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Prevalence Of Chronic Disease, Associated Factors, And Health Related Quality Of Life Among Wesleyan Clergy

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Prevalence of Chronic Disease, Associated Factors, and Health Related Quality of Life Among Wesleyan Clergy

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Angi May Mook

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Doctorate of Health Sciences — 2015-present
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University of Pittsburgh, School of Education — Pittsburgh, PA
Master of Science in Health and Physical Activity — 2013
Major: Health and Fitness (Research Track)

Indiana Wesleyan University — Marion, IN
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Majors: Liberal Arts Education, Exercise Science

ACADEMIC EXPERIENCE

Indiana State University — Terra Haute, IN
Graduate Coordinator — 2016-2018

Indiana State University — Terra Haute, IN
Graduate Instructor — 2015-2018

Taylor University — Upland, IN
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University of Pittsburgh — Pittsburgh, PA
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PHE 170 – Introduction to Exercise Science (Theory; 3 credits)
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PHE 379 – Principles of Fitness Assessment (Theory/Lab; 3 credits)
PHE 485 – Senior Research Seminar (Theory; 2 credits)

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Indiana State University — Terra Haute, IN
Graduate Instructor — 2015-2018
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- Multiple sections during both fall and spring semesters
- In-person and distance learning sections with 40 undergraduate students

Taylor University — Upland, IN
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PHP 100 – Fitness for Life (Theory; 2 credits)
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University of Pittsburgh — Pittsburgh, PA
Teaching Assistant — Spring 2013
HPA 1042 – Physiology of Exercise (Theory/Lab; 3 credits)
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Indiana Wesleyan University — Marion, IN
Lab Teaching Assistant — Fall 2010
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CLINICAL EXPERIENCE

NuStart Health — Wabash, IN
Health Coach — Spring 2014-2015
- Advised patients on nutritional principles, dietary plan and diet modifications, and food selection and preparation;
- Consulted with an interdisciplinary team (family physician and health care personnel) to determine nutritional needs and diet restrictions of patient or client;
- Developed and coordinated one-on-one, evidence-based counseling sessions, covering nutritional education, physical activity, and stress management; and
- Provided disease specific dietary plans for individuals with diabetes, depression, and celiac disease.

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Midwest Eye Consultants Marion, IN
Optometry Technician and Physician Scribe Spring 2012

- Prepared/cleaned treatment rooms for patient examinations;
- Interviewed patients to obtain medical information and preform preliminary eye examinations. Tests included: Visual Acuities, Visual Fields, Color Blindness, Depth Perception, Confrontation Fields, Pupil Dilation;
- Maintained patient records; and
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OTHER EXPERIENCES

Indiana State University Terra Haute, IN
Graduate Assistant Coordinator, Applied Health Science 2017- present

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- Set assistantship standards and goals and help establish policies, procedures, and programs to carry them out;
- Responsible for organizing a variety of activities such as orientations, supervision, management, and the development of graduate assistants as appropriate to the program;
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- Recruited, reviewed, and interviewed all graduate assistant applications in the hiring process of future graduate assistants.

Eastbrook High School Marion, IN
Assistant Coach, Track & Field Spring 2012 & 2013

- Responsible for developing the high school distance running program; and
- Planned and directed physical conditioning practice sessions that enabled athletes to achieved maximum performance.

University of Pittsburgh Health and Fitness Center Pittsburgh, PA
Facility Supervisor 2012 – 2013

- Responsible for assisting members with personal fitness goals;
- Provided individual support and counseling for physical fitness;
- Responsible for daily operations of recreation facilities; and
- Promoted a healthy and welcoming environment within the facility.

Indiana Wesleyan University Recreation and Wellness Center Marion, IN
Facility Supervisor & Weight Room Monitor 2009 – 2011

- Designed and promoted a 12-week half-marathon training program;
- Assisted members with personal fitness goals;
- Provided workout plans and instructional advice; and
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RESEARCH/SCHOLARLY ENDEAVORS

Completed Research

- Nagle, E., Wolgemuth, A. (2012). *Gender Specific Perceived Affect Valence During Exercise*. University of Pittsburgh, School of Education: Health and Physical Activity. Completed as partial fulfillment of Master's Degree Thesis. IRB approval.
- Nagle, E., Wolgemuth, A. (2012). *Validating an underwater running protocol for measuring maximal oxygen consumption.* University of Pittsburgh, School of Education: Health and Physical Activity. Completed as partial fulfillment of Master's Degree Thesis. IRB approval.
- Jakicic, J., Wolgemuth, A. (2012). *Validating SenseWear's ability to accurately assess energy expenditure through indirect calorimetry*. Volunteer Research Assistant, University of Pittsburgh, School of Education: Health and Physical Activity.
- Wolgemuth, A. (2011). *"The Validity of Power Balance Bracelets."* Non-Funded Research. Completed as partial fulfillment of Baccalaureate degree requirements. IRB Approval.

Conference Presentations

- Ayodele, O., Angi, M., & Atakora, A. (2017). Assessment of sexting prevalence and attitudes among a cohort of college students: An exploratory study. Paper (Oral)) presented at the American Public Health Association (APHA) 145th Annual Meeting & Exposition, Nov.4-8, 2017. Atlanta, GA.
- Ayodele, O., Atakora, A., & Angi, M. (2018). Exposure to marketing, knowledge of e-cigarette constituents and regulations among a cohort of college students. Abstract (Oral) presented at the American Public Health Association (APHA) 146th Annual Meeting & Exposition, Nov. 10-11, 2018. San Diego, California.
- Wolgemuth, A.M. (2011, spring). Celebration of Scholarship, Indiana Wesleyan University, Indiana. Poster presentation. "Validity of Power Balance Bracelets."

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INTERNSHIPS

Indiana Wesleyan University, Track & Field — Marion, IN
Head Coaching Intern — Fall 2012

- Assisted in created macro and micro training cycles;
- Researched and implemented new training methods; and
- Conducted a training needs analysis of elite female distance runners.

Carmichael Training Systems — Colorado Springs, CO
Endurance Coaching Intern — Summer 2010

- Trained with Lance Armstrong's Coach, Chris Carmichael, and studied his coaching methodology.

GRANTS AND AWARDS

Midwestern Association of Graduate School's Excellence in Teaching Award — 2018
Indiana State University Representative, *Nominated*

Indiana State University - Full Teaching Assistantship — 2015-2018
Awarded

Indiana State University - Outstanding Graduate Assistant Award — 2015 & 2016
Awarded

University of Pittsburgh - Full Teaching Assistantship — 2012-2013
Awarded

Indiana Wesleyan University - Jack and Marge Colescott Athletic Scholarship — 2009
Scholarship for Athletic Achievement at the National Level, *Awarded*

Indiana Wesleyan University - Track and Field Athletic Scholarship — 2007-2012
Awarded

ACCOMPLISHMENTS & RECOGNITION

- 2007-2011, Varsity Athlete, Indiana Wesleyan University: Cross Country and Track & Field
- Participated in NAIA Nationals 2009, 2010, & 2011 in Track & Field and 2011 in Cross Country
- Two-time NAIA All-American, Track & Field Women's 4X800
- 2011 All-Conference: Leading Female Scorer
- Team Leader for Indiana Wesleyan University Women's Track & Field Team Responsibilities included: Organizing team activities, events, and community service projects; mentoring new team members; role-modeling a team mentality, leading group stretching; creating and implementing a lifting program.

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COMMUNITY ENGAGEMENT & INITIATIVES

Community Level

Air Force 113th ASOS Injury Prevention Workshop — Vigo County, IN
Athletico Physical Therapy — 2018

- Provided a complimentary injury prevention workshop to the 113th Air Support Operations Squadron (ASOS). Injury screens were completed with a physical therapist to provide an estimate of overall risk of injury within the 113th squadron. Functional Movement Screens (FMS) and a gait analysis were conducted on each tactical athlete to identify common dysfunctional or performance limiting movement patterns. Preventative exercises, specific to the ASOS's tactical requirements, were prescribed to reduce overall incidence of injury.

Trained in Terre Haute (TNT) — Vigo County, IN
Yoga and Flexibility Class Instructor — 2018

- Partnered with a local running club to provide free yoga and flexibility classes to compliment the half marathon-training program, assisting 300+ individuals in training for the Indianapolis Half- Marathon.

Common Grounds — Vigo County, IN
Community Health Workshop Leader — 2015-2016

- Partnered with a local fitness studio, Common Grounds, to create and implement health and nutrition workshops for the community.

World Power Radio — Vigo County, IN
Guest Speaker — 2015

- Discussed nutrition habits and healthy eating strategies at home, restaurants, and the grocery store.

University Level

Northwestern College, Dept. of Nursing — St. Paul, MN
Guest Lecturer — 2015

- Flourishing in Nursing, Health Strategies for the Caregiver.

Simply Well — Terre Haute, IN
Guest Columnist — 2016

- Published column titled: Healthy Recipe: Coleslaw with Avocado for program's employee newsletter. Rose Hulman Technical Institute

National Level

Paige Smather's Nutrition Matters Podcast — 2017
Guest speaker

- Discussed the challenges and barriers to being healthy in college and provided practical tips to college students to effect healthy change in their health

COMMITTEE MEMBERS

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ABSTRACT

Clergy believe they have been called to be healthy and role models of good health. However, epidemiological evidence supports that clergy are currently exhibiting higher rates of chronic diseases and associated factors such as obesity, diabetes, and hypertension compared to the general population. Prior studies of clergy's health are limited because the few available studies are denomination specific, limiting generalizability to the other denominations who have differing theology and beliefs. The Wesleyan denomination has not been formally studied. The gap in literature, therefore, creates a need for baseline information specific to the Wesleyan clergy. This cross-sectional study assessed the prevalence of chronic diseases, associated factors, and health-related quality of life (HRQOL) among a sample (n=301) of Wesleyan clergy using the Wilson-Cleary Model of Health-Related Quality of Life as theoretical framework. Descriptive statistics were used to characterize the study sample. Prevalence rates were calculated for the chronic diseases examined, while Chi-square analysis assessed the associations between disease prevalence and associated factors. Mann-Whitney U test assessed urban-rural difference in Wesleyan clergy HRQOL, and differences between the HRQOL's categories by number of diseases. Majority (80%) of the clergy reported being overweight or obese but did not report higher rates of chronic disease normally associated when compared to the general population. There were significant associations between factors such as overweight/obesity, hypertension, or high cholesterol and the prevalence of chronic diseases (diabetes, pre-diabetes,

CHD, heart attack, stroke, depression, arthritis, skin cancer, other cancer. Clergy living in rural settings exhibited lower scores in all domains of HRQOL when compared to those living in urban settings, and those having one or more chronic diseases had lower HRQOL measures. These study findings suggest an urgent need to create targeted health interventions for Wesleyan clergy in order to improve their overall health status and boost retention of clergy in the Wesleyan Church.

PREFACE

This work was inspired by an ordained pastor serving in ministry. I would like to dedicate this dissertation to my brother, R.J. Wolgemuth. If I can write a dissertation, you can adopt the habit of exercise. “And let us run with endurance the race God has set before us.” Hebrews 12:1

ACKNOWLEDGMENTS

This dissertation would have not been possible without the support of numerous individuals. I am deeply grateful to my husband and his unwavering support during this doctoral journey. He was the rock that kept me grounded when I often wanted to walk away. His believe in my capabilities and his convictions in my talents were instrumental to finishing my research and writing this dissertation. Thank you for being my sugar daddy for the past years. I love you more than I can ever say.

I am grateful to all of those with whom I have had the pleasure of working with during this process. Each of the members of my dissertation committee has provided me extensive personal and professional guidance and taught me a great deal about scientific research. I would especially like to thank Dr. Olabode Ayodele, the chairman of my committee. As my teacher and mentor, he has taught me more than I could ever give him credit for here. His wisdom has guided me through every step of the dissertation process. As a result of our years together, I know what it looks like to live out one's faith in academia. Thank you for always role modeling integrity, respect, humility, diligence, and patience.

I wish to thank my sister, Christi Wolgemuth. She took the time to understand the details of my work in order to listen and better empathize during my long rants. She walked alongside of me during this whole process and for that I deeply grateful.

I could write a whole book on the individuals who played a pivotal role in my dissertation success. The following attempts to recognize those individuals while maintaining brevity.

Ginger Wolgemuth – Thank you for paving the way. I followed in your path.

Kathryn Berlin – Thank you for providing standards of excellence and enriching my years in the department.

Kelsey Terry – Thank you for holding space for me over the years. The studio was a place I could go to gain perspective, renewing my mind and body. The work you do matters and has a ripple effect greater than you will ever know. Namaste.

Danielle Jena – Thank you for letting me heal through laughter and physical therapy modalities.

Garth Mook – The living proof that intelligence cannot be defined by degree attainment. Thank you for the ongoing support and prayers.

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CHAPTER 1

INTRODUCTION

Background of the Problem

Clergy are key leaders who are embedded in community environments and denominational systems. The clergy represents an important and influential population because of the trusting relationships formed between clergy and their congregants. Due to this unique relationship, members of the clergy are in advantage position to affect millions on a daily basis. It is estimated that clergy serve 339,000 churches, reaching approximately 152 million congregants, approximating over half of the US population (Proeschold-Bell & LeGrand, 2012).

Clergy's ministerial duties include prayer, worship, and preaching, as well as ministering to the sick and performing wedding and funeral services. Additionally, clergy are responsible for administrative activities, mentoring, counseling, and acting as community liaisons (Carroll & McMillan, 2006). Similar to firefighters and emergency medical responders, clergy are "on call," responding to congregants' crises, family deaths, and mental health issues. This immediate, "on call" nature makes the clergy profession unpredictable and busy. Clergy also serve as community leaders in a highly-visible role, which limits their personal privacy (Rae Jean Proeschold-Bell et al., 2011). As community leaders, clergy are often viewed as role models worthy of emulating. Therefore, the health and well-being of clergy can inherently trigger a ripple effect on the health and well-being of the entire congregation (Cunningham, 2014). Healthy clergy help cultivate healthy churches that develop healthy communities (Luchetti, 2014). For example, studies have

demonstrated that clergy offer advice and guidance regarding health issues to their congregants with chronic diseases (Rivera-Hernandez, 2015).

Clergy members have demanding and complex jobs; therefore, they need to make a commitment to balance the demands of work and personal life and to demonstrate healthy lifestyles.

Despite the unique responsibilities of clergy and the aforementioned vocational challenges, the health of clergy has been understudied (Rae Jean Proeschold-Bell & LeGrand, 2012). Evidence of stress and burnout resulting in members of clergy leaving the ministry is on the rise. Prevalence of vocational stress has been attributed to decreased engagement in healthy behaviors with a self-reported negative impact on health (Rae Jean Proeschold-Bell et al., 2011). For example, clergy reported a decreased ability to set personal boundaries and protect personal time. Qualitative interviews of United Methodist clergy suggest that allocating time to exercise or eating healthy can be perceived as a selfish act due to their service-minded orientation (Rae Jean Proeschold-Bell et al., 2011). Historically, clergy have been the picture of health and at one time were thought to be some of the healthiest people in the world as they lived longer than non-clergy counter parts (Proeschold-Bell, 2012). This observed longevity was attributed to good health behaviors such as increased physical activity, mediation, abstaining from fatty foods and alcohol, fewer accidents, and fewer cases of syphilis (Flannelly, Weaver, Larson, & Koenig, 2002). Currently, this is no longer the case as clergy have started suffering from diabetes, arthritis, asthma, health disease, and other chronic conditions at rates higher than the general population (Proeschold-Bell & Byassee, 2018).

The picture of health in the United States has changed significantly over recent decades. Chronic disease is the leading cause of death and disability in the United States (Centers for Disease Control and Prevention [CDC], 2017a). Chronic disease and associated factors such as heart disease, cancer, diabetes, depression, arthritis, and obesity are preventable health problems but have been increasing in prevalence. Approximately half of adults in the US have at least one chronic disease, and one in four adults has two or more (CDC, 2017b). Heart disease and cancer together accounted for almost half (46%) of deaths in 2014 (CDC, 2017a). Currently, one-third of adults are obese, which condition is associated with reduced quality of life and other diseases such as diabetes, heart disease, stroke, and cancer (CDC, 2017b).

Evidence supports that clergy are experiencing high rates of chronic disease, possibly higher rates than the general population (Center for Health Wespath Benefits and Investment, 2017). For example, findings from a survey of United Methodist Clergy conducted in 2017 showed that 43% of United Methodist clergymen were obese, 20% had high blood pressure, and 12% had diabetes. Although more than half of United Methodist clergy reported overall health as "good" or "excellent," the reported disease rates are much higher than the general population (Center for Health Wespath Benefits and Investment, 2017). In view of these findings and the unique vocational demands of the clergy, there is the need to assess the prevalence of chronic diseases, associated factors and implications for their health-related quality of life (HRQOL).

The majority of studies that have assessed chronic disease and HRQOL have focused on the Methodist church. To the best of the researcher's knowledge, there is no study that has assessed other, bigger denominations than the Methodist. The Wesleyan denomination is an example of one such understudied population. The Wesleyan church is a Holiness Protestant Christian denomination rooted in the teachings of John Wesley. While there are similarities

between the Methodist church and the Wesleyan church, there are also differences. Since beliefs influence attitudes, it is important to study other denominations differing in beliefs. Further, individual denominations differing in organizational structure must also be studied separately as policy, practices, and day-to-day operations of the Wesleyan church is an influencing factor on the Clergy health behaviors.

The Wesleyan church differs from the Methodist church in doctrinal beliefs and has a different organizational structure. Both United Methodists and Wesleyans accept the basic tenants of Christianity, including the Virgin Birth, the Trinity, the divine and human natures of Christ, Christ's death and resurrection, and the second coming (Allen, n.d.). They accept Protestant ideas about the role of faith alone in salvation and emphasize God's grace in the lives of human beings. Both groups also carry on John Wesley's message that Christians should strive daily to live a holy life that's pleasing to God. Both found their beliefs on the Bible but understand those beliefs through the lenses of reason, tradition, and experience (Allen, n.d.).

Yet each has some distinct beliefs as well. Wesleyans believe the Bible is inerrant in its original manuscripts, while Methodists believe it's enough to say the Bible is God's word and authoritative in the church. Wesleyans teach Wesley's doctrine that Christians can experience a second "work of grace" after conversion, often referred to as entire sanctification. This sanctification enables believers to live a holy life free from sin. Methodists don't include this experience as a necessary or normal part of their doctrinal system, although many individual Methodists do accept it.

The organizational structure of the Methodist Church differs from that of the Wesleyan church. The Methodist Church has several layers of governance and organization. Local churches are grouped geographically into districts; districts are organized into conferences,

which are overseen by Bishops. Bishops oversee many day-to-day aspects of the church's activities. Therefore, Bishops within the Methodist church absorb a significant amount of responsibility, allowing the Clergy to spend more time and energy on other vocational tasks (Allen, n.d.). The Wesleyan denomination is similar in that the local churches are grouped geographically into districts. Each district is overseen by the district superintendent, who, in comparison to the Methodist Church, deals less with day-today aspects of the local church (Allen, n.d.). More responsibility is given to the individual Wesleyan clergyman, who in general has less support staff working within the church. The difference in church organization differs between the Methodist and Wesleyan denominations and suggests that there is an increased vocational demand placed on the Wesleyan clergy.

Beliefs influence attitudes, and it is therefore important to study other denominations differing in beliefs. Further, individual denominations differing in organizational structure must also be studied separately as policy, practices, and day-to-day operations of the Wesleyan church could be an influencing factor on the Clergy health behaviors.

Problem Statement

Clergy believe they have been called to be healthy and role models of good health (Watson, 2017). However, clergy currently exhibit higher rates of chronic diseases and associated factors such as obesity, diabetes, and hypertension compared to the general population (Center for Health Wespath Benefits and Investment, 2017). This contradiction in belief and health status is further complicated in that clergy members' perceptions of their overall health are more optimistic and misaligned with what the reality of their health might be (Rae Jean Proeschold-Bell & LeGrand, 2012). Prior studies of clergy's health are limited because the few available studies are denomination specific, limiting generalizability to the other denominations

who have differing theology and beliefs. In addition, mental and emotional health have been emphasized without considering physical health as a confounding variable in these studies. Most importantly, there is a gap in the literature regarding Wesleyan clergy's health. To date, this denomination has not been formally studied, creating a need for baseline information. Research assessing health status in other denominations cannot be generalized to the Wesleyan denomination because of the differing beliefs and organizational structures. There is a need to place preventive care programs for clergy in the context of their beliefs, congregational expectations, and church polity. The majority of recent research has focused on the Methodist denomination, which differs in beliefs, size, and organizational structure from the Wesleyan denomination. Therefore, a baseline assessment specific to the Wesleyan Clergy is needed.

This research study will assess the current disease rates among Wesleyan clergy and analyze the relationship between their perceived health and health-related quality of life. Measuring Health Related Quality of Life (HRQOL) allows for exploration of the burden that chronic diseases place on day-to-day life, ministry, and other vocation-related tasks. Examining quality of life in the context of disease rates addresses the concerns of whether health problems are disrupting the ability of clergy to perform their leadership roles.

Purpose of the Study

The purpose of this study is to assess the prevalence of chronic diseases, associated factors, and health-related quality of life among Wesleyan clergy. This study is the first phase of a larger initiative by the Wesleyan church to develop future effective interventions aimed at reducing prevalent chronic diseases and improving the Wesleyan clergy's health-related quality of life. Health interventions formed through evidence-based research has been found to be very effective. This study will provide the evidence-based information needed to help the Wesleyan

church develop interventions to address the health concerns of their clergy. It is the vision of the Wesleyan denomination to reduce the chronic disease prevalence and increase overall quality of life among their clergy in order to improve effectiveness within their religious calling and mission.

Significance of the Study

The knowledge of the prevalence of chronic diseases among the Wesleyan clergy, associated factors, and relationship with their health-related quality of life is an important requirement for the development of an effective health intervention aimed at this population. Results from this study will provide baseline health data needed by the Wesleyan Church to develop health interventions specific to their clergy, which is needed to improve their overall health status and to boost retention of clergy in the Wesleyan Church.

The Department of Education and Clergy Development at the Wesleyan Church Headquarters has increased the focus of promoting health to Wesleyan clergy due to the belief that clergy must be healthy to be effective in ministry. This study is the first step, serving as a baseline assessment.

The Wilson-Cleary Model of Health Related Quality of Life was used as the study's theoretical framework. A theoretical framework presents a systematic way of understanding phenomena, behaviors, and situations. Therefore, the use of theory is important to explain, predict, and understand health behavior. The Wilson-Cleary Model of Health Related Quality of Life provides the systematic approach needed to understand the Wesleyan Clergy's health.

Specific Aims & Hypotheses

The following are specific aims and associated hypotheses for this research study:

Specific Aim 1: To compare the prevalence of chronic diseases among the Wesleyan Clergy and the general population.

Hypothesis 1: Wesleyan Clergy will report higher rates of chronic diseases such as type II diabetes, cardiovascular disease, depression, and arthritis compared to the general population.

Specific Aim 2: To determine factors associated with the prevalence of chronic diseases among the Wesleyan clergy.

- *Hypothesis 1:* Among the Wesleyan Clergy, there will be positive association between being overweight/obese, having hypertension or high cholesterol and higher rates of chronic diseases.

Specific Aim 3: To determine the urban-rural differentials in Wesleyan clergy's health-related quality of life (HRQOL).

Hypothesis 1: Urban-based Wesleyan clergy will report greater health-related quality of life (HRQOL) scores compared to rural-based Wesleyan clergy.

Specific Aim 4: To examine the association between number of chronic diseases and HRQOL scores among the Wesleyan clergy.

Hypothesis 1. Lower HRQOL scores will be positively associated with 2 or more chronic diseases among the Wesleyan Clergy.

Theoretical Framework

This study utilized the Wilson-Cleary Model of Health Related Quality of Life as its theoretical framework. The Wilson-Cleary Model provides a causal pathway, linking variables from the individual and the environment to HRQOL; this linkage is advantageous for creating effective health interventions with a given population. This model has been used to evaluate differences in HRQOL among the elderly explained by chronic conditions and functional capacity (Orfila et al., 2006). It has also been used to describe HRQOL among patients with renal disease undergoing different treatments types (Frank, Auslander, & Weissgarten, 2004). However, the Wilson-Cleary Model of Health Related Quality of Life has not been applied in exploring clergy's health.

There are five concepts along a continuum in the model. Moving from one end of the continuum outward to the individual, they are biological variables, symptoms, physical functioning, health perception, and HRQOL (Shiu, Choi, Lee, Yu, & Man Ng, 2014). The Wilson-Cleary model has been empirically tested and is the most used HRQOL model (Bakas et al., 2012; Shiu et al., 2014). It integrates a biomedical perspective and a social science perspective and therefore can be applied across different health conditions, ages, individuals, and communities (Shiu et al., 2014). Ultimately, the Wilson-Cleary model provides the much-needed structure for this study. The components of the Wilson-Cleary model will be discussed in the literature review.

Assumptions & Delimitations

Assumptions. The following statements describe complexities this research must assume:

1. The findings generated from the Wilson-Cleary Model of Health Related Quality of Life are generalizable to the health behaviors and health status of the Wesleyan Clergy.

2. The sample formed through the set inclusion criteria is appropriate, assuring that the participants have all experienced similar phenomena of this study.
3. Wesleyan Clergy members will answer the survey questions honestly.

Delimitations. For this study, heart disease, diabetes, arthritis, and depression were chosen as a focus because they are considered the most common, costliest, and most preventable health problems (CDC, 2009). This study included clergy members from the Wesleyan denomination; therefore, findings from this study cannot be generalized to all clergy. In summary, criteria of participants enrolled in this study are specific; therefore, the results of this study can only be generalizable to clergy who are (1) in the Wesleyan denomination and (2) actively serving full-time within a church. While this might be viewed as a significant limitation, given the lack of health research for this population, this focus is warranted and much needed.

Limitations

Although this study was carefully planned, the following possible limitations are important to consider. This study is cross-sectional in nature; therefore, causation cannot be established. This study is specific to the Wesleyan Clergy; therefore, generalizability may be limited. This will be a self-reported study; the truthfulness of their answers cannot be ascertained. The answers could also be subject to recall bias.

Definition of Terms

The following theoretical and operational definitions or terms were used in this study:

Associated Factors are prognostic factors, typically a variable thought to be related to how a disease progresses, given you already have the disease.

Chronic Disease is a biomedical disease classification (Martin, 2007). Also known as non-communicable diseases (NCSs), they are not passed from person to person. They

are generally long in duration and slow in progression (World Health Organization, 2017). Examples include diabetes, cardiovascular disease, arthritis, and depression. Chronic diseases are influenced by socioeconomic status, education, employment, and the environment (Martin, 2007).

Clergy are formal leaders within religion. Specific roles and functions vary among religious traditions but usually involve teaching religious doctrines and practices. It is common to see this term interchanged with other terms such as *clergyman*. Specifically, in Christianity, a wide range of formal terms exist such as preachers, pastors, ministers, priests, deacons, elders, and bishops. In this dissertation, *clergy* will be consistently used to refer to the population of study.

Health Related Quality of Life goes beyond the direct measures of health, focusing on the impact that health status has on quality of life (Office of Disease Prevention and Health Promotion [ODPHP], 2016). It is a multi-dimensional concept that gives an overall score on an individual's perceived physical, mental, emotional, and social functioning (CDC, 2017).

Prevalence is the proportion of a population having a specific characteristic, typically an illness and a condition.

The Wesleyan Denomination is made up of individuals following or adhering to the Methodist tradition founded by John Wesley.

Summary

Chapter one of this study explored the important role of the clergy and described the prevalence of chronic diseases among the clergy as compared to the general population. Clergy, who have unique roles in the community and specific vocational challenges, make up a

significant proportion of the US population, yet there is little known about the current health status of clergy. The purpose of this study is to understand clergy's health status in the context of chronic disease prevalence and associated risk factors and the repercussion that these diseases have on health-related quality of life. The Wilson-Cleary Model will be applied to this study as an innovative way to fill a knowledge gap in the literature regarding this specific population's health. In the next chapter, a thorough review of the literature related to chronic disease prevalence, associated factors, and physical health functioning among clergy in varying religious denominations will be presented.

CHAPTER 2

LITERATURE REVIEW

This chapter will examine the literature related to chronic disease prevalence, associated factors, and physical health functioning among clergy in varying religious denominations. Specifically, the review will examine the intricate relationship of clergy and the church congregants, discussing the current understanding of clergy health statuses. Further, it will contrast current disease prevalence and associated factors between the general population and clergy. Gaps in literature will be addressed, supporting the need for this study and its significance.

Clergy and the Church

Clergy are important key leaders who are embedded in community environments and denominational systems. Clergy, in fact, make up a substantial number of the US workforce. It was estimated that there were 429,720 serving clergy, which was similar to the numbers of surgeons and physicians (Data USA: Clergy, 2014; Wallace et al., 2012). It is estimated that 77% of Americans or 250 million people are affiliated with a formal religion and approximately 36% of religious associated individuals attend services on a weekly basis (Webb, Bopp, Baruth, & Peterson, 2016). Clergy serve over an estimated 300,000 churches with congregant membership approximating over 50% of the US population (Stier, 2014; Wallace et al., 2012).

Church-based health promotion interventions (CBHP) have been shown to significantly improve congregants' health behaviors (Campbell et al., 2007). From a socio-ecological perspective, CBHP positions the church as an integral part of the process to influence church members' behavior on multiple levels. Clergy have a special relationship with their congregants and find it appropriate to discuss and promote positive health behaviors through their interactions with congregants, as well as their general ministry. Congregants often look to clergy as role models of positive health behaviors and providers of support during times of poor health. Bopp et al. (2013) examined the congregant-clergy relationship and the issues associated with health, behaviors, and well-being. The study underscored clergy members' roles in delivering effective health promotion interventions. The findings showed that clergy's weight status and health behaviors, such as physical activity and fruit and vegetable consumption, were significantly related to the health and wellness activities offered in their church (Bopp, Baruth, Peterson, & Webb, 2013). This suggests that faith leaders' health is associated with a healthier church environment; however, causal inference cannot be made.

The role and functions of clergy are to provide spiritual leadership, offer counsel, and develop services on a weekly basis that are of benefit to their congregants. As community leaders, clergy must also serve as role models for biblical standards and provide care for congregants. Clergy reported working on average forty-eight hours per week, regardless of denomination and full-time versus part-time status (Bopp et al., 2013). The largest proportion of a clergy's workweek is spent on developing weekly services that include preaching and worship. Week-to-week, a clergy's schedule can be unpredictable, with clergy responsibilities occurring during nontraditional work hours (i.e., late at night, early in the morning, on weekends). Additionally, congregants view clergy as employees of the church and therefore have specific

social and political expectations for the role. It is also expected that clergy maintain an optimal level of health needed to meet the daily demands of this calling. In regards to health, the congregants' multiple expectations may affect a clergy's overall health and their ability to engage in specific health behaviors. Stress, fatigue, and burnout are highly associated with a clergy's career and congregational demands (Bopp et al., 2013). Time and congregational demands specific to a clergy's occupation can lead to lack of prioritizing self-care, resulting in poor health (Bopp et al., 2013).

Clergy have a positive influence on congregants and the community. They have the ability, on a weekly basis, to affect millions of individuals due to the trusting relationships between congregants and the clergy. If health professionals seek to reach large audiences, looking to the leaders and influencing their own health behaviors will be crucial in promoting health among the congregants within church settings (LeGrand, Proeschold-Bell, James, & Wallace, 2013). The clergy's support is crucial to the success of a health intervention in the church. A supportive pastor is key to recruitment and implementation of an intervention. Disinterested or uninvolved clergy have been reported to constitute a barrier to the recruitment, implementation, and success of health interventions among congregants (Baruth et al., 2013).

Clergy and Health-Related Quality of Life

There is little known about the health status of clergy (Baruth et al., 2013). This review of literature will explore current information regarding the health status of clergy of various denominations and the barriers faced to engage in healthy behaviors.

Previous literature on the mortality rate observed among clergy suggests that there is "religious advantage" when compared to the general population (Flannelly et al., 2002). Clergy have one of the highest life expectancies when compared to other occupations (Flannelly et al.,

2002). Despite high life expectancies, recent research has suggested that their health status is actually poor. For example, in a study conducted among United Methodist clergy in North Carolina, 40% of the participants were obese, 11% higher than the state average and 14% higher than the national average (Proeschold-Bell & Legrand, 2013). This observed phenomenon in the clergy's decreasing health while still maintaining a high life expectancy, suggests that lifestyle choices, such as avoiding smoking, could contribute to their longevity. Additionally, denominational differences and occupational roles within the religious organization must also be considered. For example, Flannely et al. (2002) found that incidence of cancer among clergy varied by type and across denominations. Higher pancreatic cancer was reported among Baptist and Lutheran clergy while a lower incidence of lung cancer was reported among all denominations and attributed to differences of religious lifestyle choices such as abstaining from smoking (Flannelly et al., 2002). Differences in clergy roles have been found to be associated with levels of stress. Catholic nuns have reported low levels of occupational stress because of their role while Protestant clergy have reported high levels of occupational stress (Flannelly et al., 2002). While low stress levels have been suggested to contribute to clergy longevity, this contradicting finding or denominational difference in stress levels suggests that clergy's life expectancy advantage is complex.

There has been increased interest in clergy health in recent years. Major denominations such as Presbyterian, Evangelical, Lutheran, Episcopal, and the United Methodist Church have begun to collect data and develop strategies to address emerging health concerns. From the available data, clergy have reported a variety of barriers that impact their health, such as vocational demands, stress, energy, time constraints, lack of support, and resources (Miles & Proeschold-Bell, 2012).

Barriers to Achieving Healthier Lifestyles Among Clergy

Vocational Demands. The vocational demands of clergy are unique and have been compared in complexity to that of surgeons, engineers, and nurse practitioners (Manister, 2012). Occupational duties of the clergy include coordinating, training, supervising, and managing. Weekly tasks include leading religious services, delivering sermons, praying, teaching, counseling, hospital visits, studying religious works, collaborating with church staff, and administering religious rights (Manister, 2012). There is also the business aspect of clergy's responsibilities that include budgeting, planning, managing staff, community partnerships, and community engagements (Manister, 2012).

Due to multifaceted job requirements, clergy across denominations report similar, poor emotional health despite high job satisfaction (Miles & Proeschold-Bell, 2012). Levels of emotional health were attributed to the effects of stress, family and congregant demands, and the age upon entering the ministry. The Schaeffer Institute of Church Leadership Development (ASICLD) project reported 70% of clergy feel stressed to the point that they consider leaving the ministry (Krejcir, 2007). Stress can affect clergy in many ways. Emotional eating or unrestrained eating are common responses to stress (Manister, 2012). When stress becomes chronic in nature, these eating behaviors can lead to obesity. Further, elevated cortisol hormones as a result of chronic stress can stimulate hunger, resulting in weight gain and leading to obesity (Manister, 2012). Interestingly, as a result of stress, younger clergy tend to have lower emotional health but higher physical health. The opposite is seen in older clergy who have lower physical health but higher emotional health and is attributed to a developed coping response to stress (Weems, 2009).

Ninety percent of clergy stated being frequently fatigued and worn out on a daily and weekly basis (Krejcir, 2007). For example, United Methodist clergy spend, on average, 56.2 hours per week ministering and 12 evenings per month away from home for church-related duties. Of those surveyed, one in four clergy worked more than 60 hours per week (Rae Jean Proeschold-Bell et al., 2011). United Methodist clergy expressed the inability to set work-life boundaries due to being on call 24 hours a day and reported it as a barrier to engage in self-care practices, such as exercise (Baruth, Wilcox, & Evans, 2014). Setting aside time for rest and self-care is recommended practice for those in ministry (Weaver, Larson, Flannelly, Stapleton, & Koenig, 2002). Ferguson et al. (2015) found that clergy who practiced self-care, such as taking sabbaticals, taking days off, and participating in support groups, had lower rates of stress and were less likely to be obese (Ferguson, Andercheck, Tom, Martinez, & Stroope, 2015). Feeling unable to practice self-care could be a perceived barrier to optimal health.

Demographic Factors. Factors affecting health can be specific to age, gender, socioeconomic status, and geographical region. The age of the clergy and the age at which they entered ministry will affect perceived stress and barriers to health differently. Younger clergy, defined as being under age 35, cite financial limitations as a barrier to optimal health (Rae Jean Proeschold-Bell et al., 2011). Gender is an important factor in certain denominations where women are ordained, such as the Wesleyan denomination. Women are found to have different gender-specific health barriers and stressors than their male counterparts. For example, female clergy involved in the United Methodist Church Study reported putting everyone's needs before their own as a congregational caregiver. They also expressed difficulties in setting boundaries in personal time and experienced guilt when they did set such boundaries (Rae Jean Proeschold-Bell et al., 2011).

Clergy are in the top 10% of the population in education, most holding Master degrees (Weaver et al., 2002). However, unlike other professionals with similar education levels, clergy salaries rank only 325th of 432 other occupation's salaries (Weaver et al., 2002). Higher education status is associated with lower BMI. In the general population, obesity rates are 14% in men and 20% in women and lower if have attained a master's degree or higher (Manister, 2012). Lower socio-economic status can be associated with stress and is correlated with lower health status (Ferguson et al., 2015).

Communities and congregants can place demands on not only clergy's time but their energy as well. Demands on time and energy are barriers to optimal health. This is exemplified in the health differences seen between clergy with large congregations and clergy with smaller congregations. Larger congregations most often have support staff, freeing up the clergy's time and energy (Keller, 2010; Rae Jean Proeschold-Bell et al., 2011).

Geographical Influences. Geographical influences are those that are affected by the surrounding economic conditions and health resources available. Nearly one-third of churches in the United States are located in rural areas. However, there is very limited research exploring the impact that a rural setting may have on clergy's health (Miles & Proeschold-Bell, 2011a). Miles et al. (2011) examined this relationship as a part of the United Methodist Church Study and reported that rural churches have lower congregation sizes and lower yearly budgets, suggesting rural clergy have fewer resources available (Miles & Proeschold-Bell, 2011b). Rural clergy reported a higher frequency of prayer and should be studied further due to the observation that individuals who are sick tend to pray more often (Miles & Proeschold-Bell, 2011b). Miles et al. (2011) followed up this study by assessing physical health functioning of the United Methodist Clergy. In their study, health-related quality of life (HRQL) was significantly lower for rural

clergy and was attributed to higher BMI, joint disease, and lower income (Miles et al., 2011). Depending on geographical location, access to health resources was reported as a barrier by the clergy in attaining optimal health.

Vocational demands, stress and fatigue, demographics factors, and community-level influences are all barriers clergy face in regards to maintaining and improving their health. These demands must be considered when looking at the prevalence of chronic disease among the clergy.

Prevalence of Chronic Disease Among Clergy

Chronic Disease among the General Population. To best describe chronic diseases, such as heart disease and arthritis among the clergy, a comparison of the general population should be made. Associated factors, such as obesity or hypertension, predict the clergy who may be at risk for developing chronic diseases. The following section explores the prevalent diseases and associated factors among clergy, compared to the general population.

Heart Disease and Clergy. A total of 28.4 million (11.7%) US adults are currently diagnosed with heart disease (Center for Disease Control and Prevention [CDC], 2017a). Heart disease, which includes coronary heart disease, hypertension, and stroke, is the leading cause of death for both men and women. Health disparities are reported across racial and ethnic minority populations having higher rates of heart disease and associated risk factors (CDC, 2017b). Flannelly et al. (2002) found that clergy were less likely to die from heart disease as compared to the general population (Flannelly et al., 2002). However, when mortality rates were adjusted for age, race, and occupation, clergy ranked among the top occupations to suffer from ischemic heart disease. These findings suggest that clergy may benefit specifically from preventive heart disease screening and interventions (Flannelly et al., 2002).

Cancer and Clergy. Previous reports indicated that approximately 1.7 million new cases of cancer would be diagnosed in 2017, with prostate cancer being the most common among men (19%) and breast cancer the most common among women (30%) (American Cancer Society [ACS], 2017). Incidence rates of cancer are higher in men than women and are consistent when adjusting for race and ethnicity. Lung cancer is the leading cause of cancer mortality among men (27%) and women (25%). Similar to incidence, mortality rates are higher among men than women for every racial and ethnic group (American Cancer Society [ACS], 2017).

To better understand cancer mortality rates of Protestant clergy, a ten-year longitudinal study tracked five denominations: American Baptist, Lutheran, Missouri Synod, Protestant Episcopal, and Presbyterian (Flannelly et al., 2002). The findings of the study showed that incidence of cancer varied by type and across denominations. Higher pancreatic cancer was reported among Baptist and Lutheran clergy while a lower incidence of lung cancer was reported among all denominations and attributed to differences of religious lifestyle choices such as abstaining from smoking (Flannelly et al., 2002). Other lifestyle characteristics, such as abstinence from alcoholic beverages, pork products, caffeinated beverages, highly processed foods, and a diet high in fruits, whole grains, and vegetables, were associated with Seventh-day Adventists. These lifestyle choices, specific to these Adventists, have been studied due to their association with lower cancer mortality rates: 50-70% lower than the general population for all major cancers (Phillips, 1975). Traditionally, Protestant denominations abstain from smoking and alcohol as well but do not place emphasis on diet.

To date, there is very little literature on the health status of Protestant clergy who identify as women. The majority of studies that assessed women in religious fields have primarily focused on Catholic nuns. Overall, cancer mortality was lower among nuns until the age of 70

compared to the general population. Specifically, breast cancer was higher in nuns, uterine cancer was lower, and ovarian cancer was comparable to the general population (Flannelly et al., 2002). Similar to male clergy, the religious lifestyle specific to nuns could decrease the generalizations of these findings to Protestant clergywomen, who lead different lifestyles as Catholic Nuns.

Type II Diabetes & Clergy. The National Diabetes Statistic Report for 2017, published by the Center for Disease Control and Prevention (CDC), estimates that 30.3 million people or 9.4% of the US population have type II diabetes (CDC, 2017). Prevalence across gender was similar (11%) but varied significantly by education level and socio-economic status. In regard to ethnicity and type II Diabetes, American Indians/Alaskan Natives had the highest prevalence (15.1%) followed by non-Hispanic blacks (12.1%) (CDC, 2017c). Prevalence estimates of US adults with pre-diabetes, indicated by fasting glucose values or A1C levels, were 33.9% in 2015. Prevalence rates of pre-diabetes were similar among racial and ethnic groups but were higher in men (36.6%) than women (29.3%) (CDC, 2017c).

Similar to the general population, male clergy are at a higher risk for diabetes. Findings of a previous study showed higher diabetes prevalence among United Methodist clergy (12%) than the general population (9%) as well as with other denominations (Jones & Borish, 2013). Pre-diabetes or elevated blood sugar levels were more than doubled (9%) compared to that of the general population (4%). A one-year follow up study showed a 1% increase in prevalence of type II diabetes in clergy, paralleling the increased trend of diabetes among the general population (Jones & Borish, 2013). Discrepancies across denominations reporting diabetes risk and disease prevalence were observed due to differing approaches in methodology.

Arthritis & Clergy. Prevalence of arthritis is estimated at 54.4 million US adults (22.7%) with the most common form being osteoarthritis (CDC, 2017d). This estimation is projected to increase to 78 million or 26% of US adults as the population ages. Risk differs by age, gender, and ethnicity. The highest reported doctor-diagnosed arthritis rates are seen in those older than 65 years of age (49%), in women (26%) and in Non-Hispanic Whites with 41.3 million reported diagnoses (CDC, 2017d). Arthritis is the leading cause of disability and is associated with many chronic diseases such as heart disease. Further, of those with arthritis, 19% have chronic respiratory conditions and 16% have diabetes (Arthritis Foundations, 2017).

To date, there is limited research regarding arthritis among the clergy population. To the researcher's knowledge, only two studies have reported arthritis prevalence. Approximately 30% of the South Carolina African Methodist Episcopal clergy and 34% by the United Methodist clergy reported having arthritis (Baruth et al., 2014). However, despite having higher arthritis prevalence than the general population, United Methodist clergy reported high physical functioning scores (Proeschold-Bell & LeGrand, 2012). Individuals diagnosed with musculoskeletal health conditions score lower across physical health functioning measures, indicating possible disruptions of work, social activities, or ability to care for oneself (Proeschold-Bell & LeGrand, 2012). While clergy reported higher rates of arthritis, this may not directly affect their day-to-day activities (Proeschold-Bell & LeGrand, 2012). In contrast, observable disparities exist among clergy members in rural areas. For example, rural clergy reported lower HRQOL scores in the presence of joint disease compared to urban clergy (Miles et al., 2011).

Associated Factors

Hypertension. Hypertension, a risk factor for heart disease, has been reported across many denominations. Clergy belonging to the Evangelical Lutheran Church of America (ELCA) have a lower prevalence of hypertension (22%) than that the general population (Halaas, 2002). Over half of the ECLA clergy reported having a family history of high blood pressure, and the majority (91%) reported having had their blood pressure checked in the past year (Weems, 2009). Clergy belonging to the United Methodist Church (UMC) had the lowest prevalence of hypertension (17.83%) among all evangelical denominations and lower than that of the general population (Weems, 2009). However, more recent data collected from the annual United Methodist Church Health Survey done through the Center for Health of the General Board of Pension and Health Benefits contradict the previous study. In this survey, UMC clergy reported higher prevalence rates of hypertension (35%) and pre-hypertension (11%) than those of the general population (30%) (Jones & Borish, 2013). Similar to the general population, male clergy had higher risk of cardiovascular disease, and African American clergy had a higher risk of hypertension (Jones & Borish, 2013).

Elevated Cholesterol. Elevated cholesterol, a risk for heart disease, has been reported among many denominations. When asked whether a doctor had ever told them they had high cholesterol, 51% of UMC clergy reported elevated cholesterol levels (Jones & Borish, 2013). This is significantly higher than the levels reported by the general population (30%) (CDC, 2017e). This discrepancy between self-reported cholesterol levels and medication usage might be reflective of what is observed in the general population; less than half of adults are getting treatment for high LDL cholesterol levels (CDC, 2017e).

Obesity. With approximately 90% of type II diabetics being overweight or obese, it is important to look at the prevalence of obesity in the general population, as it is a major risk factor for developing type II diabetes (American Society of Metabolic and Bariatric Surgery [ASMBS], 2013). A body mass index (BMI) between 25 and 29.9 classifies an individual as overweight and a BMI greater than 30 as obese. In the general US population, more than one-third of adults (36.5%) are classified as obese, and approximately two-thirds (68%) are either overweight or obese (CDC, 2017f). Obesity may affect some groups more than others, as seen in higher prevalence rates among Non-Hispanic Blacks and middle-aged adults (CDC, 2017f). Further, being overweight or obese is a risk factor of arthritis. Of individuals who are overweight or obese, arthritis diagnoses are 23% and 31% respectively (CDC, 2017d). Obese individuals with arthritis are more likely to be physically inactive and report depression (CDC, 2017g).

Due to the strong correlation between obesity and diabetes, assessing the current literature surrounding clergy's weight is essential. Prevalence rates of obesity were higher among many Protestant denominations, such as the United Methodist clergy (40%) than the general population (36.5%) (Proeschold-Bell & LeGrand, 2010). Weight issues have also been reported by 64% of Episcopalian clergy (Weems, 2009). However, Evangelical Lutheran clergy (34%) and Lutheran Missouri Synod clergy (36.7%) have similar rated of obesity compared to the general population (Jones & Borish, 2013). Overall, 75% of Protestant clergy described themselves as overweight or obese (Weems, 2009). Presbyterian clergy were the only denomination studied that reported slightly lower obesity rates in men (23%) and women (28%) (Weems, 2009).

While the aforementioned statistics provide some insight into the prevalence of different chronic diseases and general health of clergy in a variety of denominations, there is no research

regarding the prevalence of chronic disease and associated factors specific to the Wesleyan denomination. This is a need to address this gap in the literature.

Perceived Health Status

Clergy have one of the highest life expectancies among all occupations (Flannelly et al., 2002). However, recent research indicates that clergy are experiencing higher rates of chronic diseases and having a lower quality of life (Proeschold-Bell & LeGrand, 2012). The assessment of clergy's quality of life or the degree of physical health functioning is vital in understanding impact of the increasing rates chronic diseases among the clergy. A very limited number of studies have examined the physical health functioning of the clergy. Proeschold-Bell and LeGrand (2012) assessed physical health functioning in the context of high disease rates among United Methodist Clergy worldwide. The study included 1,074 highly educated clergy, 76.5% of whom were male and 91.1% of whom were white with an average age of 52.3. The clergy reported better physical health functioning than their US peers despite reporting higher rates of chronic diseases at the same time. This is somewhat confounding, as one would expect the clergy to have worse physical health functioning compared to their general population counterparts. The study suggests there is an urgent and greater need for health interventions for the clergy. However, the authors concluded that it may be challenging to get clergy's participation in health interventions because of their optimistic view of their physical health functioning. In order to develop an effective intervention for the clergy, the authors emphasized the importance of understanding the discrepancy between the reality of the clergy's high disease rates and their inflated perceptions of their physical health functioning (Proeschold-Bell & LeGrand, 2012).

Theoretical Framework

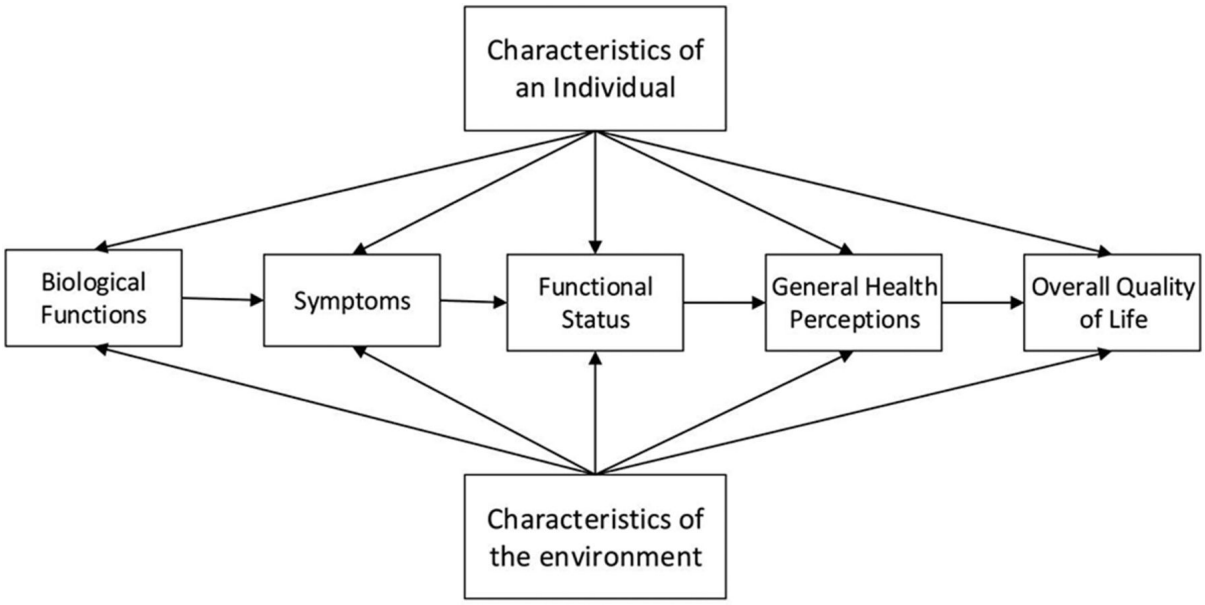
Given the presented literature, it is appropriate to utilize a theoretical framework to direct and provide justification for the methods of this study. The Wilson Cleary Model (WCM) of Health Related Quality of Life (HRQOL) was utilized as a theoretical framework. This model was proposed by Wilson and Cleary and is based on theory, clinical practice, and research (Bakas et al., 2012).

The Constructs of the Wilson-Cleary Model of Health Related Quality of Life

There are six categories of constructs specific to the Wilson-Cleary Model of Health Related Quality of Life model (Heo, Moser, Riegel, Hall, & Christman, 2005). The characteristics of the individual and the characteristics of the environment are constructs that indirectly contribute to HRQOL. Biological functions, symptoms, functional status, and health perceptions are constructs that directly affect HRQOL (Figure 1). Biological status refers to the status of body systems and processes (Heo, Moser, Riegel, Hall, & Christman, 2005). Chronic diseases and related conditions such as heart disease or hypertension would be categorized within this construct. Symptoms are defined as an individual's perceived presence of any physical, mental, or cognitive abnormality related to a chronic disease (Heo et al., 2005). An example of a symptom may be an individual reporting increased weight gain associated with diabetes or depression related to arthritis. Functional status is defined as an individual's ability to perform physical, social, and role functions (Heo et al., 2005). Physical inactivity and a decreased ability to perform activities of daily living (ADL) are examples of functional status, which would directly affect HRQOL. Health perception is defined as an internal holistic view of one's health status. The inter-relationship between and among these constructs assist in gaining an understanding of Health Related Quality of Life (HRQOL) which is defined as the subjective

impact of a condition on the various aspects of daily life (Heo et al., 2005). Understanding HRQOL scores specific to the clergy will address the concerns of whether health problems observed in this study are disrupting the ability of the clergy to perform their ministerial duties.

Figure 1.Wilson Cleary Model of Health Related Quality of Life.



Utility of the Wilson-Cleary Model of Health Related Quality of Life

The Wilson-Cleary Model (WCM) is ideal for this study because of the breadth of the theory, the utility of the model, and its significance in informing the development of effective interventions. WCM is a broad model that assists in explaining the complexities of HRQOL. This model applies to individuals of all ages, stages of life, and many health and disease conditions (Bakas et al., 2012) and has been applied on a wide variety of chronic disease such as cancer, arthritis, HIV/AIDS, and diabetes (Shiu et al., 2014; Sousa & Kwok, 2006). The utility of WCM is suited for population-level studies and is specifically relevant for epidemiologist and

policy makers (Bakas et al., 2012). WCM is the most widely cited model in the study of HRQOL and is suggested to improve intervention research (Bakas et al., 2012). In a systematic review of HRQOL models, Bakas et al. (2012) suggested that WCM has the most potential of available HRQOL models and recommended the use of the updated WCM of HRQOL to include individual and environmental characteristics. Based on this recommendation and successful application of the model in similar studies, it provides a suitable framework to understand the prevalence of chronic diseases, associated factors, and HRQOL among Wesleyan Clergy.

Summary

In this review of literature, it is clear that there is an intricate relationship between the clergy and the church congregants, which has a significant influence on a clergy's health. Further, multiple barriers, such as vocational demands, stress and fatigue, demographics factors, and community-level influences, have been reported by clergy in regards to maintaining and improving their health. These barriers become of interest in reviewing the emerging literature suggesting that clergy are suffering from chronic disease at higher rates than the general population. For example, male clergy are at a higher risk for diabetes. United Methodist clergy showed higher prevalence rates of diabetes than the general population (Jones & Borish, 2013). In addition, prevalence rates of obesity were higher in many protestant denominations, such as the United Methodist clergy (40%), than the general population (36.5%) (Proeschold-Bell & LeGrand, 2010).

To the researcher's knowledge, the Wesleyan clergy's health status has not been studied. Not having a complete picture of disease prevalence, associated risk factors, and quality of life among the Wesleyan clergy limits the Wesleyan Church's efforts in developing broad-based health interventions targeted at their clergy. If the aims of this study are successful, the findings

will aid the Wesleyan Church in developing effective health interventions that are needed to reduce incidence of chronic diseases and improve the health-related quality of life among the population. This is important to improve ministerial effectiveness and clergy retention.

CHAPTER 3

METHODOLOGY

The purpose of this study was to assess the prevalence of chronic diseases, associated factors, and health-related quality of life among Wesleyan clergy. A discussion of the research design, sample and setting, instrumentation, procedures for data collection and analysis, and protection of human rights is presented in this chapter.

Research Design

A cross-sectional design was utilized. This approach examines and describes differences among scores in variables (Burns & Grove, 2010). Due to the gap in literature on the current health status and HRQOL of clergy, a descriptive approach is appropriate. There was no manipulation of the variables in this investigation. Furthermore, a cross-sectional approach was selected as the preferred type of data collection due to the economy of the design, the quick turnaround in data collection, and the inferences that can be made from the study sample to the whole Wesleyan Clergy population (Creswell, 2013). The comparative component of the investigation explored clergy's reported chronic disease, associated factors, and health-related quality of life (HRQOL) as well as those of the general population. The minimum study sample was estimated using the sample size formula $\{Z^2 * (P)* (1-P)/C^2\}$ for estimation of a single proportion. The Z was set at 95% confidence level (Z=1.96) with the percentage of picking a choice (P) set at 50%, and a 5 % margin of error. From the sample size calculation $\{1.96^2 * (0.5)$

* (1-0.5)/0.05^2= 3.8416*0.5*0.5/0.0025=384}; thus, the minimum sample size needed will be 384.

Study Population & Sampling

This study included all Wesleyan Clergy. The researcher formed a partnership with the Wesleyan Church Headquarters. The Wesleyan Church will provide a directory for contact information of all Wesleyan Clergy. Potential participants were contacted through their churches' email addresses and invited to participate in the study. All eligible clergy will be sent an email introducing the survey and a link to access the survey online. In anticipation of a low response rate, all Wesleyan clergy were contacted by email, which will maximize the probability that a minimum number of clergy responses will be obtained. Responses will be collected over a four-week time period.

Variables & Measurements

The Wilson Cleary Model (WCM) was the organizing framework for the aims of this study, the selection of variables, and the corresponding measurements. The following discusses each variable of the WCM as applied to this study and how each variable will be measured.

Wilson Cleary Model Variable: HRQOL

The Medical Outcomes Study Short Form (SF) Health Survey was used to measure HRQOL due to its popularity as a generic instrument for HRQOL. Additionally, its brevity and sensitivity to changes in health status supports its usefulness for the aims of this study (Shiu et al., 2014). Scores for this instrument are coded and calibrated giving each dimension equal weight. Total parameter scores are transformed to a scale ranging from 1-100. Higher values on this scale indicate better status or higher quality of life.

Wilson Cleary Model Variable: General Health Perception

Variables reflecting general health perception will be obtained from a self-rated one-item measure on the SF-20, one of the sub scales in general health perceptions. The self-rated measure categorizes health perception on a 5-point scale (1= Excellent, 2 = Very Good, 3 = Good, 4 = Fair, 5 = Poor).

Wilson Cleary Model Variable: Physical Functional Status

Variables reflecting physical functional status will be obtained from the SF-20. Physical functioning status is a sub-scale of the SF-20 and contains six items measuring physical limitations, capacities, mobility, and self-care.

Wilson Cleary Model Variable: Symptom Status (Comorbidities)

Symptom status will be measured using items from the BRFSS. Self-reported measures indicate the presence or absence of the comorbidities of interest: cardiovascular disease, diabetes, cancer, arthritis, depression, and hypertension was utilized.

Wilson Cleary Model Variable: Characteristic of the Individual

Characteristics of the participants will be assessed using socio-demographic items from the BRFSS. Socio-demographic variables to be included are age, gender, number of years in ministry, education status, ethnicity, marital status, and health insurance status.

Wilson Cleary Model Variable: Characteristic of the Environment

Variables reflecting the characteristics of the environment that will be assessed/measured include congregation size, number of support staff, and church location (rural or urban).

Instrumentation

The Behavioral Risk Factor Surveillance Survey (BRFSS) and the Medical Outcomes Study Short Form Health Survey (SF-20) was employed to collect data on the variables of interest. The following sections provide description of these instruments:

Measures

Behavioral Risk Factor Surveillance Survey (BRFSS). The Behavioral Risk Factor Surveillance Survey (BRFSS) is an open-access survey developed by the Center for Disease Control (CDC) and Prevention and conducted by each state in the United States. Personal health behaviors play an important role in preventing premature morbidity and mortality. To obtain state-specific data on US adult populations, the CDC created the BRFSS. The BRFSS was introduced as a phone survey to determine prevalence of health risk behaviors among the general population (CDC, 2014). Rather than assessing attitudes or knowledge, the BRFSS collects data on actual behaviors using core questions focused on self-reported diagnoses of diabetes, heart disease, arthritis, and depression. The BRFSS also collects state data on US residents in the areas of health behaviors, chronic health conditions, and the use of preventative services (CDC, 2014). The BRFSS has been used to address urgent and emerging health issues and is the largest telephone survey in the world with over 500,000 interviews conducted in 2011 (CDC, 2014).

The following are examples of the BRFSS survey questions:

Chronic Diseases:

1. “Have you ever been told by a doctor that you have diabetes?”

   Response options: “Yes, Yes but female told only during pregnancy; No, No, pre-diabetes or borderline diabetes; Don’t know/Not sure”

2 “Has a doctor, nurse, or other health professional EVER told you that you have had angina or coronary heart disease?”

Response options: “Yes, No, Don’t know/Not sure, Refused”

3. “Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?”

Response options: “Yes, No, Don’t know/Not sure, Refused”

Associated Factors:

The “Clergy survey” will use identical wording to the BRFSS to assess associated factors. The following are examples of the survey questions:

1. Height: “What is your height in feet and inches?”

2. Weight: “How much do you weigh in pounds?’

3. Body Mass Index (BMI) will be calculated using the self-reported height and weight data. Participants will be divided into BMI categories using the National Heart Lung and Blood Institute cut off scores: Underweight as< 18.5kg/m², normal weight as 18.5-24.9 kg/m², overweight as 25-29.9 kg/m², and obese as 30 kg/m^2 or greater.

4. Blood Pressure: “Have you ever been told by a doctor or other health professional that you have high blood pressure?

Response options: “Yes, Yes but female told only during pregnancy, No, Told borderline high or pre-hypertensive, Don’t know/Not sure”

Validity & Reliability. The BRFSS has shown similar prevalence rates to other surveys that collect population data on health behaviors, chronic health conditions, and the use of preventative services and that have similar questions, number of questions, modes of interviewing, and sampling methods. The BRFSS is comparable at the national and state levels.

The last comprehensive review of reliability and validity of the BRFSS reported few data differences (Pierannunzi et al., 2013). Extensive research has been conducted on the validity and reliability of the BRFSS questionnaire, specifically on the demographic questions, chronic condition questions, and health insurance questions. High reliability has been demonstrated for demographic questions. It has been reported for age (r = 0.92-1.00); gender (r = 0.96-1.00); race/ethnicity (k = 0.87-0.97); educational attainment (r = 0.70-0.92); and marital status (r = 0.70-0.93). There have been no studies on the validity of BRFSS race, gender, race/ethnicity, marital status, and educational attainment studies (Nelson et al., 2001). The last meta-analytical review on the validity and reliability of BRFSS by Pierannunzi et al. (2013) did not provide any validity data on race, gender, race/ethnicity, marital status, or educational attainment studies. Chronic condition BRFSS questions are reliable and valid. Specifically, diabetes questions have demonstrated reliability (k = 0.60- 0.86) and validity (k > 0.80); sensitivity > 85%; and specificity > 95%, with a positive predictive value > 95%. Hypertension questions have demonstrated reliability (k = 0.69- 0.89) and validity (k > 0.80.59-0.78); sensitivity: 70-80%; and specificity: 80-90% with a positive predictive value: 39-100%. Arthritis questions have demonstrated reliability (k = 0.68) and validity (r = 0.43-0.66); sensitivity: 83.6%; and specificity: 70.6%. BRFSS asthma questions estimates have been found similar to NHIS and NHANES asthma questions estimates (Pierannunzi, 2013). Health insurance questions from the BRFSS have been found valid with a reported sensitivity of 93%, specificity of 86%, and a positive predictive value of 98%. However, reliability of self-reported health insurance status is unknown (Nelson, 2001).

SF-20 Health Survey. The Medical Outcomes Study (MOS) Short Form Health Survey (SF-20) is a set of generic and easily administered quality-of-life measures. This was developed

as part of the Medical Outcomes Study to explain variations in patient's outcomes. RAND corporation developed the open-access short version of this survey. The SF-20 is a six multi-item scale with higher scores indicating better health. This tool assesses six dimensions: Physical functioning, role limitations due to physical health problems, bodily pain, social functioning, general mental health, and general health perceptions (Sinha et al., 2013).

This study will use identical wording to the SF-20 questions to assess the clergy health-related quality of life. All items (or questions) in a dimension have the same number of response options using a Likert-style rating scale. For each dimension, item responses are summed and scored. Scores are converted to a 0-to-100 scale with higher scores indicating better functioning, greater well-being, and less pain (Holmes, Bix, & Shea, 1996).

Validity & Reliability. The Medical Outcomes Study (MOS) Short Form Health Survey (SF-20) has been shown to provide good validity and reliability. The SF-20 was developed to study patients with chronic conditions, measuring physical functioning, role functioning, social functioning, mental health, general health perceptions, and bodily pain. The SF-20 was designed to reduce the burden that lengthy surveys place on participants while maintaining the validity and reliability or reported health measures. The reliability of SF-20 health survey has been reported in different populations, specifically, in depressed patients (r = 0.82-0.87), patients with congestive heart failure (r = 0.77-0.87), those with diabetes (r = 0.83-0.87), those having experienced a myocardial infarction (r = 0.77-0.88), and the general population (r = 0.76-0.88). Internal consistency reliabilities ranged from 0.81- 0.88 (Stewart et al., 1988).

The validity of the SF-20 has been reported in different populations and settings. The psychometric properties of the questionnaire have been demonstrated among elderly populations and Romanian adults. Carver et al. (1999) found reasonable correlation coefficients of the SF-20

(r = .60) when compared to similar quality of life measures such as the Barthel index, OARS and OARS-IADL (Spearman correlation coefficients r = 0.63, 0.65, 0.67). The psychometric properties of the SF-20 were found valid for assessing health status among the Romanian population; correlations among health measures (physical functioning, role functioning, social functioning, mental health, and health perception) showed that coefficients were statistically significant with the majority being substantial in magnitude (Pearson correlation coefficients r = 0.77, 0.60, 0.40, 0.51, 0.71, respectively) (Heuvel, 2003). This study supports the utility of the SF-20, providing cross-cultural stability. This instrument was selected after a review of literature supporting its validity and reliability. Due to the brevity and comprehensiveness of the SF-20, it is best suited for this study.

Variables and Measurements

Demographic Variables. Demographic variables to be measured include age, gender, experiences (years in ministry), education status, ethnicity, congregation size, number of support staff, marital status, church location (rural or urban), and health insurance status. Age, gender, education status, and health insurance status will be collected using similar wording from the Behavioral Risk Factor Surveillance Survey (BRFSS).

Chronic Diseases. The BRFSS questions was used to measure the prevalence of heart disease, cancer, type II diabetes, arthritis, and depression.

Associated Factors. The BRFSS was used to measure hypertension, physical inactivity, and overweight/obesity.

Health Related Quality of Life. The SF 20 will be used to measure health-related quality of life and physical functioning.

Data Analysis & Statistical Procedures

Statistical Package for the Social Sciences (SPSS) for Macintosh, standard GradPack 23 will be utilized for data analysis. The following statistical procedures will be undertaken:

Descriptive Statistics. Descriptive statistics will be used to characterize the study participants. Descriptive statistics to be conducted include means, standard deviations, and frequencies of the various independent variables.

Hypothesis Testing:

Hypothesis 1: Wesleyan Clergy will report higher rates of chronic diseases such as Type II diabetes, cardiovascular disease, depression, cancer, and arthritis compared to the general population.

Statistical Procedure: Prevalence rate will be calculated for each chronic disease compared in this study.

Hypothesis 2: Among Wesleyan Clergy, there will be positive association between physical inactivity, being overweight/obese, and higher rates of chronic diseases (type II diabetes, cardiovascular disease, depression, cancer, and arthritis).

Statistical procedure: Chi-square analysis will assess associations between disease prevalence and associated factors. The strength of the association will be reported using odds ratio.

Hypothesis 3: Urban-based Wesleyan clergy will exhibit greater health-related quality of life (HRQOL) scores compared to rural-based Wesleyan clergy.

Statistical Testing: A Mann-Whitney U Test will be conducted to assess differences in urban and rural Wesleyan Clergy's HRQOL. Effect size will be reported.

Hypothesis 4: Lower HRQOL scores will be positively associated with 2 or more chronic diseases among the Wesleyan Clergy.

Statistical Testing: A Mann-Whitney U Test will be conducted to assess differences in Wesleyan Clergy's HRQOL's category (poor, good, etc.) by number of disease (2 or more). Effect size will be reported.

Ethical Considerations

Protection of Human Rights. Prior to data collection, Institutional Review Board (IRB) permission will be obtained from Indiana State University (ISU). To ensure the protection of human rights, the following issues were addressed: privacy and confidentiality, storage of data, informed consent, risk and benefits to subjects, termination of participation, and any potential conflicts of interest for the research in conducting this study.

Privacy and Confidentiality. All information obtained from subjects will be kept private and confidential. Completed surveys will have no identifiable names. Qualtrics software will be utilized for collection. The researcher controls all the inputted information generated in the Qualtrics software program.

Summary

A detailed description of the research methodology was presented, supporting a thorough investigation design. A descriptive survey design will be used to explore the prevalence of chronic diseases, associated factors, and HRQOL among Wesleyan clergy. A detailed description of the BRFSS and SF-20 was presented as well as the variables that will be measured. Statistical procedures to be undertaken such as logistic regression analysis and Mann-Whitney U tests were described. Ethical considerations and precautionary measures to be taken to protect human rights and maintain data privacy and confidentiality were discussed.

CHAPTER 4

RESULTS

Sample Description

A total of 536 clergy responded to the survey. Of these, 190 who reported not being full-time, were excluded from the study, along with an additional 45 respondents who did not fully complete the survey. The final sample included 301 full-time clergy. Demographic characteristics are presented in Tables 1 and 2. Categorical demographic characteristics included gender, ethnicity, marital status, education, total income, income from the church, head clergy status, bi-vocational status, rural/urban geographical location, congregation size, and health insurance status. Continuous demographic characteristics included age, age entering ministry, years of full-time service, hours worked per week, number of support staff, and body mass index (BMI).

Most of the respondents were male (86%), white (97%), married (94.7%), on average 48 years of age (M = 47.96, SD = 12.84), and highly educated with 49.2% holding a masters or doctoral degree. Mean BMI was 29.82 (SD = 6.29), just under the obese classification (BMI of 30.0-34.9) (CDC, 2017i). The average age upon entering ministry was 29 years and the respondents had spent an average of 16.6 years in ministry. The majority of clergy reported being the head clergyman of the church (66.4%), not working bi-vocationally (76.4%), and earning between $35,000 and $74,999 (55.4%) before taxes. Of those reporting having health

insurance, 58.1% reported coverage from a personal source such as a spouse rather than through the church.

Approximately 31% of clergy serve churches having large congregation sizes (300 or more congregants) with an average of five support staff. Clergy reported averaging 47.71 (SD = 9.82) hours of work per week. Clergy were dispersed geographically (48.8% urban; 51.2% rural).

Table 1
Categorical Demographic Characteristics

Variable	Category	Frequency	Percent
Gender			
	Male	259	86.0
	Female	42	14.0
Ethnicity			
	White Non-Hispanic	292	97.0
	Black Non-Hispanic	1	0.3
	Hispanic	6	2.0
	Other	2	0.7
Marital Status			
	Married	285	94.7
	Widowed	3	1.0
	Divorced	4	1.3
	Never married	9	3.0
Education			
	High school graduate/GED	5	1.7
	Some college	25	8.3
	Associate degree	7	2.3
	Bachelor's degree	109	36.2
	Master's degree	132	43.9
	Professional degree	7	2.3
	Doctoral degree	16	5.3

table continues

Table 1 *(continued)*

Variable	Category	Frequency	Percent
Income[a]			
	$10,000 - $19,999	3	1.0
	$20,000 - $29,999	12	4.0
	$30,000 - $39,999	30	10.0
	$40,000 - $49,999	31	10.3
	$50,000 - $59,999	37	12.3
	$60,000 - $69,999	53	17.6
	$70,000 - $79,999	32	10.6
	$80,000 - $89,999	30	10.0
	$90,000 - $99,999	16	5.3
	$100,000 - $149,999	49	16.3
	More than $150,000	7	2.3
Income from Church[b]			
	Less than $25,000	60	19.9
	$25,000 - $34,999	37	12.3
	$35,000 - $49,999	85	28.2
	$50,000 - $74,999	82	27.2
	$75,000 - $99,999	26	8.6
	More than $100,000	10	3.3
Head Clergy			
	Yes	200	66.4
	No	101	33.6
Bivocational			
	Yes	71	23.6
	No	230	76.4
Setting			
	Rural	147	48.8
	Urban	154	51.2

table continues

Table 1 *(continued)*

Variable	Category	Frequency	Percent
Number of Congregants			
	0-49	41	13.6
	50-99	62	20.6
	100-149	46	15.3
	150-199	22	7.3
	200-249	30	10.0
	250-299	6	2.0
	300 or more	94	31.2
Health Coverage			
	Church	96	31.9
	Personal	175	58.1
	None	30	10.0
BMI[c]			
	Underweight	1	0.3
	Normal	56	18.8
	Overweight	112	37.6
	Obese	129	43.3

[a]One participant did not report Income. [b]One participant did not report Income from Church. [c]Three participants did not report height and weight.

Table 2

Continuous Demographic Characteristics

	N	Mean	SD	Minimum	Maximum
Current Age	301	47.96	12.84	22	82
Age Entered Ministry	300	29.16	9.50	18	68
Years Full Time	300	16.60	12.58	1	61
Ministry Hours Per Week	298	47.71	9.82	5	75
Number of Support Staff	300	5.31	9.63	0	80
BMI	298	29.82	6.29	16.2	62.1

Hypothesis Testing

***Hypothesis 1*: Wesleyan Clergy will report higher rates of chronic diseases, including Type II diabetes, cardiovascular disease, depression, and arthritis compared to the general population.**

To test this hypothesis, the prevalence rates in the study sample were compared to the 2017 BRFSS prevalence rates for the 50 United States and DC. As shown in Table 3, several differences were found. The study participants reported lower prevalence for some chronic diseases.

Table 3
Comparisons of Chronic Disease Prevalence

Chronic Diseases	Wesleyan Clergy (n = 301)	United States 2017 (n = 444,914)
Type II Diabetes	12.3%	10.5%
No, but pre-diabetes	23.9%	1.5%
Cardiovascular Diseases		
Angina/ coronary heart disease	4.3%	3.9%
Heart attack (myocardial infarction)	2.3%	4.2%
Stroke	1.3%	3.0%
Depression	16.9%	20.5%
Arthritis	15.0%	24.9%
Cancer		
Skin cancer	8.0%	6.2%
Other types of cancer	3.3%	7.1%
Associated Factors		
Overweight/Obesity	80.5%	66.6%
Hypertension	27.9%	32.3%
High Cholesterol	35.2%	33.0%

A large majority (80.5%) of the clergy reported being overweight or being obese. These prevalence rates were higher than rates reported for the general US population, but surprisingly, the clergy did not report higher rates of chronic diseases normally associated with being overweight and obese. Although the clergy reported higher rates of pre-diabetes than the general

population, they did not report higher rates of diabetes or heart disease, nor did they report more hypertension or high cholesterol levels. In fact, they reported less arthritis than the general population and less cancer, other than skin cancer. These findings do not support the hypothesis.

Hypothesis 2: **Among the Wesleyan Clergy, there will be a positive association between being overweight/obese, having hypertension or high cholesterol, and higher rates of chronic diseases.**

This hypothesis was tested using a series of Chi-square analyses to compare the presence of overweight/obesity, hypertension, and high cholesterol, with the prevalence of any chronic disease, and with the prevalence of specific chronic diseases (Type II diabetes, angina/coronary heart disease, heart attack (myocardial infarction), stroke, depression, arthritis, skin cancer, and other types of cancer). Pre-diabetes was also included in the comparisons. Odds ratios were computed to determine the strength of the associations. As shown in Table 4, all three associated factors were significantly associated with the presence of chronic disease.

Table 4
Comparisons Between Any Chronic Disease and Associated Factors

	Presence of Associated Factor In Those With A Chronic Disease								
Associated Factor	No		Yes		$\chi 2$	*p*	*Odds Ratio*	*95% CI*	
	n	%	*n*	%					
Overweight/Obesity	111	46.1%	130	53.9%	6.90	0.009	2.18	1.21	3.92
Hypertension	83	55.0%	68	45.0%	44.17	< .001	6.86	3.73	12.62
High Cholesterol	85	56.3%	66	43.7%	9.33	0.002	2.12	1.30	3.44

Being overweight or obese was especially implicated as a factor associated with the presence of chronic disease; 53.9% of those reporting having at least one chronic disease reported being overweight ($\chi 2(1) = 6.90$; $p < .009$; $OR = 2.18$).

There were several significant associations between associated factors and specific chronic diseases, as shown in Table 5. Those clergy who were overweight had a higher prevalence of pre-diabetes (28.2% compared to those clergy who were not overweight 6.7%; $\chi 2(1) = 12.26$, $p < .001$; OR = 5.50). Obesity was associated with higher prevalence of diabetes, pre-diabetes, heart attack, and arthritis. The clergy who reported having hypertension also reported higher incidences of diabetes, pre-diabetes, coronary heart disease, heart attack, arthritis and cancers other than skin cancer. High cholesterol was associated with both diabetes and pre-diabetes as well as skin cancer. These findings support the hypothesis.

Table 5

Comparisons Between Specific Chronic Diseases and Associated Factors

		Presence of Associated Factor								
Factor	Disease	No		Yes		$\chi 2$	*p*	*Odds Ratio*	*95% CI*	
Overweight		*n*	*%*	*n*	*%*					
	Diabetes	3	5.0%	34	14.1%	3.70	0.055	3.12	0.93	10.53
	Pre-diabetes	4	6.7%	68	28.2%	12.26	< .001	5.50	1.92	15.76
	CHD	3	5.0%	10	4.1%	*	0.727	0.82	0.22	3.09
	Depression	12	20.0%	39	16.2%	0.50	0.481	0.77	0.38	1.59
	Arthritis	5	8.3%	40	16.6%	2.58	0.108	2.19	0.83	5.81
	Skin cancer	2	3.3%	22	9.1%	*	0.185	2.91	0.67	12.75
	Other cancer	2	3.3%	8	3.3%	*	1.000	1.00	0.21	4.82
Obesity										
	Diabetes	14	8.1%	23	17.8%	6.42	0.011	2.45	1.21	4.97
	Pre-diabetes	21	12.2%	51	39.5%	30.25	< .001	4.70	2.64	8.37
	CHD	8	4.7%	5	3.9%	0.11	0.743	0.83	0.26	2.59
	Heart attack	1	0.6%	6	4.7%	*	0.045	8.34	0.99	70.17
	Stroke	1	0.6%	3	2.3%	*	0.317	4.07	0.42	39.60
	Depression	30	17.4%	21	16.3%	0.07	0.790	0.92	0.50	1.70
	Arthritis	18	10.5%	27	20.9%	6.35	0.012	2.27	1.19	4.32
	Skin cancer	13	7.6%	11	8.5%	0.09	0.759	1.14	0.49	2.63
	Other cancer	3	1.7%	7	5.4%	*	0.105	3.23	0.82	12.75

table continues

Table 5 *(continued)*

Factor	Disease	Presence of Associated Factor: No		Yes		$\chi 2$	*p*	*Odds Ratio*	*95% CI*	
Hypertension		*n*	*%*	*n*	*%*					
	Diabetes	6	2.8%	31	36.9%	65.47	< .001	20.57	8.16	51.85
	Pre-diabetes	22	10.1%	50	59.5%	81.16	< .001	13.04	7.01	24.23
	CHD	4	1.8%	9	10.7%	*	0.002	6.39	1.91	21.36
	Stroke	3	1.4%	1	1.2%	*	1.000	0.86	0.09	8.38
	Depression	36	16.6%	15	17.9%	0.07	0.793	1.09	0.56	2.12
	Arthritis	20	9.2%	25	29.8%	20.10	< .001	4.17	2.17	8.04
	Skin cancer	17	7.8%	7	8.3%	0.02	0.886	1.07	0.43	2.68
	Other cancer	4	1.8%	6	7.1%	*	0.031	4.10	1.13	14.90
High Cholesterol										
	Diabetes	18	9.3%	19	17.9%	4.74	0.029	2.14	1.07	4.27
	Pre-diabetes	36	18.6%	36	34.0%	8.92	0.003	2.26	1.31	3.88
	CHD	5	2.6%	8	7.5%	*	0.071	3.09	0.98	9.68
	Heart attack	2	1.0%	5	4.7%	*	0.101	4.75	0.91	24.93
	Stroke	3	1.5%	1	0.9%	*	1.000	0.61	0.06	5.90
	Depression	33	17.0%	18	17.0%	0.00	0.995	1.00	0.53	1.87
	Arthritis	25	12.9%	20	18.9%	1.92	0.165	1.57	0.83	2.99
	Skin cancer	11	5.7%	13	12.3%	4.05	0.044	2.33	1.00	5.39
	Other cancer	6	3.1%	4	3.8%	*	0.746	1.23	0.34	4.45

* Fisher's exact test was used when minimum expected cell size was below 5; odds ratios were not computed when one group had zero prevalence.

Hypothesis 3: **Urban-based Wesleyan clergy will report greater health-related quality of life (HRQOL) scores compared to rural-based Wesleyan clergy.**

This hypothesis was tested using Mann-Whitney *U* tests. Effect sizes were computed using rank bi-serial correlations as proposed by Glass (1966). Results, (Table 6), indicate that the health-related quality of life was not significantly better for pastors living in an urban setting compared to a rural setting. However, urban-based clergy did exhibit greater scores in all the domains of HRQOL. These findings do support the hypothesis.

Table 6
Comparison of Health-related Quality of Life Between Pastors Living in Urban Versus Rural Settings

	Setting							
	Rural or Open Country (n = 147)		Non-rural or Urban (n = 154)		Mann-Whitney			Rank Bi-serial Correlation
	Mean	SD	Mean	SD	*U*	*z*	*p*	n
Physical Function	87.76	21.93	89.94	19.57	10694.0	-0.99	0.321	0.057
Role Function	94.22	19.86	94.48	20.26	11208.5	-0.31	0.760	0.018
Social Function	94.42	12.34	94.94	12.85	10998.5	-0.62	0.533	0.036
Mental Health	76.11	16.43	78.00	18.07	10222.0	-1.46	0.143	0.084
Health Perceptions	71.56	20.16	75.11	19.39	9899.5	-1.89	0.059	0.109
Lack of Pain	70.88	21.99	73.64	19.90	10640	-0.94	0.346	0.054
Overall HRQOL	82.49	12.65	84.35	12.84	9930	-1.84	0.066	0.106

***Hypothesis 4**:* **Lower HRQOL scores will be positively associated with the presence of any chronic disease among the Wesleyan Clergy.**

To test this hypothesis, the number of chronic diseases was calculated for each respondent. One point was given for each of the following diseases: Type II diabetes, pre-diabetes, angina/coronary heart disease, heart attack (myocardial infarction), stroke, depression, arthritis, skin cancer, and other types of cancer. Table 7 presents frequencies for the number of diseases reported.

Table 7
Number of Chronic Diseases per Respondent

Number of Diseases	Frequency	Percent
0	150	49.8
1	86	28.6
2	34	11.3
3	17	5.6
4	12	4.0
5	2	0.7

The 151 clergy who reported having one or more chronic diseases were compared to those with no reported conditions on the health-related quality of life measures using Mann-Whitney *U* tests. As shown in Table 8, the clergy with at least one chronic disease reported significantly lower health-related quality of life in all areas except mental health. For the most part, the effect sizes expressed as rank bi-serial correlations were small, with the exception of the larger differences in the Health Perceptions score (r_{pb} = -.314, $p < .001$) and the overall HRQOL (r_{pb} = -.281 $p < .001$). These findings support the hypothesis.

Table 8
Comparison of Health-related Quality of Life Between Those With and Without Chronic Diseases

	Chronic Diseases							
	None (n = 150)		One or More (n = 151)		Mann-Whitney			Rank Bi-serial
	Mean	SD	Mean	SD	*U*	*z*	*p*	Correlation
Physical Function	91.78	19.19	85.98	21.87	9149.0	-3.45	0.001	-0.199
Role Function	97.33	15.09	91.39	23.64	10217.5	-3.07	0.002	-0.177
Social Function	96.67	9.39	92.72	14.87	10002.0	-2.57	0.010	-0.148
Mental Health	79.25	14.61	74.91	19.39	10201.5	-1.50	0.134	-0.086
Health Perceptions	79.56	15.43	67.23	21.74	7242.0	-5.43	< .001	-0.314
Lack of Pain	76.27	19.44	68.34	21.71	9015.5	-3.20	0.001	-0.185
Overall HRQOL	86.81	9.75	80.10	14.44	7649.0	-4.87	< .001	-0.281

Summary

In this chapter, study findings were presented, addressing the four research aims. Key findings from this study are 1) A large majority of clergy reported being overweight or obese but did not report higher rates of chronic disease normally associated when compared to the general population; 2) There were significant associations between associated factors such as overweight/obesity, hypertension, or high cholesterol and the presence of chronic diseases

(diabetes, pre-diabetes, CHD, heart attack, stroke, depression, arthritis, skin cancer, other cancer); 3) clergy living in rural settings exhibited lower scores in all domains of HRQOL when compared to those living in urban settings; and 4) clergy having one or more chronic diseases reported lower HRQOL measures when compared to clergy without a chronic disease.

CHAPTER 5

DISCUSSION

This study assessed the current disease rates and associated factors among Wesleyan clergy along with Measuring Health-Related Quality of Life (HRQOL). HRQOL allows for exploration of the burden that chronic diseases place on day-to-day life, ministry, and other vocation-related tasks. Through application of the Wilson Cleary Theoretical Model, four research aims were developed: (1) comparison of the prevalence of chronic diseases among the Wesleyan Clergy to the general population; (2) determination of factors associated with the prevalence of chronic disease among the Wesleyan Clergy; (3) determination of urban-rural differentials in Wesleyan Clergy's HRQOL; and (4) examination of the association between the number of chronic disease and HRQOL scores among the Wesleyan clergy. A cross-sectional design was used to examine and describe differences among the variable's scores. Descriptive statistics, Chi-square analysis, and Mann-Whitney *U* tests were used in the statistical analysis to address the research aims.

This chapter presents a discussion of the study's main findings. Possible limitations that may have impacted this study and the results are considered. Future research recommendations are made. In the conclusion, summaries of implications are presented for Wesleyan clergy and the Wesleyan Headquarters. To the best of the researcher's knowledge, this comprehensive study is the first and most comprehensive study characterizing the overall health of Wesleyan clergy relative to the general population and health-related quality of life. Wesleyan clergy from across

the United States who met inclusion criteria participated, making this a national study. Key findings from this study include the following:

1) A large majority (80.5%) of clergy reported being overweight or obese but did not report higher rates of chronic disease normally associated when compared to the general population; 2) There were significant associations between factors such as overweight/obesity, hypertension, or high cholesterol and the presence of chronic diseases (diabetes, pre-diabetes, CHD, heart attack, stroke, depression, arthritis, skin cancer, other cancer); 3) clergy living in rural settings exhibited lower scores in all domains of HRQOL when compared to those living in urban settings; and 4) clergy having one or more chronic diseases reported lower HRQOL measures when compared to clergy without a chronic disease.

Interpretation of Findings

Research Aim One

Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. A high BMI can be an indicator of high body fat, which is strongly correlated with adverse health outcomes (Center for Disease Control and Prevention [CDC], 2017i). A person is categorized as overweight if one's BMI falls between 25 to <30; however, if one's BMI is 30.0 or higher, a person is categorized as obese (CDC, 2017i). The average BMI of the Wesleyan clergy is 29.82, bordering on an obese categorization. Approximately 38% of Wesleyan clergy reported being overweight, while 43% reported being obese. Both overweight and obesity rates among the Wesleyan clergy were higher than those of the general population. This study's findings are similar to those of Proeschold-Bell and LeGrand (2010) who found significantly higher rates of obesity among Methodist clergy than among the general population of North Carolina. Proeschold-Bell and LeGrand (2010) also found that Methodist clergy

reported significantly higher rates of chronic diseases such as diabetes, arthritis, and hypertension. Surprisingly, the Wesleyan clergy did not report higher rates of chronic diseases normally associated with being overweight and obese. Wesleyan clergy did not report higher rates of diabetes or heart diseases, nor did they report more hypertension or high cholesterol. However, they reported less arthritis that the general population.

Approximately 12% of clergy reported having diabetes, which was not higher that of the general population. According to the CDC, one in four people with diabetes does not know that they have it (CDC, 2017j). This is important to consider in that 23.9% of clergy reported being pre-diabetic, which was a higher percentage than that of the general population. Pre-diabetes is a serious health condition where blood sugar levels are higher than normal but not yet high enough to be diagnosed as type 2 diabetes. Pre-diabetes puts one at an increased risk for developing type 2 diabetes, in addition to other chronic diseases such as heart disease and stroke (CDC, 2017c).

A possible explanation for this unexpected finding is provided by research suggesting that clergy have an optimistic and positive view of their physical health (Proeschold-Bell & LeGrand, 2012). This study found the same; clergy self-reported their general health to be very good (43.9%) significantly better than the general population (33.2%). In holding this perspective, clergy may be less likely to participate in annual medical examinations, where diagnoses for chronic disease would be made. Further, there is no consistent policy for health insurance coverage within the Wesleyan denomination. Clergy's health insurance benefits are determined at the local/church level and vary across the denomination, with many clergy looking to other sources for health care coverage (Batman, 2015). Over half (58%) of clergy reported having health insurance through means other than the church; 10% reported not having health insurance at all. A lack of health insurance has been described as a barrier to health care

utilization, which may explain the lower number of reported chronic diseases among the study participants (National Academies of Sciences, Engineering, and Medicine, 2018).

Research Aim Two

Another aim of this research was to determine factors associated with the prevalence of chronic diseases among the Wesleyan clergy. The four examined factors (being overweight, being obese, having hypertension, having high cholesterol) were all significantly associated with the presence of chronic disease. In the presence of having a chronic disease (type II diabetes, coronary heart disease, heart attack, stroke, depression, arthritis, and cancer), participants reported higher rates of the associated factors (being overweight/obese, having hypertension, and having high cholesterol). For example, of those Wesleyan clergy with a chronic disease, 54% reported being overweight or obese. Further analysis compared the associated factors with a specific chronic disease. Clergy with hypertension reported higher prevalence's of diabetes, pre-diabetes, coronary heart disease, heart attacks, arthritis, and cancer. In addition, clergy who are categorized as obese reported higher prevalence's of diabetes, pre-diabetes, heart attacks, and arthritis. This is consistent with an epidemiological study that demonstrated that both modest and large weight gains are associated with significantly increased risk of diseases (Bray et al, 2018).

When individuals have a chronic disease, associated factors such as being overweight/obese, having hypertension, or having high cholesterol, will influence the disease progression and outcome (Megari, 2013). Mortality, morbidity, and disability are attributed to major chronic diseases. Accounting for approximately 60% of all deaths, chronic diseases are the leading cause of premature death and disability worldwide (World Health Organization [WHO], 2019). The earliest study of clergy health by King & Bailer (1969) focused on longevity because clergy were historically the picture of health in their communities. Study of mortality noted that

clergy tended to live longer than other professionals, as well as the general population. This was often attributed to certain lifestyle choices such as avoidance of alcohol and tobacco (Flannelly et al., 2002). Studies focusing on physical health status of clergy is a relatively recent phenomenon (Weems, 2019). There is no current mortality data on Wesleyan clergy, but one can infer that, since the clergy's health has mirrored or exceeded the contemporary health concerns of society, mortality rates and longevity would reflect similarly to that of society as well.

Research Aim Three

It is of interest that while both the size of a church and church location would be considered by researchers to be important variables affecting clergy wellness, considerable previous attention has only been given to congregation sizes. Methodological approaches studying clergy have neglected geographical location as an important variable (Miles & Proeschold-Bell, 2011).

The importance of one's location as it relates to health status among the general population has become increasingly of interest over the previous decade. The location in which people work and live has a significant impact on their health. The health of individuals who live in rural areas often fare worse when compared to the health of individuals who live in urban areas (Eberhardt & Pamuk, 2004). Access to healthcare, socioeconomic status, and health behaviors are common risk factors explaining the observed rural health disparities (Rural Health Information, 2019). Therefore, health disparities exist between rural and urban locations. Measures of health, such as mortality rates, morbidity rates, well-being, health behaviors, associated risk factors, and disease prevalence, all contribute to rural-urban health disparities that are observed. Health-related quality of life (HRQOL) mirrors these disparities in rural settings as lower rural HRQOL is consistently documented in literature when compared to urban settings.

HRQOL gives a broader measure of the burden of disease, shedding light on the levels physical impairment or disability experienced in rural and urban areas.

Wesleyan clergy living in urban areas exhibited higher scores in all domains of HRQOL when compared to those living in rural areas. Despite the lack of statistical significance in the difference observed, lower HRQOL reported among rural Wesleyan clergy is of practical significance. Practical significance refers to the usefulness of the results in a real-world context (Amrhein, Greenland, & MsShane, 2019). Wesleyan clergy's HRQOL would be negatively affected by a rural location, a finding which is of importance. Not considering this important finding due to non-significance of the difference could have detrimental consequences among clergy assigned to rural locations (Ziliak & McCloskey, 2008). From an occupational perspective, these findings raise concern, suggesting that clergy may be at an increased risk of experiencing poor quality of life and function because of their church assignment. The clergy population lends a unique perspective in studying contextual factors of HRQOL disparities. Wesleyan clergy are assigned to or periodically relocated to a conference—an assigned permanent geographical location. A clergy member's location is based on the congregational needs; thus, clergy do not self-select into rural or urban areas. The peripatetic nature of clergy assignments helps eliminate the cultural factors that are observed in rural-urban populations. Clergy who were raised in a rural area are not necessarily serving in a rural church and vice versa. Additionally, a Wesleyan clergy's career path typically advances from a smaller church toward a larger church. Due to the unique distribution of clergy throughout the United States, differences in HRQOL may be affected.

The relationship between rural health disparities and HRQOL has been described by Weeks et al. (2011), who found that HRQOL scores were significantly lower for veterans living

in rural areas. Additionally, rural veterans reported significantly more physical health comorbidities than their urban counterparts (Weeks et al., 2011). Low HRQOL among rural-based Wesleyan clergy is highly consistent with the findings of a previous study conducted by Miles et al. (2010), who found rural-based Methodist clergy also reported lower HRQOL than their urban counterparts. Joint disease, obesity, and income were identified as possible explanations for the observed HRQOL disparity (Miles et al., 2010). Lower HRQOL measures reported among rural Wesleyan clergy may be explained by the differing community infrastructures where health behaviors such as physical activity are not supported.

Research Aim Four

The number of Americans with chronic diseases has steadily increased in recent decades. Almost half of the American population suffers from chronic illness, the leading cause of death and disability in the US (Benjamin, 2010). While it may not be surprising that more Americans have a chronic condition, it is alarming that almost one in four Americans have multiple chronic diseases (Benjamin, 2010). The Wesleyan clergy are not immune to this trend. In order to assess HRQOL in the presence of chronic diseases, the number or frequency of chronic diseases were calculated for each participant. Approximately half of the clergy reported having at least one or more chronic diseases. It is important to note that 10% reported having multiple chronic diseases (MCD) of three or more. As individuals accrue more chronic conditions, positive health quality outcomes are reduced (Benjamin, 2010).

Wesleyan clergy that reported one or more chronic diseases (e.g., diabetes, cancer, coronary heart disease, arthritis.), had significantly lower HRQOL. The exception was in the dimension of mental health, as an observable difference between “no chronic disease” and “one or more chronic disease” (79.56 vs 74.91) was not significant. Though not statistically

significant, it is noteworthy that higher mental health scores were observed in the group without any chronic disease.

These findings align with the literature on chronic diseases and HRQOL scores. A study conducted by Heyworth et al. (2009), showed that HRQOL declined significantly and consistently with an increasing number of chronic conditions. The small number of studies that have looked into the issue support this observation as well. Wee et al. (2005) demonstrated that individuals with diabetes had a decreased HRQOL when hypertension, heart disease, or musculoskeletal illnesses were also present.

Proeschold-Bell & LeGrand (2012) found that clergy reported better physical functioning (a dimension of HRQOL) than the general population, despite reporting higher rates of chronic diseases. It was concluded that the higher physical functioning scores of clergy most likely indicated less disruption in occupational and social activities (Proeschold-Bell & LeGrand, 2012). A major methodological limitation of this study was that Methodist clergy members were only studied in North Carolina but were compared to the general population. In the current study, Wesleyan clergy reported worse physical functioning with the larger effect being in overall HRQOL. This is important because it may indicate that the Wesleyan clergy's health is disrupting their day-to-day functioning and limiting their abilities to perform their jobs optimality.

Wesleyan clergy without a chronic disease scored higher in the dimension of mental health which is clinically important. A review of literature suggests that the state of mental health among clergy is poor (Weaver et al., 2002) However, the current study suggests that in the absence of disease, mental health scores are higher among the Wesleyan clergy. Perhaps Wesleyan clergy are experiencing the benefits of their religious involvement. In 1989, a

comprehensive review of over 200 studies concluded that religious involvement was associated with improved or positive mental health outcomes (Larson et al., 1992). There is at least some level of evidence that religiosity benefits mental health among men, women, varied age ranges, various racial and ethnic groups, and those from various socioeconomic classes and geographic locations (Ellison & Levin, 1998). Religious involvement may benefit mental health through the generation of positive emotions. Practices of religion, such as prayer and worship, may lead to the experience or expression of emotions (Ellison & Levin, 1998). Through psychoneuroimmunological pathways or neuroplastic adaptations, these emotions could affect physiological parameters (Roozeboom, 2016). These positive emotions such as love, forgiveness, and contentment collectively could affect the measurement of the mental health construct of HRQOL.

Strengths & Limitations

A major strength of this study is the use of a theoretical framework. In using the Wilson-Cleary Model of Health Related Quality of Life framework, this study had a systematic approach in explaining and understanding Wesleyan Clergy's health. Additionally, survey research is useful in describing the characteristics of large populations and in collecting personal health data. The present study has some limitations. The findings of this study should therefore be interpreted within the context of these limitations. The final sample was 301, less than the minimum sample size needed of 384 to reduce a type II error. Additionally, the sample is limited to Wesleyan Clergy; therefore, caution should be taken in generalizing the findings to clergy of other doctrine, denominations, and geographical (rural/urban) locations. A limitation in this study is attributed the sample size being primarily male. This is not representative of the general population comprised of both males and females. Evidence suggests that men under report chronic

conditions in survey research (Malmusi, Artazcoz, Benach, Borrell, 2011). Additionally, gender influences the usage of health care systems where diagnoses are made (Malmusi, 2011). Therefore, Wesleyan clergy's self-reported prevalence estimates may not be an accurate comparison to the general population. The preferred type of data collection was cross-sectional due to the nature of inquiry and the population. The chosen methodological approach cannot demonstrate causality given the cross-sectional nature, but strong inferences were made in using the chosen study design. Another limitation is the use of self-report data, which may have been subject to reporting bias. Measures such as height and weight may not be entirely accurate. Self-reported health measures could be subject to recall bias or the tendency to give desirable answers (i.e., social desirability bias), portraying one's health in the best possible manner. Personal religiosity is also considered a confounding variable.

Implications for Social Change

In order to cultivate healthy churches that develop health communities, transformation must first occur among the Wesleyan clergy and within the Wesleyan denomination. Clergy serve as key leaders embedded in communities (Proeschold-Bell et al., 2011) and are often viewed as role models worthy of emulating. Therefore, the health and well-being of clergy can inherently trigger a ripple effect on the entire congregation (Cunningham, 2014). Clergy serve an estimated 339,000 churches, reaching approximately 152 million congregants—placing them in a position to address the health needs of communities (Proeschold-Bell & LeGrand, 2012). Religious organizations, facilitated by clergy, can bring about social change. However, to see these changes and efforts come to fruition, the clergy must first be supported at the denominational level. Changes in the occupational culture and organizational policy can encourage and empower clergy to make improvements in one's overall health. Improved overall

health among clergy can then lead to a significant improvement in the health of the local community and the general population.

Recommendation for Action

This study suggests an urgent need to create targeted health interventions for Wesleyan clergy. Religious organizations, such as the Wesleyan Headquarters, should consider being proactive about clergy health through implementing or enhancing efforts to promote the health and behaviors of the clergy. The state of clergy health is mixed. There is reason to celebrate and reason for concern. The findings of this study suggest that there is a need to develop health interventions aimed to improve Wesleyan clergy overall health-related quality of life. These interventions should focus on decreasing overall obesity rates. Ongoing and regular collection of health data on clergy in the Wesleyan Church would allow for comparison, monitoring, and early detection of health trends. This would allow the church to be proactive rather than reactive in their decision-making, which can reduce health expenses for the individual clergy and the Wesleyan organization. It may also be cost-effective for the Wesleyan denomination to seek out partnerships with academic or professional organizations to develop comprehensive health programs for their clergy. Additionally, the findings should be presented at the Wesleyan Church North American Conference. Disseminating these findings to the Wesleyan clergy can facilitate conversations around institutional change and raise awareness concerning health status at the individual level.

Recommendations for Further Study

More specifically, future consideration should be given to the following:

1) Issues related to access to health care. The majority of clergy have health insurance; however, most find it through other employers. A small percentage of clergy does not currently have health insurance. Clergy who are assigned to rural and urban geographic locations may have varying access to quality care. It is not fully understood if geographic location and health coverage status is a barrier to diagnosing and treating chronic diseases.

2) Increasing the research and analysis of information around the variables specific to the Wesleyan clergy. Wesleyan clergy remain an under-researched population. Income, years spent in ministry, hours worked per week, number of support staff, gender, and age should all be explored to a greater extent in order to understand the influences they have on clergy health status and the burden of chronic diseases. Specifically, there is even less known about clergy who are bi-vocational, having employment outside of the church. This sub-group of clergy may have differing experiences and stressors, which could result in quantitatively and qualitatively varying health outcomes.

3) Little is known concerning the current health status upon entering the ministry. It cannot be assumed that health status diminishes upon entering ministry. It may be that those already in poor health are drawn to religion or a lifestyle serving in ministry. In addition to the collection and analysis of this data upon entering the ministry, denominational polity and institutional factors and their effect on clergy health should be explored.

4) The usefulness of qualitative data in research on religion and health should not be overlooked. Clergy hold an optimistic view of their health status. Despite reporting poor quality of life and high rates of obesity, Wesleyan clergy reported their health as “very good.” It may be difficult to persuade clergy to participate in health interventions given this optimistic view. Research using qualitative methods, or even participatory methods, may provide insight into the

attitudes and beliefs surrounding the clergy's current health.

Conclusion

In conclusion, a large majority of clergy reported being overweight and obese but did not report higher rates of chronic disease normally associated when compared to the general population; there were significant associations between associated factors such as overweight/obesity, hypertension, or high cholesterol and the incidence of chronic diseases; clergy living in rural settings exhibited lower scores in all domains of HRQOL when compared to those living in urban settings; and clergy having one or more chronic diseases reported lower HRQOL measures.

The Wesleyan denomination and Wesleyan congregations must be concerned with clergy health as it directly relates to their effectiveness in ministry. Additionally, clergy must prioritize their physical health in order to fully live out their lives' callings. As John Wesley wrote to a friend in 1924, "I am glad that it has pleased God to restore your health, and that you have been employing it to the best of purposes. It is worth living for this, (and scarcely for anything else,) to testify the Gospel of the grace of God" (Telford, 1924).

REFERENCES

Allen, Robert. (n.d.). Wesleyan Church vs. Methodist Church. *Synonym*. Retrieved from https://classroom.synonym.com/wesleyan-church-vs-methodist-church-5653.html

American Cancer Society. (2017). Cancer facts & figures 2017. Retrieved from https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2017.html

American Society of Metabolic and Bariatric Surgery. (2017). Type 2 diabetes and obesity: Twin epidemics. Retrieved from https://asmbs.org/resources/weight-and-type-2-diabetes-after-bariatric-surgery-fact-sheet

Amrhein V, Greenland S, MsShane B. 2019 Retire statistical significance. Nature 567, 305– 307. (doi:10.1038/d41586-019-00857-9)

Bakas, T., McLennon, S. M., Carpenter, J. S., Buelow, J. M., Otte, J. L., Hanna, K. M., . . . Welch, J. L. (2012). Systematic review of health-related quality of life models. *Health and Quality of Life Outcomes, 10*(1), 134.

Baruth, M., Wilcox, S., & Evans, R. (2014). The health and health behaviors of a sample of African American Pastors. *Journal of Health Care for the Poor and Underserved, 25*(1), 229-241. doi:10.1353/hpu.2014.0041

Baruth, M., Wilcox, S., Laken, M., Bopp, M., & Saunders, R. (2008). Implementation of a faith-based physical activity intervention: Insights from church health directors. *Journal of Community Health, 33*(5), 304.

Baruth, M., Wilcox, S., & Saunders, R. P. (2013). The role of pastor support in a faith-based health promotion intervention. *Family & Community Health, 36*(3), 204-214. doi:10.1097/FCH.0b013e31828e6733

Batman, K. (2015). Alert: The Wesleyan Church announces a group health insurance arrangement. Retrieved from https://www.wesleyan.org/alert-the-wesleyan-church-announces-a-group-health-insurance-arrangement-3657

Benjamin R. M. (2010). Multiple chronic conditions: A public health challenge. *Public Health Reports (Washington, DC: 1974)*, *125*(5), 626–627. doi:10.1177/003335491012500502

Bopp, M., Baruth, M., Peterson, J. A., & Webb, B. L. (2013). Leading their flocks to health? Clergy health and the role of clergy in faith-based health promotion interventions. *Family & Community Health, 36*(3), 182-192. doi:10.1097/FCH.0b013e31828e671c

Bray, G. A., Heisel, W. E., Afshin, A., Jensen, M. D., Dietz, W. H., Long, M., & Hu, F. B. (2018). The science of obesity management: an endocrine society scientific statement. *Endocrine reviews*, *39*(2), 79-132.

Burns, N., & Grove, S. K. (2010). *Understanding Nursing Research: Building an Evidence-Based Practice*: Elsevier Health Sciences.

Carver, D. J., Chapman, C. A., Thomas, V. S., Stadnyk, K. J., & Rockwood, K. (1999). Validity and reliability of the medical outcomes study short form-20 questionnaire as a measure of quality of life in elderly people living at home. *Age and Ageing, 28*(2), 169-174.

Carroll, J. W., & McMillan, B. R. (2006). *God's Potters: Pastoral Leadership and the Shaping of Congregations*: Wm. B. Eerdmans Publishing.

Campbell, M. K., Hudson, M. A., Resnicow, K., Blakeney, N., Paxton, A., & Baskin, M. (2007). Church-based health promotion interventions: evidence and lessons learned. *Annu. Rev. Public Health, 28*, 213-234.

Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage publications.

Center for Disease Control and Prevention. (2017a). Heart disease. Retrieved from https://www.cdc.gov/nchs/fastats/heart-disease.htm

Center for Disease Control and Prevention. (2017b). Heart disease facts. Retrieved from https://www.cdc.gov/heartdisease/facts.htm

Center for Disease Control and Prevention. (2017c).national diabetes statistics report 2017. Retrieved from https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf

Center for Disease Control and Prevention. (2017d). Arthritis-related statistics. Retrieved from https://www.cdc.gov/arthritis/data_statistics/arthritis-related-stats.htm

Center for Disease Control and Prevention. (2017e). Cholesterol fact sheet. Retrieved from https://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_cholesterol.htm

Center for Disease Control and Prevention. (2017f). Adult obesity facts. Retrieved from https://www.cdc.gov/obesity/data/adult.html

Center for Disease Control and Prevention. (2017g). Related conditions. Retrieved from https://www.cdc.gov/ncbddd/disabilityandhealth/relatedconditions.html

Center for Disease Control and Prevention. (2017h). Chronic disease overview. Retrieved from https://www.cdc.gov/chronicdisease/overview/index.htm

Center for Disease Control and Prevention. (2017i). Defining Adult Overweight and Obesity. Retrieved June 6, 2019, from https://www.cdc.gov/obesity/adult/defining.html

Center for Disease Control and Prevention. (2017j). New CDC report: More than 100 million Americans have diabetes or prediabetes. Retrieved June 6, 2019, from https://www.cdc.gov/media/releases/2017/p0718-diabetes-report.html

Center for Disease Control and Prevention. (2014). About the Behavioral Risk Factor Surveillance System (BRFSS). Retrieved from https://www.cdc.gov/brfss/about/about_brfss.htm

Center for Disease Control and Prevention. (2009). The power of prevention. Retrieved from https://www.cdc.gov/chronicdisease/pdf/2009-Power-of-Prevention.pdf

Center For Health Wespath Benefits and Investment. (2017). Clergy well-being survey 2017 report [Fact sheet]. Retrieved October 2, 2018, from https://www.wespath.org/assets/1/7/5058.pdf

Cunningham, C. J. L. (2014). Religion and spirituality as factors that influence occupational stress and well-being. In P. L. Perrewé, C. C. Rosen, & J. R. B. Halbesleben (Eds.), *The Role of Demographics in Occupational Stress and Well Being (Research in Occupational Stress and Well-being, Vol. 12)*, 135-172.

Data USA: Clergy. (2014). Retrieved from American Community Survey (ACS) database, https://datausa.io/profile/soc/212011/?compare=210000

DeHaven, M. J., Hunter, I. B., Wilder, L., Walton, J. W., & Berry, J. (2004). Health programs in faith-based organizations: Are they effective? *American Journal of Public Health, 94*(6), 1030-1036.

Eberhardt, M. S., & Pamuk, E. R. (2004). The importance of place of residence: Examining health in rural and nonrural areas. *American Journal of Public Health*, *94*(10), 1682-1686.

Ellison, C. G., & Levin, J. S. (1998). The religion-health connection: Evidence, theory, and future directions. *Health Education & Behavior*, *25*(6), 700-720.

Fahimi, M., Link, M., Mokdad, A., Schwartz, D. A., & Levy, P. (2008). Peer Reviewed: Tracking Chronic Disease and Risk Behavior Prevalence as Survey Participation Declines: Statistics From the Behavioral Risk Factor Surveillance System and Other National Surveys. *Preventing Chronic Disease, 5*(3).

Ferguson, T. W., Andercheck, B., Tom, J. C., Martinez, B. C., & Stroope, S. (2015). Occupational conditions, self-care, and obesity among clergy in the United States. *Social Science Research, 49*, 249-263.

Flannelly, K. J., Weaver, A. J., Larson, D. B., & Koenig, H. G. (2002). A review of mortality research on clergy and other religious professionals. *Journal of Religion and Health, 41*(1), 57-68.

Frank, A., Auslander, G. K., & Weissgarten, J. (2004). Quality of life of patients with end-stage renal disease at various stages of the illness. *Social Work in Health Care, 38*(2), 1-27.

Gaynes, B. N., Burns, B. J., Tweed, D. L., & Erickson, P. (2002). Depression and health-related quality of life. *The Journal of Nervous and Mental Disease*, *190*(12), 799-806.

Glass, G. V. (1966). Note on rank biserial.

Halaas, G. W. (2002). *Ministerial Health and Wellness: 2002 Evangelical Lutheran Church in America*. Evangelical Lutheran Church in America.

Handbook, O. O. (2011). Bureau of LABOR STATISTICS. Retrieved from https://www.bls.gov/ooh/

Heo, S., Moser, D. K., Riegel, B., Hall, L. A., & Christman, N. (2005). Testing a published model of health-related quality of life in heart failure. *Journal of Cardiac Failure, 11*(5), 372-379

Heuvel, J. v. D. (2003) The psychometric qualities of the MOS-20 Short Form Health Survey in a Romanian setting. *The Romanian Health Care System In Transition From The Users' Perspective*, 25.

Heyworth, I. T., Hazell, M. L., Linehan, M. F., & Frank, T. L. (2009). How do common chronic conditions affect health-related quality of life? *The British Journal of General Practice: The Journal of the Royal College of General Practitioners*, *59*(568), e353–e358. doi:10.3399/bjgp09X453990

Keller, T. (2010). Leadership and church size dynamics: How strategy changes with growth. Retrieved June 14, 2018, from http://seniorpastorcentral.com/wp-content/uploads/2016/11/ Tim-Keller-Size-Dynamics.pdf

Kirk, R. E. (1996). Practical significance: A concept whose time has come. *Educational and psychological measurement*, *56*(5), 746-759.

Krejcir, R. J. (2007). Statistics on pastors. *Into Thy Word*. Retrieved from http://www.intothyword.org/apps/articles/?articleid=36562

Larson, D. B., Sherrill, K. A., Lyons, J. S., Craigie, F. C., Thielman, S. B., Greenwold, M. A., & Larson, S. S. (1992). Associations between dimensions of religious commitment and mental health reported in the American Journal of Psychiatry and Archives of General Psychiatry: 1978–1989. *American Journal of Psychiatry*, *149*(4), 557-559.

LeGrand, S., Proeschold-Bell, R. J., James, J., & Wallace, A. (2013). Healthy leaders: Multilevel health promotion considerations for diverse United Methodist Church pastors. *Journal of Community Psychology, 41*(3), 303-321. doi: 10.1002/jcop.21539

Lindner, E. W. (2009). *Yearbook of American & Canadian Churches 1998*, 7-12.Luchetti, L. (2014). Healthy pastor, healthy church. Retrieved June 13, 2018, from https://www.christianitytoday.com/pastors/2014/winter/healthy-pastor-healthy-church.html

Malmusi, D., Artazcoz, L., Benach, J., & Borrell, C. (2011). Perception or real illness? How chronic conditions contribute to gender inequalities in self-rated health. *The European Journal of Public Health*, *22*(6), 781-786.

Manister, N. N. (2012). *Role Stress, Eating Behaviors, and Obesity in Clergy.* City University Of New York.

Martin, C. M. (2007). Chronic disease and illness care: adding principles of family medicine to address ongoing health system redesign. *Canadian Family Physician, 53*(12), 2086-2091.

Megari, K. (2013). Quality of life in chronic disease patients. *Health Psychology Research*, *1*(3).

McNabb, W., Quinn, M., Kerver, J., Cook, S., & Karrison, T. (1997). The PATHWAYS church-based weight loss program for urban African-American women at risk for diabetes. *Diabetes Care, 20*(10), 1518-1523.

Miles, A., & Proeschold-Bell, R. J. (2012). Overcoming the challenges of pastoral work? Peer support groups and psychological distress among United Methodist Church clergy. *Sociology of Religion*, *74*(2), 199-226.

Miles, A., & Proeschold-Bell, R. J. (2011). Are rural clergy worse off?: An examination of occupational conditions and pastoral experiences in a sample of United Methodist clergy. *Sociology of Religion*, *73*(1), 23-45.

Miles, A., & Proeschold-Bell, R. J. (2011). Exploring rural/non-rural differences among United Methodist Churches and clergy in North Carolina: Duke Clergy Health Initiative, date of projected completion: 2015. *Review of Religious Research, 53*(3), 371-374. doi:10.1007/s13644-011-0030-5

Miles, A., Proescholdbell, R. J., & Puffer, E. (2011). Explaining rural/non-rural disparities in physical health-related quality of life: A study of United Methodist clergy in North Carolina. *Quality of Life Research, 20*(6), 807-815. doi:10.1007/s11136-010-9817-z

Munro, B. H. (2005). *Statistical Methods for Health Care Research* (Vol. 1): Lippincott Williams & Wilkins.

National Academies of Sciences, Engineering, and Medicine. (2018). *Health-Care Utilization as a Proxy in Disability Determination*. National Academies Press.

Nelsen, H. M., & Everett, R. F. (1976). Impact of church size on clergy role and career. *Review of Religious Research*, 62-73.

Nelson, D. E., Holtzman, D., Bolen, J., Stanwyck, C. A., & Mack, K. A. (2001). Reliability and validity of measures from the Behavioral Risk Factor Surveillance System (BRFSS). *Sozial-und Praventivmedizin, 46*, S3-42.

Orfila, F., Ferrer, M., Lamarca, R., Tebe, C., Domingo-Salvany, A., & Alonso, J. (2006). Gender differences in health-related quality of life among the elderly: The role of objective functional capacity and chronic conditions. *Social Science & Medicine, 63*(9), 2367-2380.

Phillips, R. L. (1975). Role of life-style and dietary habits in risk of cancer among Seventh-Day Adventists. *Cancer Research, 35*(11 Part 2), 3513-3522.

Pierannunzi, C., Hu, S. S., & Balluz, L. (2013). A systematic review of publications assessing reliability and validity of the Behavioral Risk Factor Surveillance System (BRFSS), 2004–2011. *BMC Medical Research Methodology, 13*(1), 49.

Proeschold-Bell, R. J., & Byassee, J. (2018). *Faithful and Fractured: Responding to the Clergy Health Crisis*. Baker Books.

Proeschold-Bell, R. J., & LeGrand, S. (2012). Physical health functioning among United Methodist clergy. *Journal of Religion and Health, 51*(3), 734-742.

Proeschold-Bell, R. J., LeGrand, S., James, J., Wallace, A., Adams, C., & Toole, D. (2011). A theoretical model of the holistic health of United Methodist clergy. *Journal of Religion and Health, 50*(3), 700-720.

Proeschold-Bell, R. J., & LeGrand, S. H. (2010). High Rates of Obesity and Chronic Disease Among United Methodist Clergy. *Obesity, 18*(9), 1867-1870. doi:10.1038/oby.2010.102

Resnicow, K., Kramish Campbell, M., Carr, C., McCarty, F., Wang, T.(2004). Body and soul: A dietary intervention conducted through African-American churches. *American Journal of Preventive Medicine, 27*(2), 97-105.

Rivera-Hernandez, M. (2015). The role of religious leaders in health promotion for older Mexicans with diabetes. *Journal of Religion and Health*, *54*(1), 303-315.

Roozeboom, W. D. (2016). *Neuroplasticity, Performativity, and Clergy Wellness: Neighbor Love as Self-Care*. Lexington Books.

Rowatt, G. W. (2001). Stress and satisfaction in ministry families. *Review & Expositor, 98*(4), 523-543.

Rural Health Information Hub. (2019). Retrieved October 26, 2019, from https://www.ruralhealthinfo.org/topics/rural-health-disparities#causes.

Shiu, A. T. Y., Choi, K. C., Lee, D. T. F., Yu, D. S. F., & Man Ng, W. (2014). Application of a health‐related quality of life conceptual model in community‐dwelling older Chinese people with diabetes to understand the relationships among clinical and psychological outcomes. *Journal of Diabetes Investigation, 5*(6), 677-686.

Sinha, R., van den Heuvel, W. J. A., & Arokiasamy, P. (2013). Validity and reliability of MOS short form health survey (SF-36) for use in India. *Indian Journal of Community Medicine, 38*(1), 22.

Sousa, K. H., & Kwok, O.-M. (2006). Putting Wilson and Cleary to the test: Analysis of a HRQOL conceptual model using structural equation modeling. *Quality of Life Research, 15*(4), 725-737. doi:10.1007/s11136-005-3975-4

Stier, G. (2016). Over 300,000 Churches in America: Do We Really Need More Church Plants? Retrieved June 14, 2018, from https://www.christianpost.com/news/ church-planting-growth-pastors-evangelicals-ministry-america-157730/

Stewart, A. L., Hays, R. D., & Ware, J. E. (1988). The MOS short-form general health survey: Reliability and validity in a patient population. *Medical care, 26*(7), 724-735.

Telford, J. (1924). *The Life of John Wesley*. Epworth Press.

Wallace, A. C., Proeschold-Bell, R. J., LeGrand, S., James, J., Swift, R., Toole, D., & Toth, M. (2012). Health programming for clergy: An overview of protestant programs in the United States. *Pastoral Psychology, 61*(1), 113-143. doi: 10.1007/s11089-011-0382-3

Watson, B. I. (2017). *African American Pastors' Perspectives on Health Promotion Ministries* (Doctoral dissertation, Walden University).

Ware J. E., Jr., Sherbourne, C. D., Davies, A.R. Chapter 16: Developing and testing the MOS 20-item Short-Form Health Survey: A general population application. In A. L. Stewart, J. E. Ware, Jr. (Eds.), *Measuring Functioning and Well-Being* (pp 277-290). Duke University Press. 1992

Weaver, A. J. (2005). Clergy as health care providers. *Southern Medical Journal, 98*(12), 1237-1237.

Weaver, A. J., Larson, D. B., Flannelly, K. J., Stapleton, C. L., & Koenig, H. G. (2002). Mental health issues among clergy and other religious professionals: A review of research. *Journal of Pastoral Care & Counseling, 56*(4), 393-403.

Webb, B., Bopp, M., Baruth, M., & Peterson, J. (2016). Health effects of a religious vocation: Perspectives from Christian and Jewish clergy. *Journal of Pastoral Care & Counseling, 70*(4), 266-271.

Wee, H. L., Cheung, Y. B., Li, S. C., Fong, K. Y., & Thumboo, J. (2005). The impact of diabetes mellitus and other chronic medical conditions on health-related Quality of Life: Is the whole greater than the sum of its parts? *Health and Quality of Life Outcomes*, *3*(1), 2.

Weems, J. (2009). Clergy Health: A Review of Literature. *Glenview, IL: Lewis Center for Church Leadership, Wesley Theological Seminary*.

Weeks, W. B., Kazis, L. E., Shen, Y., Cong, Z., Ren, X. S., Miller, D., & Perlin, J. B. (2011). Differences in health-related quality of life in rural and urban veterans. *American Journal of Public Health*, *94*(10), 1762-1767.

World Health Organization. (2019). Integrated chronic disease prevention and control. Retrieved June 6, 2019, from https://www.who.int/chp/about/integrated_cd/en/

Yanek, L. R., Becker, D. M., Moy, T. F., Gittelsohn, J., & Koffman, D. M. (2016). Project Joy: faith based cardiovascular health promotion for African American women. *Public health reports, 116*(1 suppl), 68-81.

Ziliak, S., & McCloskey, D. (2008). *The Cult of Statistical Significance: How the Standard Error Costs Us Jobs, Justice, and Lives*. Ann Arbor: University of Michigan Press. doi:10.3998/mpub.186351

Appendix A

Clergy Support Letter

January 8, 2018

Dear Ms. Mook,

I am writing to express my support for your research study, which will assess the current disease rates among Wesleyan clergy, and analyze the discrepancy between their perceived heath and current health status. Education and Clergy Development a Division of The Wesleyan Church is very supportive of research efforts dedicated to improving the health of Wesleyan Clergy.

To that end, Education and Clergy Development a Division of The Wesleyan Church, will make pastors names and email addresses available to you and your research team for use in acquiring data for the research. It is understood that all involved personal will follow IRB approved procedures.

We look forward to learning the results of your research.

With kind regards,

David Higle

David Higle, PhD
Director of Clergy Development
Education & Clergy Development
The Wesleyan Church

The Wesleyan Church Headquarters
13300 Olio Road, Fishers, IN 46037
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Education & Clergy Development
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Appendix B

Clergy Survey

Start of Block: Informed Consent

PREVALENCE OF CHRONIC DISEASE, ASSOCIATED FACTORS,
AND HEALTH RELATED QUALITY OF LIFE
AMONG WESLEYAN CLERGY

You are being invited to participate in a research study about the prevalence of chronic diseases, associated factors, and relationship with health-related quality of life among Wesleyan clergy. This study is being conducted by Angi Mook and Dr. Olabode Ayodele, from the Department of Applied Health Sciences at Indiana State University. This study is being conducted as part of doctoral dissertation.

There are no known risks if you decide to participate in this research study. While some participants might not directly benefit from being in this research study, some reasons you might want to participate in this research, is the information you provide will assist in a better understanding of the prevalence of chronic diseases among the Wesleyan clergy. It will also be used to help inform the development of effective interventions aimed at reducing chronic diseases and improving Wesleyan clergy's health related quality of life. You always have the right to leave the research at any time and for any reason. Some reasons you might not want to participate in this research may be that you might feel less comfortable than you thought you would or maybe the research takes up too much of your time as you will be asked to describe your current health status and quality of life.

The questionnaire will take about 10-15 minutes to complete. The information collected may not benefit you directly, but the information learned in this study should provide more general benefits.

This survey is private and confidential. Do not write your name on the survey. Anonymity will be provided through not collecting IP addresses in this web-based survey. Absolute anonymity cannot be guaranteed over the Internet. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study. The Institutional Review Board may inspect these records. Should the data be published, no individual information will be disclosed.

Your participation in this study is voluntary. By completing and electronically submitting this web-based survey, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason.

If you have any questions about the study, please contact Angi Mook, 401 N. 4th St., Office 432 Terre Haute, IN 47809, #812-237-3079 and awolgemuth@sycamores.indstate.edu or Dr. Olabode Ayodele, olabode.ayodele@indstate.edu.

If you have any questions about your rights as a research subject or if you feel you've been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN, 47809, by phone at (812) 237-3088, or by e-mail at irb@indstate.edu.

The survey is comprised of three sections. Section one is a series of demographic questions developed specifically for the clergy population. Section two utilizes questions from the Behavioral Risk Factors Surveillance System. Section three utilizes questions from the 20-Item Short Form Health Survey. To complete the survey, all three sections must be completed.

End of Block: Informed Consent

Start of Block: Demographics

Section 1: The following questions are demographic items that have been developed specifically for this survey.

Q1 What is your gender?

- ○ Male (1)
- ○ Female (2)

Q2 How old are you?

_____

Q3 What is your race/ethnicity?

- ○ White Non-Hispanic (1)
- ○ Black Non-Hispanic (2)
- ○ Hispanic (3)
- ○ Other Non-Hispanic (Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander) (4)

Q4 Are you now married, widowed, divorced, separated, or never married?

- Married (1)
- Widowed (2)
- Divorced (3)
- Separated (4)
- Never married (5)

Q5 How many years of education have you completed? (Choose one)

- High school graduate, GED, or equivalent (1)
- Some college, no degree (2)
- Associate's degree (3)
- Bachelor's degree (4)
- Master's degree (5)
- Professional school degree (6)
- Doctoral degree (7)

Q6 What is your annual household income (before taxes)? (Choose one)

- Less than $10,000 (1)
- $10,000 - $19,999 (2)
- $20,000 - $29,999 (3)
- $30,000 - $39,999 (4)
- $40,000 - $49,999 (5)
- $50,000 - $59,999 (6)
- $60,000 - $69,999 (7)

- ○ $70,000 - $79,999 (8)
- ○ $80,000 - $89,999 (9)
- ○ $90,000 - $99,999 (10)
- ○ $100,000 - $149,999 (11)
- ○ More than $150,000 (12)

Q7 What is your annual household income paid by the church (before taxes)? (Choose one)

- ○ Less than $25,000 (1)
- ○ $25,000 - $34,999 (2)
- ○ $35,000 - $49,999 (3)
- ○ $50,000 - $74,999 (4)
- ○ $75,000 - $99,999 (5)
- ○ More than $100,000 (6)

Q8 Are you ordained in the Wesleyan denomination serving as a head pastor?

- ○ Yes (1)
- ○ No (2)

Q9 How old were you when you enter the ministry, serving as a pastor?

_____

Q10 Are you currently serving full-time in a church?

- ○ Yes (1)
- ○ No (2)

Q11 How many years have you been serving as a full-time pastor?

_____

Q12 On average, how many hours do you work per week at your pastoral ministry job?

_____

Q13 Are you bi-vocational, working other sources of employment for income?

- Yes (1)
- No (2)

End of Block: Demographics

Start of Block: Environmental Variables

Q14 Please indicate the setting of your church.

- Rural or open country (1)
- Non-rural or urban (2)

Q15 What is the zip code of the church that you currently serve at?

_____

Q16 Approximately, how many congregants attend your church?

- 0-49 (1)
- 50-99 (2)
- 100-149 (3)
- 150-199 (4)
- 200-249 (5)
- 250-299 (6)
- 300 or more (7)

Q17 How many support staff are employed at your church?

_____

Q18 Do you currently have any health insurance or coverage?

- Yes (1)
- No (2)

Display This Question:

If Do you currently have any health insurance or coverage? = Yes

Q18b What is the source of health insurance or coverage?

- Church (1)
- Personal (2)

End of Block: Environmental Variables

Start of Block: Independent Variables

Section 2: The following questions are from the Behavioral Risk Factor Surveillance System (BRFSS).

Q19 Has a doctor, nurse, or other health professional EVER told you that you

	Yes (1)	No (2)	Don't know (3)	Not sure (4)
had a heart attack, also called a myocardial infarction? (1)	○	○	○	○
had angina or coronary heart disease? (2)	○	○	○	○
had a stroke? (3)	○	○	○	○
had asthma? (4)	○	○	○	○

had skin cancer? (5)	○	○	○	○
had any other types of cancer? (6)	○	○	○	○
had Chronic Obstructive Pulmonary Disease of COPD, emphysema or chronic bronchitis? (7)	○	○	○	○
have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia? (8)	○	○	○	○
have a depressive disorder, including depression major depression dysthymia, or minor depression? (9)	○	○	○	○

Q20 Have you EVER been told by a doctor or other health professional that you have pre-diabetes or borderline diabetes?

- ○ Yes (1)
- ○ Yes, during pregnancy (2)
- ○ No (3)
- ○ Don’t know (4)
- ○ Not sure (5)

Q21 Has a doctor, nurse, or other health professional EVER told you that you have diabetes?

- ○ Yes (1)
- ○ Yes, during pregnancy (2)
- ○ No (3)
- ○ Don't know (5)
- ○ Not sure (6)

Display This Question:

If Has a doctor, nurse, or other health professional EVER told you that you have diabetes? = Yes

Q21b Are you now taking insulin?

- Yes (1)
- No (2)

End of Block: Independent Variables

Start of Block: Associated Risks

Q22 Have you EVER been told by a doctor, nurse, or other health professional that you have high blood pressure?

- Yes (1)
- Yes, during pregnancy (2)
- No (3)
- Told borderline high or pre-hypertensive (4)
- Don't know (5)
- Not sure (6)

Display This Question:

If Have you EVER been told by a doctor, nurse, or other health professional that you have high blood... = Yes

Q22b Are you currently taking medications for your high blood pressure?

- Yes (1)
- No (2)

Q23 Blood cholesterol is a fatty substance found in the blood. Have you EVER had your blood cholesterol checked?

- ○ Yes (1)
- ○ No (2)
- ○ Don't know (3)
- ○ Not sure (4)

Q24 Have you EVER been told by a doctor, nurse, or other health professional that your blood cholesterol is high?

- ○ Yes (1)
- ○ No (2)
- ○ Don't know (3)
- ○ Not sure (4)

Q25 What is your height in feet and inches? (For example, 5' 10")

_____

Q26 What is your weight in pounds? (For example, 140)

_____

End of Block: Associated Risks

Start of Block: Health Related Quality of Life

Section 3 The following questions are from the 20-Item Short Form Health Survey (SF-20).

Q27 In general, would you say your health is:

- ○ Excellent (1)
- ○ Very Good (2)
- ○ Good (3)
- ○ Fair (4)
- ○ Poor (5)

Q28 Please mark the circle that best describes whether each of the following statements is true or false for you.

	Defiantly true (1)	Mostly true (2)	Don't know (3)	Mostly false (4)	Definitely false (5)
I am somewhat ill (1)	○	○	○	○	○
I am as healthy as anybody I know (2)	○	○	○	○	○
My health is excellent (3)	○	○	○	○	○
I have been feeling bad lately (4)	○	○	○	○	○

Q29 For how long (if at all) has your health limited you in each of the following activities?

	Limited for more than 3 months (1)	Limited for 3 months or less (2)	Not limited at all (3)
The kinds or amounts of vigorous activities you can do, like lifting heavy objects, running or participating in strenuous sports (1)	○	○	○
The kinds or amounts of moderate activities you can do, like moving a table, carrying groceries, or bowling (2)	○	○	○

Walking uphill or climbing a few flights of stairs (3)	○	○	○
Bending, lifting, or stooping (4)	○	○	○
Walking one block (5)	○	○	○
Eating, dressing, bathing, or using the toilet (6)	○	○	○

Q30 How much bodily pain have you had during the past 4 weeks?

- ○ None (1)
- ○ Very mild (2)
- ○ Mild (3)
- ○ Moderate (4)
- ○ Severe (5)
- ○ Very Severe (6)

Q31 Does your health keep you from working at a job, doing work around the house, or going to school?

- ○ Yes, for more than 3 months (1)
- ○ Yes, for 3 months or less (2)
- ○ No (3)

Q32 Have you been unable to do certain kinds or amounts of work, housework, or schoolwork because of your health?

- ○ Yes, for more than 3 months (1)
- ○ Yes, for 3 months or less (2)
- ○ No (3)

Q33 For each of the following questions, please mark the circle for the one answer that comes closest to the way you have been feeling during the past month.

	All of the time (1)	Most of the time (2)	A good bit of the time (3)	Some of the time (4)	A little of the time (5)	None of the time (6)
How much of the time, during the past month, has your health limited your social activities (like visiting with friends or close relatives)? (1)	○	○	○	○	○	○
How much of the time, during the past month, have you been a very nervous person? (2)	○	○	○	○	○	○
During the past month, how much of the time have you felt calm or peaceful? (3)	○	○	○	○	○	○
How much of the time, during the past month, have you felt downhearted and blue? (4)	○	○	○	○	○	○
During the past month, how much of the time have you been a happy person? (5)	○	○	○	○	○	○
How often, during the past month, have you felt so down in the dumps that noting could cheer you up? (6)	○	○	○	○	○	○

End of Block: Health Related Quality of Life

Appendix C

Email Introducing Clergy Survey

Dear Prospective Survey Participant,

I am a doctoral student from Indiana State University, and I am conducting a research study as part of my doctoral degree requirements. This is a letter of invitation to participate in this research study. The purpose of this study is to assess the current health status of the Wesleyan Clergy and associated factors. The study is aimed at exploring if poor health affects ministerial duties and quality of life.

By agreeing to participate in the study, you will be giving your consent for the researcher or principal investigator to include your responses in her data analysis. Your participation in this research study is strictly voluntary, and you may choose not to participate without fear of penalty or any negative consequences. You will be able to withdraw from the survey at any time by exiting the survey.

The survey will last no more than 15 minutes. Your participation will contribute to the current literature on the subject of Wesleyan Clergy health. No compensation will be offered for your participation. You may not directly benefit from this research; however, we hope that your participation in the study may help inform and create future health interventions for clergy in the Wesleyan denomination.

There will be no individually identifiable information, remarks, or comments of you as an individual participant. All results will be presented as aggregate, summary data. If you wish, you may request a copy of the results of this research study by emailing the researcher (Angi Mook) at: awolgemuth@sycamores.indstate.edu

If you wish to participate, you can access the informed consent document and the survey link at https://indstate.qualtrics.com/jfe/form/SV_dps3NPE38tnA1yB.

Thank you for your consideration,

Appendix D

Informed Consent

Indiana State University

College of Health and Human Services

Department of Applied Health Sciences
Terre Haute, IN 47809
812-237-3079
Fax: 812-237-8607

January 2019

PREVALENCE OF CHRONIC DISEASE, ASSOCIATED FACTORS, AND HEALTH RELATED QUALITY OF LIFE AMONG WESLEYAN CLERGY

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Your participation in this study is voluntary. By completing and electronically submitting this web-based survey, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason.