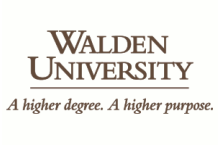

2021

Psychosocial Factors and Physical Health in Chronic Obstructive Pulmonary Disease Patients

Olulana Bamiro
Walden University

Walden University

College of Health Professions

This is to certify that the doctoral study by

Olulana Bamiro

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Clarence Schumaker, Committee Chairperson, Public Health Faculty
Dr. Bin Cai, Committee Member, Public Health Faculty
Dr. German Gonzalez, University Reviewer, Public Health Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2021

Abstract

Psychosocial Factors and Physical Health in Chronic Obstructive Pulmonary Disease Patients

by

Olulana Bamiro

MPH, University of Oklahoma, Health Sciences Center, 2012

MBA, University of Central Oklahoma, 2011

BS, Mountain State University, 2006

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the degree of

Doctor of Public Health

Walden University

May 2021

Abstract

The research problem identified was poor physical health in older adults with chronic obstructive pulmonary disease (COPD). The problem is important because poor physical health yields unsuccessful aging. The current research aimed to identify psychosocial factors that improve self-evaluated physical health in the study population as a proxy to overall health; the research questions helped identify these factors. The first research question assessed the association between health locus of control and self-evaluated physical health. The second research question evaluated the association between family support and self-evaluated physical health. A final research question assessed the association between health locus of control, family support, and self-evaluated physical health. All three research questions were assessed while controlling for race and gender. The theory used was the socioeconomic model, with health locus of control at the intrapersonal level and family support at the interpersonal level. A quantitative study with secondary data analysis was used with the 177 eligible subjects; the inclusion criteria included older adults with COPD, English speakers, and those who completed all stages of the instrument used in collecting the primary data. Using SPSS version 25, an ordinal logistic regression was the statistical model used in determining the outcomes of the variables. The results showed that health locus of control is a predictor of self-evaluated physical health, while family support is not a predictor of self-evaluated physical health, when controlling for race and gender. The positive social change implication of identifying this relationship is in returning older adults with COPD to successful aging, hoping that they continue to be productive members of our society.

Psychosocial Factors and Physical Health in Chronic Obstructive Pulmonary Disease Patients

by

Olulana Bamiro

MPH, University of Oklahoma, Health Sciences Center, 2012

MBA, University of Central Oklahoma, 2011

BS, Mountain State University, 2006

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the degree of

Doctor of Public Health

Walden University

May 2021

Dedication

This doctoral level project is dedicated to my lovely wife, Adekemi Olulana-Bamiro, PharmD. You are my rock. You gave me permission to start and finish this journey, despite the time it has taken away from us, and I am forever grateful to you. My heart desires you excel in all you do and that success be forever yours.

Acknowledgments

I am taking this opportunity to thank Dr. CJ Schumaker for his encouragement, tenacity, and support in completing the Doctoral Program. Thank you for the many calls and emails (scheduled and unscheduled). You are a blessing to many, and I pray that you remain blessed, always.

I also want to acknowledge my two amazing sons, Modadeolu and Eyitemilolu. I appreciate your support and love for the many nights, weekends, and holidays that I spent working on this project. God bless you immensely. I pray that you are more significant than your father in all areas of life. You will excel in academics, as a family man, and in your community, amen.

To my mother and father, who continuously encouraged me to complete this daunting task. Thank you for setting the expectations early on what level of education I ought to pursue and attain. God bless you always, and may you reap the fruits of your labor always, amen.

Lastly, to a dear brother, Tosin Ogundare, Ph.D., we started the doctoral journey together. You stayed true and encouraged me along the way, even pushing my thinking to ensure I was confident on what path I pursued. Thank you for being a brother and a friend through it all.

Table of Contents

List of Tables

Section 1: Foundation of the Study and Literature Review

Introduction

Chronic obstructive pulmonary disease (COPD) affects millions of Americans (Centers for Disease Control and Prevention [CDC], 2019). This disease cannot be treated but is instead managed with maintenance medication and short-acting bronchodilators when symptoms become unbearable (Kacmarek et al., 2019). When COPD is at its critical state, often referred to as exacerbation, patients present with shortness of breath, chest tightness, wheezing, coughing, and sputum production (Kacmarek et al., 2019). In patients with COPD exacerbation, physical health is frequently in question, as breathing is stricken with discomfort, therefore reducing the production of energy in the form of adenosine triphosphate (ATP; Kacmarek et al., 2019). A lack of ATP reduces physical activity and physical health.

Assessment of physical health could be clinical (i.e., provided by a healthcare provider) or independently completed by the patient in a self-evaluated format (Cheng et al., 2016). Where clinical assessment uses measures such as lung functioning with a spirometer or a stethoscope to assess breath sounds (Kacmarek et al., 2019), self-evaluated measures are dependent on psychosocial factors such as health locus of control and family support (Cheng et al., 2016). In this section, I discuss the problem statement by identifying the health issue of poor physical health in COPD patients. I describe the purpose of my study, which is to determine the relationship between the independent variables and the dependent variable. I also validate the significance of the intended study and the impact on social change when completed, while providing background through a

literature review for the variables in question. This analysis was prepared using the socioecological model (SEM) as the theoretical framework. Finally, I discuss the research questions, define key terms, present assumptions, and describe the study limitations.

Problem Statement

Poor physical health is a public health issue but is more concerning in older adults diagnosed with COPD (Franssen et al., 2018). This research focuses on the poor physical health (self-evaluated) of older adults with COPD and assumes the presence of health locus of control and family support could improve outcomes. Physical health, as opposed to mental health, is the absence of ailment in a person's physiology and is measured by activities of daily living (Ohrnberger et al., 2017). "Successful aging" has been used most recently to describe health goals for older adults. Lamb et al. (2017) described successful aging as using medical care and personal efforts to eliminate (or significantly reduce) the helplessness, lack of independence, and (or) decline in activities of daily living typically associated with becoming older. According to Lee et al. (2017), the goal for successful aging is favorable physical and mental health. Therefore, poorly managed COPD patients may be perceived (by themselves or others) as not successfully aging or being in poor physical and mental health (Lee et al., 2017).

Research findings on factors that determine the self-evaluated physical health of older adults with COPD present limited discussions on psychosocial factors, such as health locus of control and family support (Franssen et al., 2018). However, an article by Franssen et al. (2018), presenting a longitudinal study on the physical, mental, and social impact of COPD in a study population, was an exception. In identifying the problem that

leads to poor physical health in older adults with COPD (Franssen et al., 2018), my research assesses and discusses the influence of health locus of control, family support, race, and gender on the self-evaluated physical health in the older population.

Chronic Obstructive Pulmonary Disease

COPD currently affects almost 16 million people in the United States (CDC, 2019). This chronic disease of the lung is characterized by shortness of breath, wheezing, chest tightness, coughing, and sputum production (Kacmarek et al., 2019). According to Kacmarek et al. (2019), there are two categories of COPD: chronic bronchitis and emphysema. Chronic bronchitis is an inflammation of the walls of the bronchioles, while emphysema is a loss in elasticity of the lung tissues (Kacmarek et al., 2019). Healthcare practitioners cannot cure COPD but can help patients manage the symptoms (Gregoriano et al., 2018). An individual with COPD could be in poor physical health, when not adequately managed, due to other considerations, including, but not limited to, personal behavior and psychosocial factors (Franssen et al., 2018). In this research, I explore the poor physical health (the health problem) that plagues older adults with COPD, identifying how health locus of control and family support, race, and gender help address the problem.

The clinical term for episodes of breathlessness with worsened symptoms in COPD patients is exacerbations (Kacmarek et al., 2019). Exacerbations, including heightened intensity and frequency of symptoms, portray poor physical health in this patient population. The health issue in my research is poor physical health clinically characterized by COPD exacerbations (shortness of breath, wheezing, chest tightness,

coughing, and sputum production) but is also self-evaluated. The World Health Organization (WHO, 2011) defined older adults in developed countries as individuals 65 years old and above. For this research, my definition of older adults is in line with the WHO's. My sample included participants from 25 years old to 74 years old. However, I stratified the data by the individuals' age and only use individuals aged 65 and above for my study.

Significance/Purpose of the Study

Using quantitative analysis, I investigated the association between psychosocial factors (namely, health locus of control and family support) and self-evaluated physical health in older adult patients diagnosed with COPD, while controlling for race and gender. I performed secondary data analysis using Midlife in The United States (MIDUS) 3 data (see Ryff et al., 2019) as part of the quantitative research study. The independent variables in this study are health locus of control and family support; race and gender are confounding variables. The rationale was that these independent variables play vital roles in the self-evaluated physical health of the study population. Self-evaluated physical health is the dependent variable because it is a surrogate for assessing overall health and wellness in older adults (see Cheng et al., 2016).

In an article that assessed physicians and patient self-evaluated health, DeSalvo and Muntner (2011) found a correlation between self-evaluated health and the mortality of study participants. DeSalvo and Muntner compared two measures by using a 5-point scale of *excellent, very good, good, fair*, or *poor* to assess over 3,000 people on their self-evaluated physical health. The 5-point self-evaluated assessment was compared to the

physicians' reported physical health of the patients in the study (DeSalvo & Muntner, 2011). They observed that over half the self-evaluated health assessments were in line with the health assessments performed by a physician. The most crucial relationship (DeSalvo & Muntner, 2011) is that between self-evaluated excellent health and mortality rates. Researchers observed that subjects who reported excellent health had the highest probability of living (survivability) compared to those reporting very good, good, fair, or poor health (DeSalvo & Muntner, 2011). Therefore, Desalvo and Muntner suggested a favorable perception of one's health (as observed in self-evaluated measures) is directionally related to survivability (as opposed to mortality), successful aging, and productivity. Hence, the purpose of this study is to assess health locus of control and family support (as psychosocial factors), race, and gender as they relate to self-evaluated physical health in COPD patients.

Research Questions and Hypotheses

The goal of this study is to answer the following research questions by evaluating their associated hypotheses:

RQ1: Is there an association between health locus of control (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$1: There is no association between health locus of control and self-evaluated physical health after adjusting for race and gender.

$H_1$1: There is an association between health locus of control and self-evaluated physical health after adjusting for race and gender.

RQ2: Is there an association between family support (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$2: There is no association between family support and self-evaluated physical health after adjusting for race and gender.

$H_1$2: There is an association between family support and self-evaluated physical health after adjusting for race and gender.

RQ3: Is there an association between health locus of control (independent variable), family support (independent variable), and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$3: There is no association between health locus of control, family support, and self-evaluated physical health after adjusting for race and gender.

$H_1$3: There is an association between health locus of control, family support, and self-evaluated physical health after adjusting for race and gender.

All research questions focus on the study population of older adult COPD patients from the data available through MIDUS 3.

Table 1

Key Terms and Variables Description

Key Terms	Variable Description
Health (internal) locus of control	Independent variable (IV)
Family support	Independent variable (IV)
Race and gender	Confounding variables (CV)
Self-evaluated physical health	Dependent variable (DV), proxy for health with poor health as the health issue
Older adults with COPD	Study population

Note: See Appendix F for Data Determination Table.

Theoretical Framework

The socioecological model (SEM), chosen for in this research, is a multilevel framework (see Glanz et al., 2008) used by public health practitioners to determine engagement and interventions at different levels to change behavior as desired. The levels of engagement for SEM include intrapersonal, interpersonal, organization, community, and policy. First used in the social sciences post-World War II, and later developed by Bronfenbrenner (Glanz et al., 2008), SEM addresses different health behaviors, most commonly tobacco cessation, weight management, and physical activity (Glanz et al., 2008).

The intrapersonal level of engagement of SEM is focused on individual-level actions, beliefs, attitudes, and perceptions (Glanz et al., 2008). Constructs found from other models and theories that could tie into the intrapersonal-level SEM include (but are not limited to) self-efficacy, perceived control, and health locus of control. The interpersonal-level engagement of SEM addresses relationships with others, including social support, family support, positive peer pressures, and observational learning. The organizational-level intervention concerns guidelines and policies within an organization

that encourages behavior change, for instance, a smoke-free policy on a university campus. The community-level intervention is like the organizational level as it aims to change behavior by creating collective rules, guidelines, and policies in a community (defined geographically, ethnically, and racially or otherwise). Last, the policy level approaches intervention from the highest level by creating regulations that govern the affairs of people, for example, the need to test all commercial truck drivers for obstructive sleep apnea before receiving their commercial truck driver's license (Glanz et al., 2008). Therefore, the five levels of intervention present opportunities for change as researchers see fit.

For my study, the psychosocial factor of health locus of control falls under the intrapersonal level of the SEM. The psychosocial factor of family support is part of the interpersonal level, while the factor of race is categorized under the community level of engagement (Glanz et al., 2008). Future public health researchers and practitioners could focus on each factor on a deeper level to determine the best interventions to improve physical health (self-perceived or otherwise). Future researchers could also assess community- and policy-level engagement in older adults with COPD. The literature review of the independent variables, the dependent variable, the covariant factor of diverse age groups, and the framework indicate limited research has been conducted thus far.

Nature of the Study

In this study, I performed quantitative research (through secondary data analysis) using data from the MIDUS 3 survey. Quantitative research uses numbers (as opposed to

qualitative descriptors/words) to assess the relationships between independent and dependent variables (Fertman & Allensworth, 2010). Thus, quantitative research provides an avenue to objectively assess relationships. The dataset was assessed for self-evaluated physical health, the dependent variable. Health locus of control, family support, and an individual's race (the confounding variable) were also evaluated and quantified. I used a dataset from the MIDUS survey conducted between 2013 and 2014 (see Ryff et al., 2019).

Ordinal logistic regression was used to compare the variables' raw data for each research question/hypotheses; missing data were excluded. Ordinal logistic regression is used when the dependent variable presents in an ordinal manner; researchers assess the impact of different independent variables on a single dependent variable (Salkind & Frey, 2019). Data were ranked in accordance with ranking from the data source. For instance, 1 on a scale of 1 to 5 was most favorable for the dependent variable, which corresponds to my research.

Secondary Data Types and Sources of Information

The MIDUS survey was first conducted in 1995-1996 by the MacArthur Midlife Research Network as a national survey of over 7,000 Americans between the ages of 25 and 74 (Ryff et al., 2019). Since then, the original study has been expanded with MIDUS 2 and MIDUS 3. The MIDUS studies are consistent in assessing the physical and mental health of subject participants as they relate to behavioral, social, and psychological factors while accounting for age (Ryff et al., 2019). The MIDUS 3 survey contained over

2,600 variables with a 77% response rate for longitudinal subjects of a phone survey; the survey was conducted in English in the United States (Ryff et al., 2019).

The codebook for MIDUS 3 reflects measures for each variable (see Appendices A to E). The information provided reflects a phone survey used to identify physical and mental health as related to behavioral, social, and psychological factors with several interval level scales (Ryff et al., 2019). Summary statistics provided for reference in each variable are the mode, median, minimum, and maximum scores, mean, and standard deviations. The unweighted frequency of missing data for each label within each variable and the equivalent percentages is also provided.

Literature Search Strategy

My literature search involved the following keywords and phrases: *chronic obstructive pulmonary disease, COPD, self-evaluation, health locus of control, self-efficacy, family support, social support, race, ethnicity, older adults, gerontology, aging,* and *physical health*. I overlaid searches often, for instance, searching for COPD and family support. For each search, I found approximately 50 publications until I filtered further for language, source, and fit to my intended research. Throughout the literature search, I delved deeply into over 100 articles that intersected all interests of my research. Some of the publications were not pertinent to the purpose of the study but were worthwhile for global understanding. I used the Walden Library and filtered for full pdf publications that were peer-reviewed (articles, books, and journals) but not older than 5 years (although I extended the window when little was found). I complimented my search

with Google Scholar, after adding the Walden Library to the list of libraries to search within Google Scholar.

Literature Review/Background

For this study, the two psychosocial factors include health locus of control and family support and race and gender are confounding variables. The assumptions are that health locus of control and family support, when favorable, could improve a COPD patient's self-evaluation of his or her physical health. An assumption is also made that Whites are more likely to positively self-evaluate their physical health than other races. The literature findings on health locus of control, family support, race, and their intersection with self-evaluated physical health provided a path to determine the further research needed on the aforementioned themes.

Franssen et al. (2018) discussed the physical, mental, and social impacts of COPD in a population-based sample using a longitudinal aging study in over 800 subjects. The researchers compared COPD patients to non-COPD patients in three categories (physical, mental, and social status), using a self-evaluated instrument (Franssen et al., 2018). Although COPD patients appeared to have more negative outcomes in their physical, mental, and social status than non-COPD patients in all three categories, the study did not assess the interrelationship between the categories (Franssen et al., 2018). My research focuses on how health locus of control (an intrapersonal level psychosocial factor), family support (an interpersonal level psychosocial factor), race, and gender effect self-evaluated physical health.

Health Locus of Control

Health locus of control can be internal or external (Cheng et al., 2016). Internal health locus of control addresses self-related factors and perception, while external health locus of control addresses environmental, spiritual, and other nonself-factors (Cheng et al., 2016). For the purpose of my research, I focused on the self (or internal) health locus of control; I simply refer to the construct as "health locus of control." Kassianos et al. (2016) shared that perceived control (a construct of the health belief model) and health locus of control are similar. Health locus of control addresses the location of control (locus means location) of any factor in question (Kassianos et al., 2016). Mostafavian et al. (2018) submitted that health locus of control, when present in significant magnitudes, could improve individuals' quality of life with chronic disease (for their research, HIV patients). According to both articles, health locus of control is a determining factor for the self-evaluated physical health of COPD patients. I used the self-reported health locus of control from the data provided for my secondary data analysis as opposed to others.

Health Locus of Control versus Global Health Appraisal

Cheng et al. (2016) described health locus of control as "people's attribution of their own health to personal or environmental factors" (p. 460). They further assessed the relationship between health locus of control and global health appraisal through a meta-analysis. Whereas health locus of control is described as an individual's belief in his/her health as dependent on personal and environmental factors, global health appraisal is described as the subjective assessment of comprehensive health (physical, emotional, mental, and others) by external, not individualistic, factors (Cheng et al., 2016). The

researchers observed that both internal and external health locus of controls were statistically significant and favorably directional to global health appraisals (Cheng et al., 2016). The question that my research addressed is what relationship exists between self-health locus of control (as measured using a self-reported Likert scale) and self-evaluated physical health, as opposed to the more common global health appraisal of overall health.

Health Locus of Control and Self-Evaluated Health

Zhang and Jang (2017) used the MIDUS 2 2004-2006 (ICPSR 4652) data with over 1,500 subjects in their study. The researchers found a favorable relationship between internal health locus of control and positive health rating and, furthermore, identified race (amongst other factors) as worth reviewing to determine its role in how self-related health may be assessed (Zhang & Jang, 2017). My research focused on health locus of control and its relationship to self-evaluated physical health with expectations of similar outcomes, as observed in Zhang and Jang's (2017) study. I also considered the intersection of race on self-evaluated physical health in the population of COPD patients provided in the secondary dataset.

Health Locus of Control and Physical Health

Mercer et al. (2018) described an association between health locus of control with desirable health behaviors, including physical activity, which led to a favorable physical health assessment in cardiac patients. The researchers used the multidimensional health locus of control questionnaire and a structured health behavior questionnaire to assess health locus of control and multiple health behaviors (Mercer et al., 2018). A higher health locus of control was associated with favorable health behaviors and thus favorable

health outcomes (Mercer et al., 2018). My research assessed similar relationships, focusing on self-evaluation for older adults with COPD, as opposed to cardiac patients in the study by Mercer et al. (2018).

Health Locus of Control and Chronic Obstructive Pulmonary Disease

Health locus of control is often assessed in COPD patients as a measure for implemented programs such as pulmonary rehabilitation or medication adherence regimens (Vagheggini et al., 2016). Vagheggini et al. (2016) discussed the role health locus of control plays in pulmonary rehabilitation of a subset of COPD patients; the researchers affirmed factorial relationships between health locus of control and pulmonary rehabilitation outcomes, with confounding factors considered. Additionally, Dang et al. (2018) found that a 2-day seaside program for COPD patients resulted in improved health locus of control. However, further research was suggested to assess the degree of engagement between health locus of control in COPD patients when additional factors were considered (such as hospital anxiety and depression or self-evaluated physical health).

Family Support

Family support, a derivative of social support (Pössel et al., 2018), is an interpersonal level engagement of the SEM (Glanz et al., 2008). Swanson et al. (2018) reviewed active coping and perceived social support to assess physical health in liver disease transplant patients. They found that in the 120 subjects, social support plays a vital role in physical health and was related to other measures of wellness (including resilience). Han and Yun (2015) assessed the impact of family support on the successful

aging of over 4,500 older adults from a longitudinal study in 2012. Family support (including spousal support) played a critical role in the 19.6% that were categorized as successfully aging (Han & Yun, 2015). Therefore, my research assessed the relationship between family support (a conduit of social support) and self-evaluated physical health in older adults with COPD as a specific population. From the data provided for my secondary data analysis, I used true "family support," not "family strain," as described in the appendix of this paper.

Family Support and Health (including Physical Health)

Casale (2014) discussed the importance of family and community support for the health of HIV-affected Southern Africans. Casale (2014) shared that family support affirms favorable physical health. My research focused on family support, a sub-factor of social support, as it relates to self-evaluated physical health with the expectation that favorable outcomes were observed in older adults with COPD. In a longitudinal study on the effects of family and friend support on physical activity (as a proxy for physical health), Morrissey et al. (2015) tracked the research subjects for 5 years with assessments at the 2-year and 5-year marks using logistic regression. The researchers found a positive correlation between family support and physical health for the subject; however, as participants grew older, the relationship between family support and physical health diminished (Morrissey et al., 2015). In my study, I expected that older adults were more likely to perceive physical health favorably when family support was present.

Kershaw et al. (2015) embarked on research of the interdependence of patients and family caregivers as it affects both parties' mental and physical health (other

researchers have not focused on dependence, but instead somewhat directional relationships). The research included over 480 pairs of advanced cancer patients and their family caregivers and had both parties' complete surveys at three intervals: onset, three months, and six months (Kershaw et al., 2015). The longitudinal study found that the mental and physical health of both the patient and the family caregiver were dependent on one another (Kershaw et al., 2015). Similarly, Priest and Woods (2015) used the biobehavioral family model while assessing the role of close relationships in the mental and physical health of Latino Americans. The study, with over 1,500 participants of U.S.-born and foreign-born Latinos, found that favorable family relationships resulted in mentally and physically healthier individuals (Priest & Woods, 2015). My research hypothesis was built on similar assumptions: family support (as measured using an interval-level Likert scale) yields favorable self-reported physical health in older adults with COPD.

Family Support and COPD Patients

In a publication on the impact of a family support program and a pulmonary rehabilitation program for COPD patients as assessed by symptoms, quality of life, and hospital readmission rates, Haemawichaiwat (2018) reported a quasi-experimental study with patients between the ages of 54 and 79. Haemawichaiwat found that, after a year of being in the programs, COPD patients reported less to the emergency department for exacerbations. Additionally, in a study of over 200 older adults with COPD, with a mean age of 71, the researchers determined the relationship between perceived family support and self-care behaviors (Shirvani et al., 2020). The researchers concluded that perception

of self-care was negatively influenced when family support was perceived as negative (Shirvani et al., 2020). Family support appears to have a favorable relationship to the physical health of the older population in both studies discussed above; my research was built on similar assumptions for COPD patients.

Race, a Factor of Health

Race was treated as a confounding variable in this research. Pourhoseingholi et al. (2012) described confounding variables that affect actual relationships between independent and dependent variables. According to the United States Census Bureau (2010), 76.5% of Americans are White (18.3% are considered Hispanic), 13.4% are Black or African American, 5.9% are Asian, 1.3% are Native American/American Indian, and 0.2% are Native Hawaiian or Other Pacific Islander. A press release by the United States Census Bureau in the summer of 2019 revealed an increase in both Hispanics and African Americans; they projected a 2% increase in the Hispanic population, with a higher percentage of counties with over 1,000 Blacks than previous years (United States Census Bureau, 2019). The trend appears to favor an increase in minority citizens over the next few decades. Thus, factoring race is a critical step in addressing current and future health issues. Since the ratio of Whites to other races was quite significant, where 88% of the study population in MIDUS 3 were Whites (Ryff et al., 2019), my study presents race, Whites versus non-White, as a confounding variable to the psychosocial factors. The dataset provided for this study presents race in the following categories: White, Black, Native American, Asian, Hawaiian, and others (Ryff et al., 2019).

COPD by Race

In reviewing COPD by race, the prevalence, diagnosis, and severity are subfactors. Prevalence of COPD in different parts of the world varies by race. According to the National Health Interview Survey (2018), data for The United States reflects that approximately 5% of Whites have COPD (emphysema or chronic bronchitis), while 4.5% of Blacks, 3.7% of Hispanics, 0.4% of American Indians or Alaska Natives, and 1.8% of Asians have the disease. Gilkes et al. (2016) assessed COPD risk by ethnicity in London, United Kingdom. They had over 350,000 patients participate in their study: 47.6% were White, 20% were Black, and 5% were Asians. Their results indicated a 1.55% prevalence of COPD in Whites, 0.58% in Blacks, and 0.78% in Asians (Gilkes et al., 2016).

Mamary et al. (2018) reviewed racial disparities in COPD prevalence and diagnosis in the United States. In their research, using secondary data from the COPD Genetic Epidemiology study with over 10,000 participants in the cohort, the researchers evaluated the impact of race (amongst other demographic factors) on whether patients had a prior diagnosis of COPD (Mamary et al., 2018). The value of this research is in the prevalence of COPD by accurate diagnosis or under-diagnosis of COPD by different races. The participants of the research were either non-Hispanic Whites or African Americans. Mamary et al. observed that African Americans were more likely to be under-diagnosed with COPD, regardless of the severity, using the Global Initiative for Chronic Obstructive Lung Disease guidelines.

Using hospital readmission as a proxy for the health of a group of people, a study on race as it relates to the 30-day readmission rates of COPD patients was performed by

means of Medicare hospital readmission data (Nastars et al., 2019). After controlling for clinical factors, Nastars et al. (2019) assessed whether race was an independent variable impacting readmission rates in Medicare Part A patients discharged within a 20-month consecutive window; COPD was determined using diagnosis-related groups (DRG) 190, 191, and 192. The study had over 290,000 patients, with a racial split of 87% Whites, 8% African American, and 5% Hispanic; readmission rates were relatively similar for all three races when controlling for clinical factors (Nastars et al., 2019). However, when uncontrolled, Whites had the highest readmission rates, followed by African Americans (Nastars et al., 2019). With this understanding, further research on race's vital role in the health of COPD patients, considering other factors, should be encouraged. My research addresses race as a confounding variable in self-evaluated physical health, particularly in older adults with COPD.

Lee et al. (2018) embarked on a study on racial differences among patients with COPD with regard to comorbidities. The study's focus was on understanding the differences in comorbidity by race in participants aged 40 to 79 (Lee et al., 2018). The researchers found that non-Hispanic Whites were more likely to have cardiac- and osteopathic-related comorbidities, while Blacks were more likely to have asthma, hypertension, stroke, and anemia (Lee et al., 2018). Furthermore, Hispanics were more likely to be diagnosed with diabetes mellitus and anemia (Lee et al., 2018). All observations affirmed that race possibly plays a role in the complexity of a COPD patient's condition as described by their comorbidity. Lee et al.'s (2018) research is

valuable to my study because it addresses the assumption that race alone could affect physical health and wellness of COPD patients.

Self-Evaluated Health by Race

Whether individuals self-evaluate their health differently by race is a question discussed extensively in research. Woo and Zajacova (2017) affirmed that self-rated health is often used to determine health and wellness in different races (Woo & Zajacova, 2017). Woo and Zajacova reported that self-rated health was less predictive of mortality risk for Blacks and Hispanics than for Whites. They then offered that socioeconomic status, immigration status, and cause of death play critical roles in defining the variation in rating. Woo and Zajacova's findings further present an alternative assumption from Lee et al.'s (2018), suggesting that race alone does not play a unique role in health (self-rated); other sub-factors might contribute.

Garbarski et al. (2017) assessed self-reported health status by performing cognitive interviews with the 64 participants in search of impacts on race, gender, age, and education. The researchers transcribed the interviews and developed descriptive statistical measures to determine categories that align with sociodemographic groups (Garbarski et al., 2017). They found that different racial groups rated health differently across the sub-dimensions, concluding (in the context of my research interest) that race alone does not play a role in health, particularly self-rated health. For my study, race was used as a confounding variable in older adults with COPD. Future researchers may consider other sub-factors pending the outcome of this study.

Furthermore, the intersection of successful aging and race was explored by Menkin et al. (2017). The researchers assessed the perspective of aging by race amongst African Americans, Korean, Chinese, and Latinos living in the United States who were part of a stroke-prevention program (Menkin et al., 2017). Of the almost 230 participants, 52 were African Americans, 63 Latino, 60 Korean, and 54 Chinese Americans (Menkin et al., 2017). The outcomes that were measured included overall expectation, physical health, mental health, and cognitive function (Menkin et al., 2017).

Menkin et al. (2017) observed that higher education led to higher age expectations for Latinos. In addition, African Americans expected less of a decline in age than others, as assumed in the study's null hypothesis based on their meta-analysis (Menkin et al., 2017). The researchers also found that acculturation for those not born in the United States played a crucial role in expectations, stating that early life was more correlated to age expectations (Menkin et al., 2017). Menkin et al.'s research validates the need to further understand how race and age intersect, particularly for health purposes (in my case, COPD).

Gender, a Factor for Health in COPD patients

The American Psychological Association (APA) defines gender as the attitudes, feelings, and behaviors of a given culture associated with a person's biological sex (2012). In this research, gender terms are binary: male and female. Zysman et al. (2019) assessed the relationship between gender and survival in COPD patients with a sample of 177 females and 458 males. The researchers assessed mortality by the third year of the study using logistic regression analysis. They found that although females presented a

higher level of concern (self-awareness and health locus of control) for their health and wellness at comparable ages to their male counterparts, the survival/mortality rates were relatively similar for both genders (Zysman et al., 2019). In a systemic review and meta-analysis by Ntritsos et al. (2018), researchers determined the global prevalence of COPD by gender. After reviewing over 190 studies, the researchers affirmed that there is limited research on the prevalence of COPD in females. However, Ntritsos et al. concluded that the highest prevalence of COPD in females is in North America, with the United States having over 7 million females living with COPD. With the knowledge that pay and compensations differ by gender in America (Graf et al., 2019), concern for the impacts of a female's socioeconomic status has been observed in research studies on COPD by gender.

In a study that assessed the social profile of patients admitted for COPD exacerbations, Fernandez-Garcia et al. (2020) performed a cross-sectional study of over 250 adults. Participants' average age was 69 (23% female, 77% male), and the researchers assessed the socioeconomic status and presence of caregivers or family support, amongst other social-related factors. The researchers concluded that the social status of female participants was more unfavorable than their male counterparts; this gender difference calls for further understanding of the relationship between gender and social factors (including financial support). My study confounds for gender with relation to the psychosocial factors (health locus of control and family support) when assessing self-evaluated physical health in older adults with COPD.

Self-Evaluated Health by Gender

A literature review on gender and its role in self-evaluated health assessment present varying results. Zajacova et al. (2017) found in their research on gender and the structure of self-rated health across the adult life span that both genders similarly perceive self-evaluated health. Although the perspectives appear similar, when reviewing who reports worse self-evaluated health, women appear to report worsened conditions than men (Zajacova et al., 2017). Other research, a longitudinal study that followed 1,500 older adults (38% men and 62% women) for three years, found a strong correlation between older men and self-evaluated mortality risk (Assari, 2016). Moreno et al. (2017) further reviewed gender, examining the role of gender in association with self-evaluated health and mortality for older adults but paid attention to the ratings within each gender. Moreno et al. found, for instance, that women who rated themselves in poor health had a doubled risk for mortality than women who rated themselves as good; this was not the case for men.

Definition of Terms

Chronic obstructive pulmonary disease (COPD): A lung disease characterized by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible; historically referred to as chronic bronchitis and emphysema (WHO, n.d.). MIDUS 3 asked this question: in the past twelve months, have you experienced or been treated for any of the following? COPD patients check-boxed according to item C1SA11A, (Ryff et al., 2019).

Exacerbation: A worsening of the COPD symptoms, including inflammation of the bronchioles leading to chest tightness, wheezing, shortness of breath, mucus production, and coughing (Lareau et al., 2018).

Health locus of control: An individual's belief in how his/her health could be impacted by previous health experiences and how the level of internal or external control possessed by that individual plays are role in his/her health (Pourhoseinzadeh et al., 2017). See Appendix A for the operational definition of health locus of control (Ryff et al., 2019).

Family support: The degree of emotional support provided by family members, including brothers, sisters, parents, and children (Horwitz et al., 2015). See Appendix B for the operational definition of family support (Ryff et al., 2019).

Successful aging: The use of medication and intentional personal wellness efforts to minimize the biological effect of the feebleness, dependence, and degradation of daily activities (Lamb et al., 2017).

Race: An individual's self-identification with a social group, either White, Black/African American, Asian, American Indian and Alaska Native, Native Hawaiian and Other Pacific Islanders, or other races (United States Census Bureau, 2017). See Appendix C for the operational definition of race (Ryff et al., 2019).

Gender: The attitudes, feelings, and behaviors that a given culture associates with a person's biological sex (APA, 2012). See Appendix D for the operational definition of gender label, frequency, and percentages (Ryff et al., 2019).

Assumptions

I assumed that race was self-identified by social measures, rather than biology; ethnicity, as described by the U.S. Census Bureau (2017) distinguishes between Hispanics and non-Hispanics. Furthermore, I assumed that COPD patients in the data were self-identified as being diagnosed with chronic bronchitis and emphysema and that questions answered in the MIDUS survey were answered truthfully and to the best of the participants' ability, removing any mental illness from answers. I also assumed that the data provided is reflective of the individuals questioned, and no further modification (beyond stated in the codebook) was done to the dataset, thereby providing a clear path to the individual-level data.

Limitations

One limitation of the study is that the dataset does not categorize COPD by severity. In addition, the scarcity of research on the integration of the said psychosocial factors of health locus of control and family support, as well as the individual's race, is a limitation. As a result of this limited research, the challenges that may be observed in the study include a lack of comparative analysis on expected outcomes. Another limitation is the expectation for quantitative research for the Doctor of Public Health program at Walden. Psychosocial factors could also be studied with qualitative research methods; however, I did not take this approach for this study. Last, the sampling method may be a limitation if the dataset has limited samples when comparing findings across the independent variables.

Significance

This study's importance to the body of literature is providing insights into the impact of health locus of control and family support on how chronic disease (i.e., COPD) patients self-evaluate their physical health. This research can also affirm the role race plays in altering the independent and dependent variable relationships and support how the relationships affect future research on similar topics. Once aware, researchers and practitioners alike could further determine appropriate interventions (as antidotes) for the observed negative correlations.

Having established self-evaluated physical health as a proxy for overall health and wellness, I reviewed the association between psychosocial factors (health locus of control and family support), race (as a confounding variable), and self-evaluated physical health. The data source (the MIDUS 3 survey) measures health locus of control, family support, and the self-evaluated physical health on a Likert scale with ordinal measures (see Ryff et al., 2019). Linkage to these psychosocial factors and an individuals' race could help future public health practitioners determine appropriate interventions for improved self-evaluated physical health. This study could also build a foundation for further research on similar relationships, such as between interview-assessed physical health (versus self-evaluated) and either of the psychosocial factors discussed.

Older adults are predisposed to COPD. Although it cannot be cured, the disease can be appropriately managed to reduce its effects on successful aging in older adults. The physical health of individuals with COPD is a factor of successful aging, and self-evaluated physical health influences choices made that encourage living one's best life.

The social change impact lies in the productivity, lifestyle, and minimal dependence that older adults with COPD find. The adults who know that their health locus of control improves or who have improved family support can better self-evaluate their physical health as favorable, thereby increasing healthy choices for the sustenance of health.

Conclusion

In this section, I introduced the health issue of COPD and its impact on older adults living in the United States. I discussed poor physical health as a problem with COPD patients, often when an acute episode presents, shared that poor physical health is a factor to successful aging, and explained that improving physical health is key. To address physical health, I presented literature findings that support self-evaluated physical health as a way to measure physical health, as opposed to clinical measures by clinical practitioners. With that understanding, I explained that health locus of control, family support, and race are integral in how an individual could self-evaluate his/her physical health, buttressing my hypothesis with recent research articles from peer-reviewed journals. With the understanding that research is needed to validate these hypotheses, I describe, in section 2, the research method and design of my study. Furthermore, I share the secondary data, including concerns about validity and limitations to the study.

Section 2: Research Design and Data Collection

Introduction

The purpose of this study was to determine the relationship between psychosocial factors (i.e., health locus of control and family support) and self-evaluated physical health while controlling for race and gender. The study population is older adults (age 65 and older) with COPD. In this section, I discuss the study's research design; rationale; independent, dependent, and covariant variables; methods; and means of collecting and analyzing data. I also assess the instruments used in completing the research study. The research questions, the hypotheses, and the data analysis method is also presented. Last, I discussed the threats of validity and ethical considerations of the study.

Research Design and Rationale

The research design is built on data from the MIDUS 3 survey by Ryff et al. (2019). The MIDUS data were initially collected using a longitudinal approach (which includes MIDUS, 1, 2, and 3). In a longitudinal study, data are collected from the same participants at different points in time to determine change factors in tandem with time (citation). For my study, I used a quantitative design approach and assessed the data as a cross-sectional study with MIDUS 3 as my point of reference. Setia (2016) described a cross-sectional study as an observational design in which researchers assess the result and revelations in the study population over the same period, in essence, the same time. My research design aligns with my research questions with a correlation assessment of the variable of interest. Since the instrument asks questions of the study participants in the present, the independent variables of health locus of control and family support were

assessed directly with the dependent variable of self-evaluated physical health. My goal was not to assess qualitative factors, which are also present in the secondary data.

Study Variables

The independent variables for this study are health locus of control and family support, which are both categorized as psychosocial factors. Kassianos et al. (2016) and Mostafavian et al. (2018) provided insights into the health locus of control as a psychosocial factor to health. Both articles assume that health locus of control plays a part in self-evaluated health (for my study, in COPD patients). Regarding the psychosocial factor of family support, based on Pössel et al.'s (2018), Swanson et al.'s (2018), and Casale's (2014) results, I assumed family support improves self-evaluated physical health in my study population. Information on both independent variables was gathered by telephone surveys, with menu options provided to survey participants. The dependent variable is self-evaluated physical health. Self-evaluated physical health is a proxy for the overall health and wellness of COPD patients. With publications from Desalvo and Muntner (2011) and Zhang and Jang (2017) on how self-evaluated physical health relates to overall health and wellness, researchers have established a foundation for using self-evaluated physical health to determine overall health and wellness. A telephone survey was used to assess the dependent variable, with menu option questions on physical health. The confounding variables to discuss are race and gender. Race is presented here as Whites versus non-Whites, with the assumption that Whites have a more favorable self-evaluated physical health rating than non-Whites, based on Garbarski et al. (2017). Gender, defined as male and female, was also categorized. Gender,

according to Zajacova et al. (2017), plays a role in self-evaluated health, although not significantly or directly.

Table 2

Operational Definitions of Study Variables

Variable Type	Name	Definition	Measurement Type	Attribute
Independent Variable	Health Locus of Control	Degree of personal belief in internal control of one's health. Four questions were included in the coding results for C1SHLOCS	Ordinal	1 = Strongly agree 2 = Somewhat agree 3 = A little Agree 4 = Neither agree nor disagree 5 = A little disagree 6 = Somewhat disagree 7 = Strongly disagree
	Family Support	Presence of family members, except spouse, to improve health and wellness. Four questions were included in the coding result for C1SKINPO	Ordinal	1 = A lot 2 = Some 3 = A little 4 = Not at all
Confounding Variable	Race	Described as White or Non-White.	Nominal	0 = White 1 = Non-White
	Gender	Described as male or female.	Nominal	0 = Male 1 = Female
Dependent Variable	Self-evaluated Physical Health	Subjects' perception of physical health. A proxy for overall health with poor health as the health issue.	Ordinal	1 = Excellent 2 = Very Good 3 = Good 4 = Fair 5 = Poor

Note: Content derived from the MIDUS 3, Field Report.

The study population was older adults (65 years and older) with COPD. The variables (independent, dependent, and confounding) have all been independently assessed in the field of public health, and in some cases, were assessed together.

However, little is known of the collection of the identified psychosocial factors and the dependent variable in older adults with COPD. Furthermore, when factoring race and gender as confounding variables, the literature review produced sparse results.

Methodology

Sampling Frame

The sampling frame was predetermined based on my interest and research purpose and sourced from the MIDUS 3 primary data. The codebook provides some level of detail. The sample consists of older adults with COPD. "Older" is defined as those 65 years or older (1,412 in the larger sample); the COPD categorization is self-identified by subject participants. From the codebook, 332 participants were categorized as COPD. English was required as the participants were expected to read, write, and speak in English to complete the survey. The participants also completed the sections of the survey that pertain to my research interest (i.e., the independent variables, dependent variables, and confounding variable questions to meet inclusion criteria). The exclusion criteria were essentially the opposite of the inclusion criteria. Those who did not speak English, those who did not complete sections of interest in the survey, those who were institutionalized citizens of the United States, and those who did not self-identify as COPD patients were excluded.

Data Collection

Data collected for MIDUS 3 were specific to participants of MIDUS 2 who were still alive. Living participants of MIDUS 2, which was conducted in 2004, were re-engaged. Between March and May 2013, pretracing was conducted for the almost 5,000

possible subjects of MIDUS 3 from the MIDUS 2 contact list (using their last known telephone number, address, and in some cases next of kin). Those who were contacted and enlisted in the study were then stratified into groups of approximately 100 cases, making 46 different replicates. Padilla et al. (2017) shared that probability protocols, including stratification, are established to minimize errors in research.

Table 3

CATI, SAQ, and Cognitive Interview Study Protocol

	Step	Description
1.	Initial newsletter	The first newsletter was generated and mailed in the spring of 2013 to MIDUS 2 participants.
2.	Advance letter	A letter with a $2 bill as a pre-incentive, as well as the 3-part study brochure, was sent within a week from the initial letter.
3.	CATI post-incentive check	A $25 check was mailed with a thank you note for those who completed the CATI telephone survey. This was sent a week post-survey.
4.	SAQ packet	The self-administered questionnaire packet was sent about ten days after step 3 above. This packet included the following: a. The cover letter explaining the booklet b. The booklet itself c. Two $5 bills as pre-incentives d. A tape measure for body measurements e. An envelope to return a completed packet f. Another envelop to return a wrong address.
5.	SAQ reminder	A reminder postcard was sent two weeks after the packet was mailed
6.	SAQ non-response	A second reminder postcard was sent after four weeks
7.	SAQ post-incentive check	A $25 check was mailed with a thank you note a week from completing the SAQ booklet.
8.	Cognitive interview	The interviews were scheduled two weeks after the SAQ process was completed.

*Note***:** Adapted from MIDUS 3 Field Report by Ryff et al., 2019, *Midlife Development in the United States (MIDUS III), 2013–2014* [Data set]. Interuniversity Consortium for Political and Social Research. http://doi.org/10.15326/jcopdf.4.1.2016.0126

The data collected for MIDUS 3 were in three parts. First was the 45 minutes computer-assisted telephone interview (CATI) with 3,294 respondents. The second was the mail-in self-administered questionnaire (SAQ), then the cognitive interview. The response rates were 77%, 83%, and 83%, respectively, for each section of the data collection. Data were collected between May 2013 and November 2014 by The University of Wisconsin Survey Center, contracted by Ryff, the director of the University of Wisconsin Institute on Aging and principal investor of the MIDUS 3 survey. The data were publicly accessible through the Inter-university Consortium for Political and Social Research, a part of the Institute for Social Research at the University of Michigan. I created a free account to access the data. The institutional review board of Walden University was engaged for approval to analyze the data.

Instrumentation

Two critical instruments were used in the data collection, both from the CASES technology, a product of the University of California, Berkeley's Computer-Assisted Survey Methods Program. The first was the CASES CATI system, which provides the interviewer with questions to read to the respondent with adaptable follow-up questions based on responses to prior questions. The instrument only allowed valid questions, rejecting words that were not within the purview of the system and asking the interviewer to reenter responses.

The second CASES instrument used was the CASES SAQ Data Entry System, which allows the data entry operator to key in mailed SAQ responses. The SAQ Data Entry System, also from the University of California, Berkeley's Computer-Assisted

Survey Methods Program, has a skip-logic program, which allows only valid responses. A second entry operator is built into the MIDUS 3 system to ensure data entered by the first is accurate, reducing inconsistencies.

Power Analysis

I used power analysis to determine whether the sample size was large enough to reach statistical significance at an alpha of 0.05. Power analysis is valuable as it allows researchers to draw conclusions from data with effects to hypothesis that rejects the null (Schoemann et al., 2017). Conforming to research practice for power, I used the G*Power software to determine the ideal sample size for my study and worked with the intention of 0.80 power level. Additionally, the ideal sample size was calculated using an effect size of 0.3 (Funder & Ozer, 2019).

Using the G*Power software for ordinal logistic regression for a two-tailed test, I expected that a minimum sample size of 77 participants was needed for research questions 1 and 2 to test the statistical significance for the study. For the third research question with four predictors (including the independent and confounding variables), a sample size of 85 participants was necessary for statistical significance.

Research Questions and Hypotheses

In this research study, my goal was to answer the following research questions by evaluating their associated hypotheses:

Research Question 1: Is there an association between health locus of control (independent variable) and self-evaluated physical health (dependent variable) in older

adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$1: There is no association between health locus of control and self-evaluated physical health after adjusting for race and gender.

$H_1$1: There is an association between health locus of control and self-evaluated physical health after adjusting for race and gender.

Research Question 2: Is there an association between family support (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$2: There is no association between family support and self-evaluated physical health after adjusting for race and gender.

$H_1$2: There is an association between family support and self-evaluated physical health after adjusting for race and gender.

Research Question 3: Is there an association between health locus of control (independent variable), family support (independent variable), and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$3: There is no association between health locus of control, family support, and self-evaluated physical health after adjusting for race and gender.

$H_1$3: There is an association between health locus of control, family support, and self-evaluated physical health after adjusting for race and gender.

All research questions were focused on the study population of older adult COPD patients from the data available through MIDUS 3.

Data Analysis

I analyzed the data collected using Statistical Package for the Social Sciences (SPSS) software, Version 25. The data were assessed using ordinal logistic regression. Ordinal logistic regression is used when there is more than one independent variable, attempting to predict an ordinal rated outcome (dependent variable) in a research study (Salkind & Frey, 2019). The confounding variables were factored into my data analysis. Missing data were excluded as described in my sampling frame, and ranked data were validated for directional relationships; for instance, ranks from 1 to 5 were validated for increasing favorability or reversed for consistency with the compared variable.

Descriptive statistics, including frequency and percentage distribution were presented to identify the study participants' characteristics. The analysis, including the ordinal logistic regression and post-hoc sensitivity tests, were used to determine hypotheses' validity. Interpretation was based on the outcome of the ordinal logistic regression. The study results assessed the association of the independent variable with the dependent variable by reviewing a *p*-value with a statistical significance of 0.05.

Threats to Validity

Threats to internal and external validity were considered for my doctoral research. With the understanding that internal validity ensures alignment with the priority population, a potential threat to internal validity is the instrument used. If the instrument varies slightly from the intended use, it could affect the results observed. To ensure consistency, I used the instruments used in MIDUS 3, initially, in my study. Additionally, an external validity threat makes generalizing the outcome of the study unfeasible. Since the study participants represent the population, there was limited concern about external validity issues in this research.

Ethical Considerations

My study presented no risk to participants, seeing that it is based on an existing dataset. The participants completed the telephone or self-assessed questionnaires of their own accord and volunteered the information gathered of their own volition. The data has also been de-identified, and so a review of the data was protective of the patient's rights according to the Health Insurance Portability and Accountability Act of 1996. Nonetheless, the data utilized were treated with extreme caution, ensuring confidentiality in every step; the secondary data were downloaded into a portable drive to minimize access by anyone other than me. I sought official approval to collect and review the data through Walden University's Institutional Review Board office.

Summary

In this study, I used a quantitative cross-sectional design to review collected secondary data to complete the study. The priority population was adults 65 and older

with COPD. Participants were intentionally selected based on prior completion of the MIDUS 2 survey, making the data longitudinal for those interested in comparing changes over time. Specific survey instruments were used for data collection, power was assessed for the appropriate sample size, and the SPSS software was used for data analysis. In the third section of this paper, I discuss the data collection and present the results for review. Section 4 addresses the application of the study to professional practice and the social change impact on the community at large.

Section 3: Presentation of the Results and Findings Section

Introduction

This study determined the relationship between psychosocial factors (the independent variables, i.e., health locus of control and family support) and self-evaluated physical health (the dependent variable) while controlling for race and gender. The study population was older adults (age 65 and older) with COPD. In this section, I share the research questions and hypotheses used for the data analysis, the data collection method, the sample's demographic information, and the data's representativeness of the population of interest. I also discuss the results of quantitative ordinal logistic regression for the three research questions, and highlight a summary that introduces the next section on application to professional practice and social change.

A quantitative analysis was conducted using the following research questions and hypotheses:

RQ1: Is there an association between health locus of control (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$1: There is no association between health locus of control and self-evaluated physical health after adjusting for race and gender.

$H_1$1: There is an association between health locus of control and self-evaluated physical health after adjusting for race and gender.

RQ2: Is there an association between family support (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$2: There is no association between family support and self-evaluated physical health after adjusting for race and gender.

$H_1$2: There is an association between family support and self-evaluated physical health after adjusting for race and gender.

RQ3: Is there an association between health locus of control (independent variable), family support (independent variable), and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?

$H_0$3: There is no association between health locus of control, family support, and self-evaluated physical health after adjusting for race and gender.

$H_1$3: There is an association between health locus of control, family support, and self-evaluated physical health after adjusting for race and gender.

Data Collection

The study had a priority population of older adults with COPD. I used secondary data analysis of data collected between 2013 and 2014 by The University of Wisconsin Survey Center, contracted by Ryff, the director of the University of Wisconsin Institute on Aging. This data, known as the MIDUS 3, had two prior versions. The first version of the survey was conducted between 1995 and 1996, and the second version was administered between 2004 and 2006. Participants from MIDUS 2 were contacted

between March and May 2013 after pretracing almost 5,000 possible subjects for MIDUS 3. A stratification method was used to group possible participants into 46 groups of 100 cases each. Data collection for MIDUS 3 occurred in three parts: a 45-minute CATI, a mail-in SAQ, and a cognitive interview. With N = 3,294 respondents for the CATI, the response rates for the three sections of MIDUS 3 were 77%, 83%, and 83%, respectively.

The MIDUS 3 data were publicly accessed through the Inter-university Consortium for Political and Social Research, a part of the Institute for Social Research at the University of Michigan. I created a free account to access all versions of MIDUS, including MIDUS 3. The Institutional Review Board of Walden University was engaged for approval (IRB#: 10-30-20-0984093) to analyze the data beyond my initial review, and secondary data analysis began. For this study, the minimum required number of sample participants based on power analysis (using G*power 3.1.9.2) was n = 77 for RQs 1 and 2. The minimum required number of sample participants from power analysis for RQ3 was n = 85. The overall sample for MIDUS 3 was N = 3,294; however, after applying the inclusion and exclusion criteria for older adults ages 65 years and older, patients with valid answers, as well as patients classified with COPD, the final sample size for the study was n = 177 subjects.

Demographics

Of the n = 177 participants filtered for older adults with COPD, 34.5% were male (n = 61) and 65.5% female (n = 116); the prefiltered sample for all N = 3,294 MIDUS 3 participants had a 45.1% to 54.9% split for males versus females. In the MIDUS 3 collective sample, 88.7% were White and 10.4% were Non-White, while, coincidentally,

the filtered sample of n = 177 participants had 88.7% (n = 157) Whites and 10.2% (n = 18) non-White with two missing data points.

Table 4

Frequency Table of Confounding Variables

	Frequency	Percent
Gender		
Male	61	34.5
Female	116	65.5
Race Group		
White	157	88.7
Non-White	18	10.2
Missing (Race Group)	2	1.1

For the variable of self-evaluated physical health, on a scale from *excellent* to *poor*, the largest representation was for *good* at 40.1%, as shown in Table 5 below. When asked for health locus of control for self, on a scale of a *little agree* to *strongly disagree*, the largest representation was *somewhat disagree* at 45.2%. Moreover, when asked about support from family members, on a scale from *A lot* to *Not at all*, the largest representation was for *Not at all* at 57.1%. Most participants seemed to self-evaluate their physical health as *good*, their locus of control as *somewhat disagree*, and their family support as least existent from the frequency table before the ordinal logistic regression analysis.

Table 5

Frequency and Percentage Summary of Self-evaluated Physical Health, Health Locus of Control--self, and Family Support

	Frequency	Percent
Self-evaluated Physical Health		
Excellent (1)	13	7.3
Very Good (2)	32	18.1
Good (3)	71	40.1
Fair (4)	41	23.2
Poor (5)	20	11.3
Health Locus of Control - Self		
A Little Agree (3)	4	2.3
Neither Agree nor Disagree (4)	13	7.3
A Little Disagree (5)	47	26.6
Somewhat Disagree (6)	80	45.2
Strongly Disagree (7)	33	18.6
Support from Family		
A lot (1)	4	2.3
Some (2)	12	6.8
A Little (3)	54	30.5
Not at all (4)	101	57.1
Missing (Support from Family)		
Respondent does not have SAQ DATA	2	1.1
Not calculated (Due to missing data)	4	2.3

Assumptions Testing

Generally, there are four assumptions that should be considered when running an ordinal logistics regression analysis (UCLA Statistical Consulting Group., n.d.). First, the dependent variable should be measured on an ordinal scale. In the current study, this

assumption was met since the dependent variable, self-evaluated health, was measured on an ordinal 5-point Likert scale where 5 represented the worst health status and 1 represented the best health status. Second, at least one of the independent variables should be categorical, ordinal, or continuous (UCLA Statistical Consulting Group., n.d.). In the current study, there were two predictor variables, health locus of control and family support, and two confounding variables, gender and race. Both health locus of control and family support were measured on an ordinal scale, while gender and race are categorical variables. Consequently, the second assumption was also met.

The third assumption is that there is no multicollinearity among independent variables (UCLA Statistical Consulting Group., n.d.). To test for multicollinearity among the independent variables, I used the variance inflation factor (VIF) statistics. In particular, VIF was used to determine whether multicollinearity existed among the independent variables. As per the findings obtained, there is no evidence for multicollinearity among the independent variables included in the model since all VIFs are less than the threshold of 10 (see Table 6 below). According to Kim (2019), VIFs of 10 or more indicate the presence of multicollinearity among independent variables.

The last assumption is that there are proportional odds; odds vary at the lower levels of the categories equal to the higher levels of categories (UCLA Statistical Consulting Group., n.d.). To test for the proportional odds assumption, I used the test of parallel lines statistic. Statistical significance in the test of parallel lines means that the proportional odds assumption is violated (UCLA Statistical Consulting Group., n.d.). The

proportional odds assumption was tested for each of the three ordinal regression models and is presented in the results section below.

Table 6

Collinearity Diagnostics

	Tolerance	VIF
Health Locus of Control – Self	0.904	1.106
Support from Family	0.94	1.064
Race Group	0.942	1.061
Gender	0.989	1.011

Results

The results of the three research questions, with regards to the hypothesis were generally confirmed.

Results of Ordinal Logistic Regression for the Association between Health Locus of Control and Self-evaluated Physical Health

RQ1 was as follows: "Is there an association between health locus of control (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)"? To answer this question, an ordinal logistic regression was conducted to assess the association between the dependent variable (self-evaluated physical health) and the independent variable (health locus of control-self) while controlling for race and gender. Where an association between the dependent variable and independent variable is favorable by improved outcomes, the assumption

hypothesized suggests that a greater presence of health locus of control-self resulted in a healthier level of self-evaluated physical health; this was observed. Results are provided in Table 7, below. Therefore, there is a predictive relationship between health locus of control and self-evaluated physical health. First, as per the results, the proportional odds assumption was met as evidenced by the non-significant test for parallel lines statistics (X^2 = 10.591, *df* = 9, *p* = 0.305). For proportional odds assumption to be met, *p* must be greater than 0.05 (UCLA Statistical Consulting Group, n.d.).

Table 7

Test for Parallel Lines for the Association between Health Locus of Control and Self-evaluated Physical Health

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	126.82			
General	116.229	10.591	9	0.305

[The null hypothesis states that the location parameters (slope coefficients) are the same across response categories, List the X^2= 10.591, *df* = 9, *p* = 0.305]

The first ordinal regression model that included self-evaluated health as the dependent variable and health locus of control as the independent variable, while controlling for race and gender, was statistically significant (X^2= 24.497, *df* = 3, *p* < 0.001, Table 8). Additionally, the model had a Nagelkerke pseudo *R* value of 0.143. As such, the model could explain 14.3% of all variation in self-evaluated physical health of people aged 65 or more.

Table 8

Model Fitting Information for the Association between Health Locus of Control and Self-evaluated Physical Health

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	151.317			
Final	126.82	24.497	3	<0.001
Nagelkerke R	0.143			

[List the X^2= 24.497, df = 3, p < 0.001, Nagelkerke pseudo R = 0.143]

As per the regression estimates, there are four threshold estimates. Threshold 1, using the dependent variable of self-evaluated physical health as a base, ranks between excellent and very good health, Threshold 2 ranks between very good and good, Threshold 3 ranks between good and fair, and Threshold 4 is between fair and poor. The defined thresholds, also known as cut-point, determines how close the variables are to the next level of the intervals and ranks (citation). Threshold 1 estimate was 2.247, while Threshold 2 estimate was 3.863, with Threshold 3 at 5.8, and lastly Threshold 4 at 7.273. For example, an increase in health locus of control by 0.766 by 3 units will yield 2.298, which is above Threshold 1, pushing the value from excellent and very good.

Table 9

Ordinal Regression Model Estimates for the Association between Health Locus of Control (Independent Variable) and Self-evaluated Physical Health (Dependent Variable)

		Estimate	Std. Error	Wald	*df*	Sig.
Threshold	[Self_Health = 1]	2.247	1.1	4.174	1	0.041
	[Self_Health = 2]	3.863	1.121	11.88	1	0.001
	[Self_Health = 3]	5.8	1.169	24.631	1	<0.001
	[Self_Health = 4]	7.273	1.207	36.333	1	<0.001
Location	Health_Locus	0.766	0.164	21.731	1	<0.001
	[Race_Group = 0]	0.09	0.479	0.036	1	0.85
	[Race_Group = 1]	0a	.	.	0	.
	[Gender = .00]	0.415	0.296	1.961	1	0.161
	[Gender = 1.00]	0a	.	.	0	.

[Model: Logit, dependent variable = self-evaluated health, independent variable = health locus of control, significance at 0.05]

Health locus of control was a statistically significant predictor of self-evaluated physical health ($\beta = 0.766$, $p < 0.001$). As such, for every unit increase in health locus of control, there is a predicted increase of 0.766 units in the log odds of a higher level of self-evaluated physical health (the lower the level, the healthier the outcome). Health locus of control was rated on a scale of 1 to 7 with 1 representing the highest level of health locus of control while 7 represented the lowest. Consequently, increasing health locus of control implies reducing its quantity. Similarly, self-evaluated physical health was coded such that 1 represented the most desirable category of health while 4

represented the least desirable. Therefore, a higher level of health locus of control results in more desirable perception of self-evaluated physical health. Thus, there is a positive association between self-reported physical health and health locus of control. Individuals who report higher levels of health locus of control are likely to exhibit higher levels of self-reported physical health. Conversely, individuals who report lower levels of health locus of control are likely to exhibit correspondingly lower levels of self-reported physical health.

However, race ($\beta = -0.09$, $p = 0.85$) and gender ($\beta = 0.415$, $p = 161$) were not statistically significant predictors of self-reported health. In this study, the reference categories for race and gender were non-White and male, respectively. In terms of gender, being male decreased the log odds of higher level self-evaluated health by -0.415 units as compared to being female. In essence, this result suggests that being male may increase the chance of higher quality of health.. However, this predicted association between gender and self-evaluated physical health is not statistically significant. Similarly, being non-White decreased the log odds of a higher level of self-evaluated health by 0.122 units as compared to being White. Findings for the first model indicate that, when controlling for race and gender, individuals with a higher health locus of control are more likely to exhibit a higher quality of health than individuals with a lower health locus of control. While ethnicity and gender may play a role in this relationship, this study did not find statistically significant evidence to support the two confounding variables. Because coding was completed such that higher values of self-evaluated physical health indicate poor self-reported physical health, while lower levels presented

favorable/healthier self-evaluated health, increasing the chances of falling in the lower levels implies increases in the quality of self-reported physical health. Simply, there is a favorable direction between health locus of control and self-evaluated physical health.

Results of Ordinal Logistics Regression for the Association between Family Support and Self-evaluated Physical Health

The second research question was the following: Is there an association between family support (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)? An ordinal logistic regression was conducted to assess the relationship between the dependent variable (self-evaluated physical health) and the independent variable (family support) while controlling for race and gender. Where an association between the dependent variable and independent variable is favorable by improved outcomes, the assumption hypothesized is that greater family support results in a healthier level of self-evaluated physical health; this was not observed. First, according to the results, the proportional odds assumption was met as evidenced by the statistical significance test for parallel lines; see table 10 below (X^2 = 7.563, df = 9, p = 0.579). As such, an ordinal regression analysis was deemed appropriate. For proportional odds assumption to be met, p must be greater than 0.05 (UCLA Statistical Consulting Group, n.d.).

Table 10

Test for Parallel Lines for Association between Family Support and Self-evaluated Physical Health

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Null Hypothesis	108.173			
General	100.61	7.563	9	0.579

The ordinal regression model for the association between self-reported physical health and family support was statistically insignificant as evident in the model of fit below, table 11 (X^2= 4.931, df = 3, p = 0.177). The model had a Nagelkerke pseudo R of 0.03, indicating it could explain only 3% of all variation in self-evaluated physical health.

Table 11

Model Fit Information for Association between Family Support and Self-evaluated Physical Health

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	113.104			
Final	108.173	4.931	3	0.177
Nagelkerke pseudo R	0.03			

Based on the regression estimates, there are four threshold estimates. Threshold 1, using the dependent variable of self-evaluated physical health as a base, ranks between excellent and very good health, threshold 2 is between very good and good, threshold 3 ranks between good and fair, and threshold 4 is between fair and poor. According to the

findings, when controlling for gender and race, there is no statistically significant association between family support and self-reported physical health ($\beta = 0.353$, $p = 0.068$). Similarly, there was no statistically significant association between either gender ($\beta = 0.301$, $p = 0.306$) or race ($\beta = 0.432$, $p = 0.354$) and self-evaluated physical health.

Table 12

Ordinal Regression Model Estimates for Association between Family Support and Self-evaluated Physical Health

		Estimate	Std. Error	Wald	df	Sig.
Threshold	[Self_Health = 1]	-1.21	0.814	2.211	1	0.137
	[Self_Health = 2]	0.271	0.801	0.114	1	0.735
	[Self_Health = 3]	2.058	0.817	6.34	1	0.012
	[Self_Health = 4]	3.475	0.852	16.632	1	<0.001
Location	Sup_Family	0.353	0.194	3.323	1	0.068
	[Race_Group = 0]	-0.432	0.466	0.858	1	0.354
	[Race_Group = 1]	0a	.	.	0	.
	[Gender = .00]	0.301	0.294	1.047	1	0.306
	[Gender = 1.00]	0a	.	.	0	.

Results of Ordinal Logistics Regression for the Association between Health Locus of Control, Family Support, and Self-evaluated Physical Health

An ordinal logistic regression was conducted to assess the relationship between health locus of control (independent variable), family support (independent variable), and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables). The assumption was that a higher presence of family support and health locus of control (while controlling for gender and race) results in a healthier level of self-evaluated physical health. First, based on the results, the proportional odds assumption was met as the non-significant test for parallel lines statistics illustrates (X^2= 11.409, df = 12, p = 0.494). For proportional odds assumption to be met, p must be greater than 0.05 (UCLA Statistical Consulting Group, n.d.).

Table 13

Test of Parallel Lines for the Association between Health Locus of Control and Family Support and Self-evaluated Physical Health

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	199.303			
General	187.894	11.409	12	0.494

The ordinal regression model was statistically significant (X^2= 25.617, p < 0.001; see table 14.

Table 14

Model Fit Information for the Association between Health Locus of Control and Family Support and Self-evaluated Physical Health

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	224.92			
Final	199.303	25.617	4	<0.001

According to the regression estimates, there are four threshold estimates; see Table 15. Threshold 1, using the dependent variable of self-evaluated physical health as a base, ranks between excellent and very good health, threshold 2 ranks between very good and good, threshold 3 ranks between good and fair, and threshold 4 is between fair and poor. Findings indicate only health locus of control is a statistically significant predictor of self-evaluated physical health ($\beta = 0.737$, $p < 0.001$). As such, for every 1 unit increase in health locus of control, there is a predicted increase of 0.737 in the log odds of having a higher level of self-evaluated physical health. As such, increasing health locus of control leads to a corresponding increase in the quality of self-evaluated physical health.

Table 15

Ordinal Regression Model Estimates for the Association between Health Locus of Control and Family Support and Self-evaluated Physical Health

		Estimate	Std. Error	Wald	df	Sig.
Threshold	[Self_Health = 1]	2.768	1.2	5.32	1	0.021
	[Self_Health = 2]	4.392	1.224	12.879	1	<0.001
	[Self_Health = 3]	6.335	1.271	24.829	1	<0.001
	[Self_Health = 4]	7.812	1.309	35.636	1	<0.001
Location	Sup_Family	0.21	0.2	1.103	1	0.294
	Health_Locus	0.737	0.167	19.386	1	<0.001
	[Race_Group = 0]	0.043	0.481	0.008	1	0.929
	[Race_Group = 1]	0a	.	.	0	.
	[Gender = .00]	0.421	0.297	2.004	1	0.157
	[Gender = 1.00]	0a	.	.	0	.

Summary

The purpose of this study was to determine the relationship between psychosocial factors (the independent variables, i.e., health locus of control and family support) and self-evaluated physical health (the dependent variable) while controlling for race and gender. Three separate ordinal regression models were analyzed. The results of the first model indicated a statistically significant association between health locus of control and self-evaluated physical health. In the second regression model, family support was not a statistically significant predictor of self-evaluated physical health. However, in the last

regression model, only health locus of control was a statistically significant predictor of self-evaluated health. In the next section on the research's application to professional practice and implication for social change, I reiterate the purpose and nature of the study. I also summarize my findings, explain how the findings add to the existing body of knowledge, interpret the findings in the context of the theory and framework, describe the limitations of the study, and make recommendations for further research.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

Research regarding older adults with COPD has found relationships between self-evaluation and physical, mental, and social health (Franssen et al., 2018). Specific to health locus of control and quality of life, Mostafavian et al. (2018) demonstrated a favorable relationship between these factors and chronic diseases (i.e., HIV). Swanson et al. (2018) found that social support (a precourser to family support) played an important role in the physical health of liver transplant patients, with Han and Yun (2015) supporting similar observations that family support improved successful aging. However, minimal research has been conducted on my specific study population of older adults with COPD, the psychosocial factors of health locus of control and family support, and the confounding variables of race and gender reviewed in my research. Therefore, my research used health locus of control and family support as independent variables and self-evaluated physical health as dependent variables, while controlling for race and gender. My filter for older adults was 65 years and older.

Health locus of control was defined as an individual's belief about how his/her health could be impacted by previous health experiences and how the level of internal or external control possessed by that individual plays a role in his/her health (Pourhoseinzadeh et al., 2017; see Appendix A for the operational definition of health locus of control). Family support was defined as the degree of emotional support provided by family members, including brothers, sisters, parents, and children (Horwitz et al., 2015; see Appendix B for the operational definition of family support). Race was

defined as an individual's self-identification of a social group, either White, Black/African American, Asian, American Indian and Alaska Native, Native Hawaiian and Other Pacific Islanders, or other races (United States Census Bureau, 2017; see Appendix C for the operational definition of race). In this study, race was categorized as White and non-White. Gender was defined as the attitudes, feelings, and behaviors that a given culture associates with a person's biological sex (APA, 2012; see Appendix D for the operational definition of gender label, frequency, and percentages)). Last, self-evaluated physical health was defined as the individual's perception of his/her overall health and wellness (see Appendix E for the operational definition of self-evaluated physical health and the scales of response).

I used ordinal logistic regression to analyze the data for 177 older adults categorized as having COPD. The following research questions were used to guide the study.

Research Question 1: Is there an association between health locus of control (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)? Health locus of control was a statistically significant predictor of self-evaluated physical health ($\beta = 0.766$, $p < 0.001$). However, race ($\beta = -0.09$, $p = 0.85$) and gender ($\beta = 0.415$, $p = 161$) were not statistically significant predictors of self-reported health. Findings regarding this research question indicate that when controlling for race and gender, individuals with a higher health locus of control are more likely to exhibit a higher quality of health than individuals with a lower health locus of control.

Research Question 2: Is there an association between family support (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)? As the findings reveal, when controlling for gender and race, there is no statistically significant association between family support and self-reported physical health ($\beta = 0.353$, $p = 0.068$). Therefore, when controlling for gender and race, there is no positive association between family support and self-evaluated physical health.

Research Question 3: Is there an association between health locus of control (independent variable), family support (independent variable), and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)? Findings suggest only health locus of control is a statistically significant predictor of self-evaluated physical health ($\beta = 0.737$, $p < 0.001$). Therefore, increasing health locus of control leads to a corresponding increase in the quality of self-evaluated physical health.

Interpretation of Findings

This section interprets the research findings considering professional practice and social change. I also address the existing relationships between the independent and dependent variables found in the literature with a prior understanding of that existing relationship. For RQ1, I focused on the association between health locus of control and self-evaluated physical health while controlling for race and gender. To answer RQ2, I investigated the association between family support and self-evaluated physical health while controlling for race and gender. Last, to answer RQ3, I examined the association

between health locus of control, family support, and self-evaluated physical health while controlling for race and gender. Prior literature findings suggest that health locus of control plays an integral role in self-evaluated physical health by associating in the same direction (Mostafavian et al., 2018). With this knowledge, I assumed that a higher (most present) level of health locus of control would equate to a higher perception of self-evaluated physical health. The results demonstrate that older adults with COPD who have a higher health locus of control are more likely to favorably self-evaluate their physical health.

To investigate the second research question, family support was the independent variable and self-evaluated physical health was the dependent variable. Although the proportional odds ratio assumption was met ($p = 0.579$ is statistically significant), the outcome had no statistical significance between the independent and dependent variables. Prior research indicates that family support plays a key role in self-evaluated health (Haemawichaiwat, 2018); however, my study, with statistically insignificant results, could not validate these findings.

The last research question suggests that health locus of control was statistically significant for self-evaluated physical health. However, family support was not statistically significant when both independent variables were assessed collectively while controlling for race and gender. There is limited research to compare the findings here on the collection of health locus of control and family support, hence the reason for this study. Therefore, health locus of control carries a greater weight than family support. The addition of race and gender as confounding variables presented a new perspective that

other researchers had not considered for the combination of health locus of control, family support, and self-evaluated physical health.

Limitations

Although the results supported my assumptions and expectations, it is valuable to identify limitations that ought to be improved upon in future research built from these findings. First, the study's data were secondarily sourced, which could create internal validity issues if the sources were not cognizant of data integrity. Second, the Global Initiative for Chronic Obstructive Lung Disease recommended (in its guidelines) that when using spirometry, symptoms, and frequency in exacerbations, an individual's severity should be determined and clearly presented (Safka et al., 2017). Although my study was representative of older adults with COPD, it failed to define the stage or severity of disease. Additionally, although the sample size was statistically significant, having an additional sample pool could benefit future researchers in determining several levels within the older adult population. Last, not comparing older adults with a developing population of COPD patients between the ages of 40 and 65 years old, specifically women, is a limitation (Ntritsos et al., 2018). Furthermore, the study had an absence of a third level of the social ecological model in the psychosocial factors (independent variables) assessed. With health locus of control and family support categorized as intrapersonal and interpersonal factors (respectively), an absent societal, cultural, or policy level factor is a limitation of the study.

Recommendations

As a result of the research findings, I have developed recommendations for future researchers and public health practitioners. First, researchers should include a severity score when defining COPD (Safka et al., 2017). An assessment of severity of each psychosocial factor (health locus of control and family support) could further enlighten practitioners on when (stage of disease) an intervention might best be implemented. Further research should also be conducted on women with COPD, considered this group is one of the fastest growing in North America (Ntritsos et al., 2018). In addition, each variable should be reviewed independently, assessing each Likert scale level as a differentiator with the considered confounding variables. Researchers should also consider assessing causality in the opposite direction by asking whether favorable self-evaluated physical health could yield a higher presence of health locus of control. One could also ask whether favorable self-evaluated physical health motivates older adults with COPD to seek family companionship and support. Last, researchers should consider integrating a cultural/societal/policy level factor into the study as an independent variable, just as an intrapersonal and an interpersonal factor (health locus of control and family support, respectively) were studied.

It is my recommendation for public health practitioners that programs designed to improve self-evaluated physical health in older adults with COPD include components that foster health locus of control. These programs can be designed as lunch-and-learn programs in nursing homes or as a part of a discharge planning protocol in acute care hospitals and, in some cases, pulmonary rehabilitation programs.

Implications for Professional Practice and Social Change

This study highlighted the relationship between psychosocial factors, particularly health locus of control and family support, and self-evaluated physical health. Specifically, the results suggest that health locus of control is a predictor of favorable self-evaluated physical health. The value of this research will be most appreciated by researchers intending further research on this study's variables. The results deliver an additional framework for a study on older adults with COPD.

Professionally, public health practitioners charged with developing evidence-based interventions can use this information to determine which psychosocial program to best focus on. Content created at the community level in nursing homes and other geographic locations prevalent with COPD patients will benefit from a review of these research results. Researchers who also have a desire to review how race and gender play integral roles in self-evaluated physical health could also use the results of this study.

Additionally, this research's social impact is greatest at the communal level when public health practitioners equipped with the result of the study develop programs that foster successful aging. Where older adults with COPD are met with interventions that improve health locus of control and family support (when applicable and supported with additional research), quality of life, through self-evaluated physical health measures, improves. Improved quality of care measures result in healthy and productive communities overall.

Conclusion

Poor physical health and the absence of successful aging in older adults with COPD was the health issue studied in this project. The study focused on assessing the association between specific psychosocial factors of health, particularly self-health locus of control and family support, with self-evaluated physical health (as a proxy for overall health and wellness) in older adults (defined as 65 years and older) with COPD. With the knowledge that self-perception of health provides similar outcomes to clinical assessment of health, the use of an existing dataset with MIDUS 3 met the intended need for assessing a directional relationship between the independent variables (health locus of control and family support) and the dependent variable (self-evaluated physical health). The study considered the existence of race (classified as Whites and Non-Whites) and gender (male and female) in interpreting the outcomes of the quantitative data analysis. Ordinal logistic regression was used to address the three research questions. The third section of this paper presented the results of the study, providing demographic information and tables to further describe the outcomes.

Study Findings and Problem Identified

With the problem identified as poor physical health in older adults with COPD, the research questions, and ensuing study addressed potential factors (health locus of control, family support, race, and gender) to reduce the problem. The results of the first research question analysis indicated a statistically significant association between health locus of control and self-evaluated physical health, validating that the presence of health locus of control improved self-evaluated physical health in the study population. In the

second regression model assessing the second research question, family support was not a statistically significant predictor of self-evaluated physical health. Furthermore, in the last regression model, when both health locus of control and family support were present, only health locus of control was a statistically significant predictor of self-evaluated health.

Study Findings and Social Change

My study suggests that identifying health locus of control, as a predictor of self-evaluated physical health, will improve quality of life and therefore successful aging for older adults with COPD. Health locus of control presents at the intrapersonal level, therefore impact individually is most impactful for social change. The use of the social ecological model validates the need for public health practitioners to develop programs addressing health locus of control at this intrapersonal factor. Social change will be observed when older adults with COPD are cared for with interventions based on this study. When health locus of control is prioritized, the quality of life of the older adults with COPD is expected to improve. The study also adds to the body of knowledge and literature by identify relationships between health locus of control and self-evaluated physical health, while controlling for race and gender.

Study Findings and Current Literature

The knowledge gained in this study adds to the current body of literature on COPD in older adults, as well as factors to improve quality of life in the said population. Future research could build on these findings, accounting for the limitations observed with considerations to the recommendations outlined in this study. Practitioners could

also implement interventions based on the findings tailored to the study population around health locus of control and family support to improve self-evaluated physical health, a proxy for assessing successful aging. The positive impact on social change is an added benefit to quality of life and productivity for older adults with COPD.

References

American Psychological Association. (2012). Guidelines for psychological practice with lesbian, gay, and bisexual clients. *American Psychologist, 67*(1), 10-42. https://doi.org/10.1037/a0024659

Assari, S. (2016). Gender differences in the predictive role of self-rated health on short-term risk of mortality among older adults. *SAGE open medicine, 4*, Article 2050312116666975. https://doi.org/10.1177/2050312116666975

Casale, M. (2014). The importance of family and community support for the health of HIV-affected populations in Southern Africa: What do we know and where to from here? *British Journal of Health Psychology*, *20*(1), 21-35. https://doi.org/10.1111/bjhp.12127

Centers for Disease Control and Prevention. (2018). *Chronic Obstructive Pulmonary Disease*. https://www.cdc.gov/copd/data.html

Cheng, C., Cheung, M. W. L., & Lo, B. C. (2016). Relationship of health locus of control with specific health behaviours and global health appraisal: A meta-analysis and effects of moderators. *Health Psychology Review*, *10*(4), 460-477.

Dang, D. N., Salamun, I., Vancauwenberge, H., Vanhaudenhuyse, A., Debatty, H., Corhay, J. L., & Louis, R. (2018). 2 days at the sea-side! Effects on anxiety and depression scores, Health Locus of Control (HLOC) and Patient's Global Impression of Change (PGIC) in COPD patients. *European Respiratory Journal*, *52*(Suppl. 62), Article PA4122.

DeSalvo, K. B., & Muntner, P. (2011). Discordance between physician and patient self-

rated health and all-cause mortality. *Ochsner Journal*, *11*(3), 232-240.

Elovainio, M., Heponiemi, T., Jokela, M., Hakulinen, C., Presseau, J., Aalto, A. M., & Kivimäki, M. (2015). Stressful work environment and wellbeing: What comes first?. *Journal of Occupational Health Psychology*, *20*(3), 289-300.

Fernández-García, S., Represas-Represas, C., Ruano-Raviña, A., Mouronte-Roibás, C., Botana-Rial, M., Ramos-Hernández, C., & Fernández-Villar, A. (2020). Social and clinical predictors of short- and long-term readmission after a severe exacerbation of COPD. *PloS One*, *15*(2), e0229257. https://doi.org/10.1371/journal.pone.0229257

Fertman, C. I., & Allensworth, D. D. (2010). *Health promotion programs: From theory to practice*. Jossey-Bass.

Franssen, F. M., Smid, D. E., Deeg, D. J., Huisman, M., Poppelaars, J., Wouters, E. F., & Spruit, M. A. (2018). The physical, mental, and social impact of COPD in a population-based sample: results from the Longitudinal Aging Study Amsterdam. *NPJ Primary Care Respiratory Medicine*, *28*(1), Article 30.

Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science, 2*(2), 156-168.

Garbarski, D., Dykema, J., Croes, K. D., & Edwards, D. F. (2017). How participants report their health status: cognitive interviews of self-rated health across race/ethnicity, gender, age, and educational attainment. *BMC public health*, *17*(1), Article 771.

Gilkes, A., Ashworth, M., Schofield, P., Harries, T. H., Durbaba, S., Weston, C., & White, P. (2016). Does COPD risk vary by ethnicity? A retrospective cross-sectional study. *International journal of chronic obstructive pulmonary disease*, *11*, 739-746.

Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Theory, research, and practice in health behavior and health education.* Jossey-Bass.

Graf, N., Brown, A., & Patten, E. (2018). *The narrowing, but persistent, gender gap in pay*. Pew Research Center. http://leametz.pbworks.com/f/Gender%20pay%20gap%20has%20narrowed%2C%20but%20changed%20little%20in%20past%20decade.pdf

Gregoriano, C., Dieterle, T., Breitenstein, A. L., Dürr, S., Baum, A., Maier, S., Arnet, I., Hersberger, K. E., & Leuppi, J. D. (2018). Use and inhalation technique of inhaled medication in patients with asthma and COPD: Data from a randomized controlled trial. *Respiratory Research*, *19*(1), Article 237.

Haemawichaiwat, R. (2018). Pulmonary rehabilitation and family support program to improve quality of life among COPD patients. *Lampang Medical Journal 30*(1), 9-17.

Han, S., & Yun, S. N. (2015). Successful aging and the influencing factors in the Korean elderly: focused on family support. *Journal of Korean Academy of Community Health Nursing*, *26*(4), 372-379.

Horwitz, B. N., Reynolds, C. A., & Charles, S. T. (2015). Understanding associations among family support, friend support, and psychological distress. *Personal*

Relationships, *22*(1), 79-91.

Kacmarek, R. M., Stoller, J. K., & Heuer, A. (2019). *Egan's fundamentals of respiratory care e-book.* Elsevier Health Sciences.

Kassianos, A. P., Symeou, M., & Ioannou, M. (2016). The health locus of control concept: Factorial structure, psychometric properties and form equivalence of the Multidimensional Health Locus of Control scales. *Health Psychology Open*, *3*(2), Article 2055102916676211.

Kershaw, T., Ellis, K. R., Yoon, H., Schafenacker, A., Katapodi, M., & Northouse, L. (2015). The interdependence of advanced cancer patients' and their family caregivers' mental health, physical health, and self-efficacy over time. *Annals of Behavioral Medicine*, *49*(6), 901-911.

Kim, J. H. (2019). Multicollinearity and misleading statistical results. *Korean Journal of Anesthesiology*, *72*(6), 558-569. https://dx.doi.org/10.4097%2Fkja.19087

Lamb, S., Robbins-Ruszkowski, J., Corwin, A., Calasanti, T., & King, N. (2017). *Successful aging as a contemporary obsession: Global perspectives*. Rutgers University Press.

Lareau, S., Moseson, E., & Slatore, C. G. (2018). Exacerbation of COPD. *American Journal of Respiratory and Critical Care Medicine*, *198*(11), 21-22.

Lee, J. E., Kahana, B., & Kahana, E. (2017). Successful aging from the viewpoint of older adults: Development of a brief Successful Aging Inventory (SAI). *Gerontology*, *63*(4), 359-371.

Mamary, A. J., Stewart, J. I., Kinney, G. L., Hokanson, J. E., Shenoy, K., Dransfield, M.

T., Foreman, M. G., Vance, G. B., Criner, G. J., & COPDGene® Investigators (2018). Race and Gender Disparities are Evident in COPD Underdiagnoses Across all Severities of Measured Airflow Obstruction. *Chronic obstructive pulmonary diseases (Miami, Fla.), 5*(3), 177–184. https://doi.org/10.15326/jcopdf.5.3.2017.0145

Menkin, J. A., Guan, S.-S. A., Araiza, D., Reyes, C. E., Trejo, L., Choi, S. E., Willis, P., Kotick, J., Jimenez, E., Ma, S., McCreath, H. E., Chang, E., Witarama, T., & Sarkisian, C. A. (2017). Racial/ethnic differences in expectations regarding aging among older adults. *Gerontologist, 57*(Suppl. 2), 138-148.

Mercer, D. A., Ditto, B., Lavoie, K. L., Campbell, T., Arsenault, A., & Bacon, S. L. (2018). Health locus of control is associated with physical activity and other health behaviors in cardiac patients. *Journal of Cardiopulmonary Rehabilitation and Prevention, 38*(6), 394-399.

Moreno, X., Albala, C., Lera, L., Sánchez, H., Fuentes-García, A., & Dangour, A. D. (2017). The role of gender in the association between self-rated health and mortality among older adults in Santiago, Chile: A cohort study. *PloS One, 12*(7), Article e0181317.

Morrissey, J. L., Janz, K. F., Letuchy, E. M., Francis, S. L., & Levy, S. M. (2015). The effect of family and friend support on physical activity through adolescence: A longitudinal study. *International Journal of Behavioral Nutrition and Physical Activity, 12*(1), Article 103.

Mostafavian, Z., Shaye, Z. A., Pour, A. F., & Hosseini, G. (2018). The data on health

locus of control and its relationship with quality of life in HIV-positive patients. *Data in Brief, 18,* 1967-1971.

Nastars, D. R., Rojas, J. D., Ottenbacher, K. J., & Graham, J. E. (2019). Race/ethnicity and 30-day readmission rates in Medicare beneficiaries with COPD. *Respiratory Care, 64*(8), 931-936.

National Health Interview Survey. (2018). *Summary Health Statistics Tables for U.S. Adults*. https://ftp.cdc.gov/pub/Health_Statistics/NCHS/NHIS/SHS/2018_SHS_Table_A-2.pdf

Ntritsos, G., Franek, J., Belbasis, L., Christou, M. A., Markozannes, G., Altman, P., Fogel, R., Sayre, T., Ntzani, E. E., & Evangelou, E. (2018). Gender-specific estimates of COPD prevalence: A systematic review and meta-analysis. *International Journal of Chronic Obstructive Pulmonary Disease, 13*, 1507-1514. https://doi.org/10.2147/COPD.S146390

Ohrnberger, J., Fichera, E., & Sutton, M. (2017). The relationship between physical and mental health: A mediation analysis. *Social Science & Medicine, 195*, 42-49.

Padilla, M., Olofsson, P., Stehman, S. V., Tansey, K., & Chuvieco, E. (2017). Stratification and sample allocation for reference burned area data. *Remote Sensing of Environment, 203*, 240-255.

Pössel, P., Burton, S. M., Cauley, B., Sawyer, M. G., Spence, S. H., & Sheffield, J. (2018). Associations between social support from family, friends, and teachers and depressive symptoms in adolescents. *Journal of Youth and Adolescence,*

47(2), 398-412.

Pourhoseinzadeh, M., Gheibizadeh, M., & Moradikalboland, M. (2017). The relationship between health locus of control and health behaviors in emergency medicine personnel. *International Journal of Community Based Nursing and Midwifery, 5*(4), 397-407.

Priest, J. B., & Woods, S. B. (2015). The role of close relationships in the mental and physical health of Latino Americans. *Family Relations, 64*(2), 319-331.

Ryff, C., Almeida, D., Ayanian, J., Binkley, N., Carr, D., Coe, C., & Williams, D. (2019). *Midlife Development in the United States (MIDUS III), 2013-2014* [Data set]. Interuniversity Consortium for Political and Social Research. https://www.icpsr.umich.edu/web/NACDA/studies/36346/versions/V7

Safka, K. A., Wald, J., Wang, H., McIvor, L., & McIvor, A. (2017). GOLD stage and treatment in COPD: a 500 patient point prevalence study. *Chronic Obstructive Pulmonary Diseases: Journal of the COPD Foundation, 4*(1), 45-55. http://doi.org/10.15326/jcopdf.4.1.2016.0126

Salkind, N. J., & Frey, B. B. (2019*). Statistics for people who (think they) hate statistics*. Sage.

Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science, 8*(4), 379-386.

Setia M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *Indian Journal of Dermatology, 61*(3), 261-264.

https://doi.org/10.4103/0019-5154.182410

Shirvani, N. J., Ghaffari, F., Fotokian, Z., & Monadi, M. (2020). Association Between Perceived Family Social Support and Self-care Behaviors in Elders with Chronic Obstructive Pulmonary Disease (COPD): A Medical Center-based Study from Iran. *The Open Nursing Journal, 14(1).*

Swanson, A., Geller, J., DeMartini, K., Fernandez, A., & Fehon, D. (2018). Active coping and perceived social support mediate the relationship between physical health and resilience in liver transplant candidates. *Journal of Clinical Psychology in Medical Settings, 25*(4), 485-496.

UCLA Statistical Consulting Group. (n.d.). *Ordered logistic regression.* https://stats.idre.ucla.edu/spss/output/ordered-logistic-regression/

United States Census Bureau. (2010). *Quick facts, United States*. https://www.census.gov/quickfacts/fact/table/US/PST045218

United States Census Bureau. (2017). *Race & ethnicity*. https://www.census.gov/mso/www/training/pdf/race-ethnicity-onepager.pdf

United States Census Bureau. (2019). *Population estimates show aging across race groups differs.*https://www.census.gov/newsroom/press-releases/2019/estimates-characteristics.html

Vagheggini, G., Moretti, F., Cianchi, V., Berrighi, D., Zito, A., Gallinari, D., Di Paco, A., & Ambrosino, N. (2016). Health locus of control in pulmonary rehabilitation (P.R.) of severe COPD patients. *European Respiratory Journal, 48*(Suppl. 60), Article PA679.

World Health Organization. (n.d.). *Chronic respiratory diseases.* https://www.who.int/respiratory/copd/definition/en/

World Health Organization. (2011). *Global health and aging.* https://www.who.int/ageing/publications/global_health.pdf

Zajacova, A., Huzurbazar, S., & Todd, M. (2017). Gender and the structure of self-rated health across the adult life span. *Social Science & Medicine*, *187*, 58-66.

Zhang, A., & Jang, Y. (2017). The role of internal health locus of control in relation to self-rated health in older adults. *Journal of Gerontological Social Work*, *60*(1), 68-78.

Zysman, M., Burgel, P. R., Brinchault-Rabin, G., Nesme-Meyer, P., Surpas, P., Deslée, G., Perez, T., Le Rouzic, O., Jebrak, G., Chanez, P., Paillasseur, J.-L., & Caillaud D. (2019). Relationship between gender and survival in a real-life cohort of patients with COPD. *Respiratory research, 20*(1), Article 191.

Appendix A: Health Locus of Control

HEALTH LOCUS OF CONTROL

Scales/Items:

Health Locus of Control - Self [C1SHLOCS]:

Items: 4 items – Self-Administered Questionnaire, Section A, Question 8 (a - d)

a. "Keeping healthy depends on things that I can do"

b. "There are certain things I can do for myself to reduce the risk of a heart attack"

c. "There are certain things I can do for myself to reduce the risk of getting cancer"

d. "I work hard at trying to stay healthy"

Coding: 1 Strongly agree; 2 Somewhat agree; 3 A little Agree; 4 Neither agree or disagree; 5 A little disagree; 6 Somewhat disagree; 7 Strongly disagree.

Scaling: Scales are constructed by calculating the **mean** across each set of items. Items were recoded so that higher scores reflect higher levels of positive/negative affect.

Missing Values: The scales are computed for cases that have valid values for **at least one** item on the particular scale. The scale scores are not calculated for cases with no valid item for the scales, and coded as "8" for "NOT CALCULATED (Due to missing data)".

Psychometrics:

Health Locus of Control – Self [C1SHLOCS]

Sample (N)	Alpha	Mean	Std. dev
2903	.645	6.052	.752

Appendix B: Family Support

FAMILY SUPPORT AND STRAIN

Scales/Items:

Family Support [C1SKINPO]:

Items: 4 items – Self-Administered Questionnaire, Section J, Question 4 (a - d)

(Thinking about the members of your family, not including your spouse/partner, how much)

a. "do they care about you?"

b. "do they understand the way you feel about things?"

c. "can you rely on them for help if you have a serious problem?"

d. "can you open up to them if you need to talk about your worries?"

Coding: 1 A lot; 2 Some; 3 A little; 4 Not at all.

Scaling: Scales are constructed by calculating the **mean** of the values of the items in each scale. Items were reverse-coded so that high scores reflect higher standing in the scale.

Missing Values: The scales are computed for cases that have valid values for **at least one** item on the particular scale. Scores are not calculated for cases with no valid item on the scales, and coded as "8" for "NOT CALCULATED (Due to missing data)".

Psychometrics:

Family Support [C1SKINPO]:

Sample (N)	Alpha	Mean	Std. dev
2873	.836	3.504	.588

Appendix C: Racial Origin

F7.

[C1PF7A] What are your main racial origins -- that is, what race or races are your parents, grandparents, and other ancestors?

INTERVIEWER: ENTER ALL THAT APPLY.

A. WHITE
B. BLACK AND/OR AFRICAN AMERICAN
C. NATIVE AMERICAN OR ALASKA NATIVE ALEUTIAN ISLANDER/ESKIMO
D. ASIAN
E. NATIVE HAWAIIAN OR PACIFIC ISLANDER
F. OTHER (PLEASE SPECIFY: _____)
7. DON'T KNOW/NOT SURE
8. REFUSED [GO TO F9]

Appendix D: Gender

B1PGENDER: Gender

Value	Label	Unweighted Frequency	%
1	MALE	3412	48.0 %
2	FEMALE	3651	51.4 %

Appendix E: Self Evaluated Physical Health

SECTION A: HEALTH

A1.
[C1PA1] Now I would like to ask you about your health. In general, would you say your PHYSICAL HEALTH is excellent, very good, good, fair, or poor?

INTERVIEWER: IF R SAYS "I'm not a doctor...", PROBE: "What do YOU think?"

1. EXCELLENT
2. VERY GOOD
3. GOOD
4. FAIR
5. POOR
7. DON'T KNOW
8. REFUSED

Appendix F: Data Determination Table

Problem Statement: My research focused on the poor physical health (self-evaluated) of older adults with Chronic obstructive pulmonary disease (COPD), with the assumption that the presence of health locus of control and family support could improve the outcome measure. Confounding variables include race and gender, and were factored into the assessment of the independent variables and dependent variable.					
Research Questions and Hypotheses	**Information Needed**	**Data Requirements**			
		What data do I Need?	**Where do the Data Reside?**	**How Can I Get the Data?**	**What do I do with the data?**
Is there an association between health locus of control (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?	Questionnaire results of survey on all variables discussed in RQ1	Raw Data of Self-Administered Questionnaire (SAQ) in SPSS data format for analysis	MIDUS 3 dataset	Extract from database/ dataset	Ordinal logistic regression
Is there an association between family support (independent variable) and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?	Questionnaire results of survey on all variables discussed in RQ2	Raw Data of Self-Administered Questionnaire (SAQ) in SPSS data format for analysis	MIDUS 3 dataset	Extract from database/ dataset	Ordinal logistic regression
Is there an association between health locus of control (independent variable), family support (independent variable), and self-evaluated physical health (dependent variable) in older adult (65 years and older) COPD patients after adjusting for race and gender (confounding variables)?	Questionnaire results of survey on all variables discussed in RQ3	Raw Data of Self-Administered Questionnaire (SAQ) in SPSS data format for analysis	MIDUS 3 dataset	Extract from database/ dataset	Ordinal logistic regression