Solving Styles ($r=.683; p <.01$); and Depression was positively correlated with both Anxiety ($r=.702; p <.01$) and Deferring Problem Solving Style ($r=.362; p=.043$). Similarly, Helpless Inevitability was positively correlated with Divine Provision ($r=.690; p <.01$), Destined Plan ($r = .670; p <.01$), and Collaborative Problem solving ($r=.442; p <.01$). Significant associations exist between Divine Provision and Destined
Plan ($r=.570; p < .01$), Collaborative Problem solving ($r=.505; p < .01$), and Deferring Problem Solving ($r=.412; p = .017$). Destined Plan was positively correlated with Self-Directing Problem Solving ($r=.505; p > .01$).

It was hypothesized that Deferring Problem Solving would be positively correlated with subscales of the RHFQ whereas Collaborative Problem Solving would have negative associations with these scales. This hypothesis was partially met. Deferring Problem Solving was positively correlated with only one subscale of the RHFQ (Divine Provision). Collaborative Problem Solving was actually positively correlated with all three subscales of the RHFQ, which is contrary to our expectations. Likewise, contrary to our expectations, Helpless Inevitability and FEV1% were not significantly correlated. In fact, no correlations were found between the psychosocial and physiological variables. This may be attributable to sample size and methodological limitations. However, a correlation was noted between Deferring Problem Solving and depression which was consistent with our original study hypothesis 5.

Discussion

Due to the acknowledgeable limitations of the present study, the results should be considered preliminary. As such discussion of findings and implications are done so with caution. The present study aimed to examine relationships between A) COPD severity and Helpless Inevitability and B) religious fatalistic attitudes and religious problem solving styles among ethnic minority patients with COPD. Contrary to our initial expectations, COPD severity and Helpless Inevitability were not significantly correlated. Although previous research suggests that relationship exists between-pulmonary function and religious coping (Koenig 2002; Grossoehme et al. 2013), the current study was unable to achieve similar findings. One
explanation may be lack of adequate sample size and power to explore mediating factors on
disease severity. For example, it is probable that religious beliefs/attitudes mediate pulmonary
function via health behaviors such as attendance to appointments or treatment adherence
however, due to small sample size, this dynamic could not be fully explored in the current study.

Alternative explanations may be related to methodological factors. For example,
environmental influences such as separate study settings (i.e., at home vs. in person) may have
introduced measurement error and weakened our ability to observe an effect. Similarly, low
reliability of the Helpless Inevitability subscale, may have also lowered our ability to detect a
true effect. Furthermore, the population of interest of the current study differed from previous
studies (i.e., adolescents, general population) which may account for lack of significant findings
as well. For example, lack of relationship between helpless inevitability and FEV1% may be
related to the treatment environment of VA. Due to the integrated care model, patients are often
simultaneously involved in several health programs, many of which take place in a group
settings (e.g., aquatics, MOVE! Weight loss programs, smoking cessation, Shared medical
appointments for diabetes, heart disease, hypertension., chronic pain, surgical implants). Given
the group structure of these programs, veterans often receive encouragement and social support
from fellow group members that may foster a greater sense of agency regarding health behaviors.
Additionally, given the integrated care model, veterans may believe they have greater
accessibility and resources to manage their health and, consequently, do not believe their health
status is completely left up to God.

Lastly, another explanation may be lack of relationship between COPD severity and
religious health fatalism, despite proposed increases in sample size. However, given the
methodological shortcomings of the current study, replication with corrections and a larger
sample size may assist in determining if a true effect exists between COPD severity and religious health fatalism.

Our secondary hypothesis was only partially met. Deferring Problem Solving was positively correlated with only the Divine Provision subscale of the RHFQ. This finding suggests that individuals who believe good health is contingent upon religious acts (e.g., prayer, faith, divine favor), are more likely to passively rely on God. Contrary to our initial expectations, Collaborative Problem Solving was actually positively correlated with all three subscales of the RHFQ. This suggests that as religious fatalistic attitudes increase, greater efforts to collaborate with God also increase. These fatalistic attitudes involve belief that health is controlled by God and serves a divine purpose and that God may provide health if certain religious acts are performed. Although contrary to our expectations, this relationship is plausible given the collaborative problem solver’s approach. The collaborative problem solver is one who attempts to manage problems through his/her relationship with God. As such, the more this person believes health serves a divine purpose, the more likely is this person to team with God to better understand what that purpose entails. Likewise, the more the collaborative problem solver believes health can be achieved through religious acts, the more time this person may spend with God to achieve that end. Lastly, the stronger the belief that health is controlled by God, the more the collaborative problem solver may partner with God to make changes elsewhere in his/her life.

Additionally, several non-hypothesized associations were found significant. A significant correlation was found between Body Mass and Dyspnea suggesting that as body mass increases, subjective report of breathing difficulties increase also. This finding is similar to previous findings that speculate functional loss often contributes to reduced exercise ability in patients
with COPD (Mintz, et al 2011). Like wise, depression was associated with increased anxiety and increased passive reliance on God which was also supported in the literature (Cafarella 2012; Nazir). Laurin 2009; Norwood 2005; Pargament, 1999). Several non-significant findings were found between MMRC and BMI, MMRC and FEV1%; and BMI and FEV1%. However, factors related to sample size may have contributed to lack of significance.

The positive relationship between Collaborative and Deferring Problem styles suggests that as partnering efforts with God increase, greater passive reliance on God also increases. Although at first glance this appears to be an unlikely pairing, both approaches represent inclusion of God in the decision making process. Previous researchers have reported similar findings (Andrews 2011, Kaiser 1991). Andrews (2011) speculates that individuals may be responding in an affirmative way to survey items that convey a pro-religious stance. Anecdotal examples from the participants in the current study (see study strengths), corroborate her argument. Pargament (1997) adds, that it is not uncommon for individuals to use a combination of negative and positive coping strategies when faced with illness (Kelley et. al, 2010; Pargament 1997). The present author speculates that perhaps as partnering efforts with God increase, greater awareness of one’s own limitations may also increase, prompting stronger reliance on God.

Subscales on the RHFQ were positively intercorrelated with each other which is consistent with Franklin’s (2008) findings. The correlation between Destined Plan and Self-Directing Problem Solving indicate that self-reliance increases as belief that health is divinely purposed increases. According to Pargament (1988), the Self-Directing problem solver believes that he/she has been divinely given the skill set to manage life’s problem. As such, it is plausible that a sense of self-reliance would increase as belief in the divine purpose of one’s
illness increases.

Strengths, Limitations, and Implications.

As briefly mentioned, there were several limitations of the current study, namely sample size. Poor response rates significantly contributed to small sample size. This study was conducted over the course of six months, including winter and spring months. Attendance rates were poorer during the winter months as attendance dropped approximately 50% during this time, which was consistent with clinic staff report. Furthermore, the author was only able to collect data one or two days out per week, which limited recruitment. Future studies may wish to submit a proposal for external funding that would allow for the hiring of research assistants or afford the principle investigator the ability to devote several months to data collection without competing interests. Of those participants approached in person, reasons for declining to participate included, access to their medical records, arriving late to their appointment, ineligibility, and disinterest in the topic. Future researchers may wish to explore options to increase participation such as through coupon vouchers for volunteering for the study.

The research design also negatively impacted the results of the study. The author’s attempt to increase study participation may have had deleterious effects on power. For example, the study environment was not standardized as some participants completed questionnaires in person while others completed at home, which may have impacted the nature of the participants’ responses. Future researchers may wish to either conduct this study in person or via mail surveys to retain standardization and validity. If multiple locations are used, researchers are encouraged to compare group differences to determine the influence of location.

Threats to test assumptions are likely the result of methodological and recruitment
issues. Scale selection may have lowered statistical power due to reduced reliability. Small sample size presented the author with limited options in the treatment of outliers and missing values as it was important to retain as much of the sample as possible. Small sample size also limited our statistical analysis options and lowered our ability to detect a true effect, impacting both the reliability and generalizability of our findings. Furthermore, the restricted eligibility criteria also reduced generalizability. Taken together, future studies are encouraged to improve upon the current study by correcting these methodological issues.

Despite the number of limitations, this study aimed to explore a new research topic in an often overlooked population and with correction, has the potential to add new information the literature base. Overall, participants who agreed to participate in the study responded positively and many reported their appreciation regarding the study’s specific interest in minorities at the VA. Following participation, several participants shared interest in learning more about the rationale of the study. Several participants related their understanding of how their spirituality impacts their health, namely through the use of prayer and church attendance. There were times when participants clarified their responses while completing the survey. For example, one participant reported collaborating with God is an act of faith and trust. Others offered constructive feedback about the nature of certain survey questions. For example, one participant expressed his disagreement with questions pertaining to the exclusion of God from everyday decisions. Clinic staff also expressed interest in the topic and provided positive feedback. Clinic staff welcomed the author into the milieu and placed study fliers in high traffic areas. Overall, there appeared to be interest in the study and positive feedback form patients and staff.

Although the results of the current study are preliminary, the current study is the first of its kind to examine religious health fatalism in the COPD veteran population. This research topic
has the potential to add depth and understanding to not only the patient-provider relationship but to the treatment planning process as well. It is the author’s hope that future studies will continue to examine relationships between faith and health and look for new ways to improve the patient-provider interaction. It is still the author’s hope that consideration is given for the use of a spiritual beliefs questionnaire in clinical practice as it may foster clarity, communication, cultural sensitivity, and collaborative effort between VA patients and providers.

Conclusion

Taken together deferring religious copers are more likely to rely passively on God when believing God may provide health contingently. Conversely, self-directing problem solvers rely more on their own abilities as belief that health serves a specific purpose is strengthened. Lastly, collaborative problem solvers manage increased beliefs about the inevitability of health, its divine purpose, and its contingency through greater efforts to partner with God. Findings in the current study did mirror those of previous studies related to mood co-morbidities in COPD, increased subjective breathlessness related to weight, intercorrelation of subscales of the RHFQ, and greater mood disturbance related to passive religious coping style. Unfortunately, this was not the case for our primary hypothesis. Although helpless inevitability was unrelated to COPD severity, other researchers have found relationships between pulmonary function and religious beliefs. It is likely that the methodological issues of the current study resulted in reduced power to observe an effect. Accordingly, future researcher are encouraged to correct the methodological shortcomings of the current study and examine mediating factors influencing helpless religious fatalistic attitudes and pulmonary function. Furthermore, relationships between religious problem solving style and fatalistic attitudes warrant further study and future researchers are encouraged to examine these variables.
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