

3-28-2014

Religiosity, Spirituality, and Depressive Symptoms in Older Adults in an Active Living Community

Monica D'adrienne Solomon
University of South Florida, monicasolomon1@gmail.com

Follow this and additional works at: <https://digitalcommons.usf.edu/etd>



Part of the [Psychiatric and Mental Health Commons](#), [Public Health Commons](#), and the [Religion Commons](#)

Scholar Commons Citation

Solomon, Monica D'adrienne, "Religiosity, Spirituality, and Depressive Symptoms in Older Adults in an Active Living Community" (2014). *USF Tampa Graduate Theses and Dissertations*.
<https://digitalcommons.usf.edu/etd/5129>

This Thesis is brought to you for free and open access by the USF Graduate Theses and Dissertations at Digital Commons @ University of South Florida. It has been accepted for inclusion in USF Tampa Graduate Theses and Dissertations by an authorized administrator of Digital Commons @ University of South Florida. For more information, please contact digitalcommons@usf.edu.

Religiosity, Spirituality, and Depressive Symptoms in Older Adults in an Active Living
Community

by

Monica D'Adrienne Solomon

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Public Health
Department of Community and Family Health
College of Public Health
University of South Florida

Major Professor: Bruce Lubotsky Levin, DrPH
Amber Gum, Ph.D.
Carla VandeWeerd, Ph.D.

Date of Approval:
March 28, 2014

Keywords: religion, depression, spiritual, mental health, mediators

Copyright © 2014, Monica D. Solomon

DEDICATION

“Never give up, Monica. I wasn’t allowed to go to school because I was black, but you can. Never give up Monica, keep going as far as you can.” – R.I.P. Aaron “Wade” Solomon, Sr. This thesis is dedicated to my late Grandfather Aaron Solomon, Sr. His wisdom, strength, and work ethic left a beautiful legacy for future generations to follow. He is a constant reminder that you can achieve much success in life, no matter what obstacles are set before you. I would like to thank my Heavenly Father for His mercy, love, guidance, wisdom, encouragement, strength, and most evidently His enduring faithfulness throughout this entire process. I now fully understand the scripture: “I can do all things through Christ who strengthens me” (Philippians 4:13, New International Version). I would like to sincerely thank my mother, Mary Henderson, the strongest and most generous woman I know. Thank you for your prayers, love, and encouragement. I would like to thank my father, Aaron Solomon, for all of his encouraging words and support. Thanks to my big sister Marci and Aunt Tara, I truly admire your tenacity and determination in life. To my sister Davina, a treasure in the Potter’s hand, thank you for all the laughs. To all of my fourteen beautiful and intelligent nieces and nephews, this thesis is a heartfelt symbol of my prayer for limitless opportunities in each of your futures. To Christopher Simmonds, thank you for believing in me, motivating me, and being there for me. You are a special blessing and I am sincerely grateful for you. I would like to thank my best friend of fifteen years, Antoinette M. Charles for her encouragement, motivational conversations, and prayers; I am forever inspired by our friendship. I would like to thank Dr. T.J. Dorsey, my life role model for determination and selflessness. Finally, to my ancestors and the trailblazers who sacrificed so much that I might have the opportunity to pursue higher learning. Your legacy is my inspiration.

ACKNOWLEDGMENTS

I would like to acknowledge and thank all of my committee members Dr. Bruce Levin, Dr. Carla VandeWeerd and Dr. Amber Gum for challenging me and believing in my potential for academic and professional success. You all have played an instrumental role in my development as a public health professional and researcher. I will forever be grateful for the time you took to invest me and my future. I would like to extend my gratitude to Dr. Bruce L. Levin and Dr. Carla VandeWeerd for their continued and genuine support of my academic, personal, and professional growth. I would like to express my sincerest appreciation to Dr. Amber Gum for her great advice, mentorship, encouragement, and willingness to go above and beyond to help throughout this process. A special thank you to Ms. Mary for her encouragement of my academic endeavors. Finally, I would like to thank *The Villages* Leadership Team and Graduate Research Assistants on *The Villages* Project.

TABLE OF CONTENTS

List of Tables.....	iv
List of Appendices	vii
List of Figures.....	vii
List of Appendices	vii
Abstract.....	ix
CHAPTER ONE INTRODUCTION.....	1
Background.....	1
United States older adult population.....	1
Financial and mental health impact of chronic diseases.....	1
Depressive symptoms.....	2
Buffering role of religion.....	3
Religious beliefs and depressive symptoms.....	3
Religion, social support, and depressive symptoms.....	4
Religion and health behaviors.....	4
Theoretical Foundation.....	6
Health behavior and support mediation model.....	6
Religious definitions.....	8
University of South Florida (USF) Health in The Villages Study	8
Research aims and hypotheses.....	9
Study purpose.....	9
Aim I.....	10
Hypothesis I.....	10
Aim II.....	10
Hypothesis II.....	10
CHAPTER TWO MANUSCRIPT.....	11
Introduction.....	11
Depressive symptoms in older adults.....	11
Religious involvement as a protective factor.....	11
Gaps in research.....	12
Mediational Model.....	13
Health behavior and social support	13
Research aims and hypotheses.....	15
Study purpose.....	15

Aim I.....	15
Hypothesis I.....	15
Aim II.....	15
Hypothesis II.....	15
Methodology	16
The USF Health in <i>The Villages</i> Study.....	16
Description of <i>The Villages</i>	16
Overview.....	16
Data collection.....	17
Survey Design.....	17
Measurement Domains for this Analysis	18
Religious Indicators.....	18
Religiosity measures.....	18
Behavioral Health Outcome.....	19
Depressive Symptoms.....	19
Potential Mediators (Health Behaviors).....	19
Alcohol and tobacco use.....	19
Medication Adherence.....	20
Dietary Habits (Eating Breakfast and Fruits/Vegetables).....	20
Social Support.....	20
Demographics.....	21
Age and Gender.....	21
Relationship status.....	21
Income.....	21
Education.....	21
Ethnicity.....	21
Physical Health Outcomes.....	22
General Health Status.....	22
Physical Capabilities.....	22
General Health Questionnaire (Bodily pain).....	22
Data Analysis.....	22
Aim I. Depressive Symptoms.....	22
Aim II. Health Behaviors and social support as mediators.....	23
Results.....	23
Sample Characteristics.....	23
Spearman Correlations.....	24
Aim I Results: Depressive Symptoms.....	25
Aim II Results: Health behaviors and social support as mediators.....	25
Step 1.....	25
Step 2.....	26
Step 3.....	27
Step 4.....	28
Discussion.....	29
Summary of Findings.....	29
Implications.....	32
Behavioral health research.....	32

Behavioral health policy.....	33
Behavioral health practice.....	35
Faith-based collaborative initiatives.....	35
Faith community leaders.....	36
Study Limitations and Strengths	37
CHAPTER THREE DISCUSSION.....	39
Integration of religion and spirituality in interventions.....	39
Individual level.....	39
Religious beliefs.....	41
Organizational level.....	43
Training of religious leaders.....	44
Issues of measurement.....	46
Conclusion.....	46

LIST OF TABLES

Table 1: Prevalence of Depressive Symptoms.....	48
Table 2: Prevalence of Depressive Symptoms (Health Status, Health Behaviors, and Social Support).....	49
Table 3: Organizational Religiosity, by demographics.....	50
Table 4: Chi-Square of Religiosity and Depressive Symptoms	51
Table 5: Correlation Matrix of Religious Variables, Health Behaviors, Social Support, and Demographic Variables.....	52
Table 6: Regression of Religiosity, Proposed Mediators, and Covariates on Depressive Symptoms.....	53
Table 6a: (Continued) Regression of Religiosity, Proposed Mediators, and Covariates on Depressive Symptoms.....	54

LIST OF FIGURES

Figure 1: Theoretical Framework: Religious Variables, Health Behaviors, Social Support,
and Demographic Variables.....4

ABSTRACT

The population of older adults in the United States is steadily rising. The Centers for Disease Control and Prevention (CDC) recently released a call to reduce mental distress in older adults. Research shows that mental distress is associated with depressive symptoms, which are significantly related to many chronic medical conditions, functional impairment, suicide, and all-cause mortality. Depression is a major public health concern. There is an interest in gerontology research on the buffering role of engagement against depressive symptoms such as volunteering, social activities, and religion. Certain religious beliefs and behaviors contribute to maintaining or improving mental health and research suggests that religiosity may act as a buffer against depressive symptoms. As the population of older adults exponentially increases, there is a need for theory guided research that examines the relationship between religiosity and depressive symptoms and mediators as possible mechanisms.

This study addresses two important gaps in the literature on depressive symptoms within the religious gerontology field: the relationships of a wider range of religious variables with depressive symptoms, and examining health behaviors and social support as mediators. Data were collected from the University of South Florida (USF) Health in *The Villages* study, a population-based study of older adults residing in an active living community in southwest central Florida. Binary logistic regression analyses were conducted that examined multiple measures of religiosity (organizational religiosity, subjective religiosity, and subjective spirituality) and covariates as predictors of depressive symptoms as defined by the Patient Health Questionnaire-2 (PHQ-2). The PHQ-2 is a validated 2-item screener tool for measuring depressive

symptoms. A series of mediation analyses were conducted to test for possible mediation of religiosity and depressive symptoms. Proposed mediators included in the mediation analyses were: health behaviors (tobacco use, alcohol use, vegetable/fruit consumption, dietary habits, and medication adherence) and social support (emotional support and availability of a caretaker).

Organizational religiosity was significantly associated with depressive symptoms. However, subjective religiosity and subjective spirituality were not significantly associated with depressive symptoms. Health behaviors and social support did not mediate the relationship of organizational religiosity and depressive symptoms. Findings suggest that increased religious/church service attendance is associated with fewer depressive symptoms. Social support and health behaviors did not mediate the relationship between religious/church service attendance and depressive symptoms. Future research studies should explore other theory-guided constructs as possible mediators of religiosity and depressive symptoms. Additionally, contrasting findings between the relationship of depressive symptoms and subjective measures of religiosity versus organizational religiosity, suggests the continued use of multidimensional measures of religiosity within research. Future research should examine specific aspects of religious service attendance and in relation to depressive symptoms. Furthermore, 41% of participants who attended a religious/church service weekly or more reported depressive symptoms, thus based on their choice to regularly engage in religious activities, they are likely to be receptive to participating in faith-based approaches to address depressive symptoms. Therefore, for communities and individuals who are open to faith-based approaches, findings support the use of spiritually modified depression therapies at the individual level. Also, behavioral health prevention initiatives are recommended at the organizational level such as hosting depression screenings at faith-based health fairs. As the population of older adults

continues to rise public health and behavioral health professionals should explore opportunities for collaboration with faith-based communities.

CHAPTER ONE:

INTRODUCTION

Background

United States Older Adult Population

The United States is currently experiencing an unparalleled time in history within the older adult population (Centers for Disease Control and Prevention [CDC], 2013). Increases in the life span of the post-World War II baby boomer population have exponentially increased the proportion of older adults in the U.S. (CDC, 2013). It is projected that by 2050, adults over the age of 65 in the United States will reach almost 88.5 million, which more than doubles the 40 million older adults in 2010 (Werner, 2011; Vincent & Velkoff, 2010). As the last wave of baby boomers turns 65 years old in 2030, one out of every five U.S. residents will be an older adult. The aging of the United States population will influence delivery of social services, public health, and healthcare service systems (CDC, 2013; Federal Interagency Forum on Aging-Related Statistics, 2012). Managing health conditions among the increasing U.S. older adult population poses important healthcare cost implications for society (Vasiliadis et. al, 2013).

Financial and Mental Health Impact of Chronic Diseases

It is projected that Medicare expenditures will increase from \$555 billion dollars in 2011 to an estimated \$903 billion dollars in 2020 (Kaiser Family Foundation, 2011). Chronic diseases account for approximately two thirds of healthcare costs and 95% of older adults' health expenditures (CDC, 2013; Federal Interagency Forum on Aging-Related Statistics, 2012). Approximately 80% of older adult Americans have at least one chronic disease and 50% have at

least two chronic diseases (He, Sengupta, Velkoff, & DeBarros, 2005). Research findings suggest that chronic diseases are associated with frequent mental distress (Strine, Balluz, Chapman, Moriarty, Owens, & Mokdad, 2001; Al-Nsour, et al., 2013). The CDC recently released a call to action to reduce mental distress among older adults (CDC, 2013). Mental distress impacts quality of life and is associated with suicide ideation (Oregon Center for Health Statistics, 1997), suicide attempts and engagement in risky sexual behaviors, substance use, and violence (Bensley, Van Eenwyk, & Simmons, 2003; Lewinsohn, Rohde, & Seeley, 1994; Tsai, Chi, & Wang, 2013). Additionally, mental distress may hinder major aspects of life such as eating healthy, employment, and maintaining social relationships (CDC and National Association of Chronic Disease Directors, 2008). Furthermore, among older adults frequent mental distress is related to unhealthy behaviors such as decreased likelihood of consuming at least five fruits or vegetables every day (CDC, 2013). Furthermore, individuals who report recurrent mental distress are less likely to engage in moderate-to-vigorous activities throughout the week (McGuire, Strine, Okoro, Ahluwalia, & Ford, 2007 & Federal Interagency Forum on Aging-Related Statistics, 2012). Overall, mental distress influences various aspects of life for older adults.

Depressive symptoms. Depressive symptoms are characterized by depressed mood, diminished pleasure or interest in activities, insomnia or sleeping excessively, loss of energy or fatigue, frequent thoughts of death, decreased interest in activities, weight fluctuations, feelings of inappropriate guilt, and challenges with concentration (Centers for Disease Control and Prevention, 2011; American Psychiatric Association, 2013). Older Adults 2012 reports that just fewer than 11% of older adult males and nearly 16% of females age 65 years and older show clinically relevant depressive symptoms (Federal Interagency Forum on Aging-Related Statistics,

2012). Clinical features of late-life depressive symptoms include depressed mood, lack of feelings or emotions, depression without sadness, inexplicable health worries, avoidance of social interactions and social withdrawal, prominent reduction of interest in activities, and increased pain experience (Gallo & Rabins, 1999). In older adults, depressive symptoms are associated with dementia, mortality and morbidity, and impaired function (Steffens et al., 2006). Among community-residing older adults, high levels of depressive symptoms are considered an independent risk factor for mortality (Schulz, Beach, Ives, Lynn, Ariyo, & Kop, 2000). Despite all of the associated morbidity and mortality risks, depression is a treatable and common mental illness (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010).

Depressive symptoms are associated with poorer health outcomes: increased risk of stroke and stroke mortality, cardiovascular mortality (Ramasubbu & Patten, 2003), decreased adherence to a prescribed medication regimen, diabetes (Fiske, Wetherell, & Gatz, 2009), low adherence to dietary recommendations (Ciechanowski, Katon, & Russo, 2000), functional impairment (Ciechanowski, Katon, & Russo, 2000), suicide (Fiske, Wetherell, & Gatz, 2009), and poor sleep patterns (Coulombe, Reid, Boyle, & Racine, 2010). Additionally, depressive symptoms are associated with unhealthy behaviors of alcohol use (Trim, Schuckit, & Smith, 2010) and smoking (Balfour & Ridley, 2000). Overall, depressive symptoms can exacerbate health outcomes (World Health Organization, 2012).

Buffering Role of Religion

Religious beliefs and depressive symptoms. There is particular interest in gerontology research on the buffering “role of meaningful engagement, whether in social activities, volunteer work, or religion” against depressive symptoms (Fiske, Wetherell, & Gatz, 2009, p. 13). Research on religion and spirituality suggests that religiosity is associated with health, impacts

health behaviors, and can influence healthcare decision making (George, Kinghorn, Koenig, Gammon, & Blazer, 2013). Studies suggest that certain religious beliefs and behaviors contribute to maintaining or improving mental health (Koenig, 2012). Religiosity provides a sense of purpose, gratitude, forgiveness and feelings of hope, optimism, and altruism. Such behaviors and attitudes promote positive emotions that help to offset negative emotions of feelings of anxiety and depression (George, Kinghorn, Koenig, Gammon, & Blazer, 2013).

Religion, social support, and depressive symptoms. Religiosity may assist older adults coping with depressive symptoms through activities such as praying, reading scriptures, as well as participating in supportive communities may help reduce social isolation (George, Kinghorn, Koenig, Gammon, & Blazer, 2013). Active participation in religious activities may be protective against depressive symptoms (McCullough and Larson, 1999). Among the older adult population, reduced social support is correlated with increased depressive symptoms (Fiske, Wetherell, & Gatz, 2009, p.13). In older adults, loneliness, fewer visits from neighbors, and less organized social activities are associated with depressive symptoms (Adams, Sanders, & Auth, 2004). However, participation in religious communities may impact mental health because of the availability and accessibility of social support networks. Congregations are a promising mechanism for the development of friendships as well as support. Members of churches often are invaluable sources of support such as money, transportation, and aid for those grieving the loss of a loved one (Ellison & Levin, 1998).

Religion and health behaviors. Religiosity may prevent or moderate risky behaviors such as drug abuse, physical inactivity, cigarette smoking, and sexual promiscuity (Kvaavik, Batty, Ursin, Huxley, & Gale, 2010; George, Kinghorn, Koenig, Gammon, & Blazer, 2013). In a literature review of studies examining smoking behaviors and religiosity, religion was

inversely associated with lifetime tobacco use, regular tobacco use, and occasional tobacco use (Weaver, Flannelly, & Stock, 2005). Additionally, in a longitudinal study, it was found that participants who attended church once per week or more reported smoking less than participants who attended church infrequently (Whooley, Boyd, Gardin, & Williams, 2002). Moreover, research suggests that religious affiliation is associated with less consumption of alcohol as well as less excessive drinking habits among individuals who drink alcohol (Beeghley, Bock & Cochran, 1990; Krause, 2003; Kaskutas, Bond, & Weisner, 2003). In a systematic review of the literature, authors determined, “the evidence supporting the conclusion that religiosity is protective against alcohol use and is not a risk factor for alcohol use is persuasive” (Chitwood, Weiss, & Leukefeld, 2008, p. 669). Of the 85 research studies evaluated, 73 studies were found to have at least one protective relationship between religiosity and alcohol consumption (Chitwood, Weiss, & Leukefeld, 2008). Religion influences alcohol consumption through specific doctrines and beliefs that restrict alcohol use, such religious groups are referred to as proscriptive (Holt, Miller, Naimi, & Sui, 2006). Proscriptive religious groups take an active role to avoid alcohol consumption through doctrinal stances, using grape juice or nonalcoholic beverages in communion/Eucharist, and preaching sermons about the alcohol’s negative effects (Holt, Miller, Naimi, & Sui, 2006). Also, religion provides a supportive environment and alternate means of coping with negative emotions and feelings that may otherwise lead to heavy drinking (Beeghley, Bock & Cochran, 1990). Religiosity has been shown to be associated with dietary habits. For example, vegetable consumption is significantly associated with receiving emotional religious support (Debnam, Holt, Clark, Roth, & Southward, 2012). Also, organizational religiosity is significantly associated with the consumption of vegetables and fruits (Holt, Haire- Joshu, Lukwago, Lewellyn, & Kreuter, 2005). Medication adherence is

considered an important health behavior known to improve quality of life among patients (Krectchy, Owusu-Daaku, & Danquah, 2013). It is essential that health professionals who prescribe medication possess an awareness of patients' religious and spiritual customs which may be prohibitive of certain medications (Spitzer, 2003). Basic knowledge is informative as religious beliefs may be prohibitive to certain prescription ingredients such as animal-based derivatives (Khokhar, Ali, Hameed, & Sadiq, 2008). For example, glycerol, lactose, and porcine products are prohibitive within Jewish law (Spitzer, 2003). In sum, religiosity influences health behaviors such as cigarette smoking, alcohol use, and medication adherence.

Theoretical Foundation

Within the field of gerontology limited efforts have been made to test and develop theories regarding the effects of religion. According to Levin and Chatters (2008), theoretically guided research in the field of religious gerontology has been neglected. Considering the limited amount of research in this area, this study's theoretical framework is guided by the fourth tense of theory, mediators. Four theoretical constructs within sociology are often utilized: grand theories, mid-range theories, theoretical models, and mediators, moderators, and mechanisms (Levin, Chatters, & Taylor, 2011). Mediators, moderators, and mechanisms explain the underlying causes of significant relationships among independent and dependent outcomes (Levin & Chatters, 2008). Although a need exists for identifying mediators in the field of religion and health (Son & Wilson, 2011), there is a dearth of research. This study contributes to the field of religion and health through the use and testing of a mediation model of proposed health behaviors (i.e. alcohol use, tobacco use, and medication adherence) and social support shown in Figure 1. The proposed mediation model draws upon tenants of social support (i.e. availability of emotional support) as well as health behaviors and their relationship between

measures of religiosity and depressive symptoms.

Health behavior and social support mediation model. Figure 1 depicts this study’s theoretically guided mediation model between religiosity and depressive symptoms. This study’s proposed mediators are categorized as health behaviors and social support. As Figure 1 demonstrates, this study takes the approach that the relationship of religiosity and depressive symptoms are explained by influences of social support and individual health behaviors. The box titled, religious indicators, includes the study’s religiosity measures: organizational religiosity, subjective spirituality, and subjective religiosity. Furthermore, the box, titled behavioral health outcome, is guided by previous literature that suggests depressive symptoms are associated with demographic factors and physical health outcomes (Braam, et al. 2005). Overall, Figure 1 showcases the study’s proposed mediation model which draws upon tenets of social support and health behaviors and their influence on religiosity and depressive symptoms.

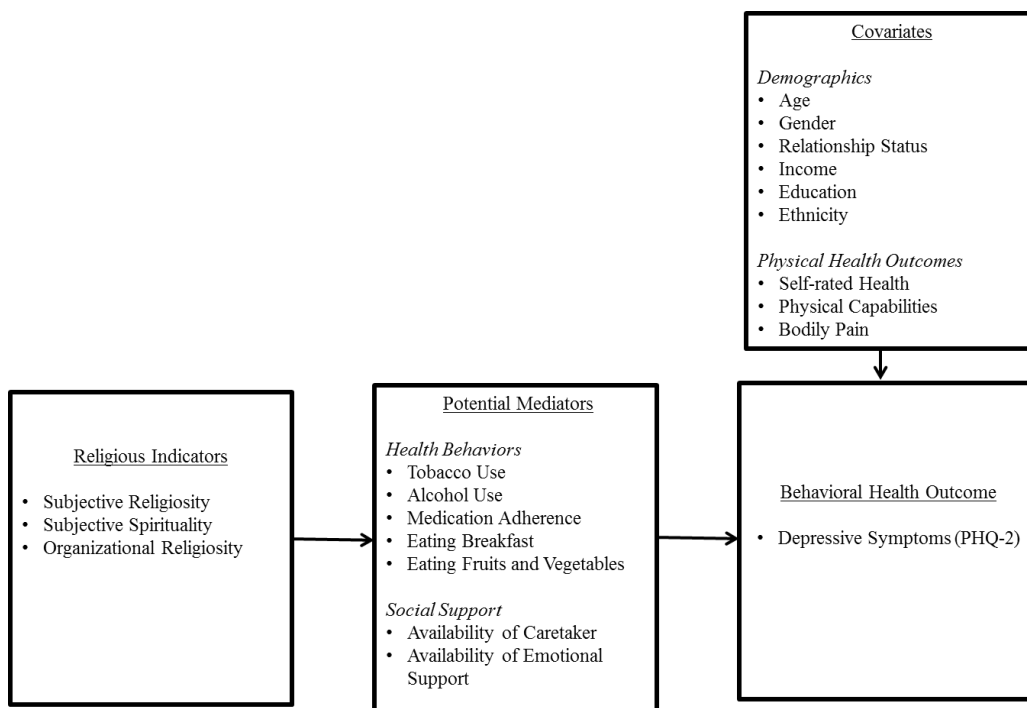


Figure 1: Theoretically guided mediation model: religiosity, health behaviors, social support, and covariates

Religious definitions. Researchers have distinguished between distinct dimensions of religiosity and spirituality, which may have unique relationships to depressive symptoms. The term religiosity has been used by researchers to denote the multiple measures of religious beliefs, importance of religion, and participation in religious activities (U.S. Department of Health & Human Services, 2009). Religion is defined as a structured system of traditions, beliefs, and symbols designed to support closeness to the transcendent or sacred such as God or higher truth. Moreover, religion is conceptualized as facilitating an understanding of one's responsibility to others while residing in a community together (Koenig, McCullough, & Larson, 2001). In contrast, spirituality is defined as an individual quest for understanding answers to questions of life's meaning and connection to the sacred. Spirituality may or may not lead to the cultivation of religious rituals and the development of a community (Koenig, McCullough, & Larson, 2001).

University of South Florida (USF) Health in *The Villages* Study. This study is part of a larger study conducted between September 2011 and April 2013 by a partnership between the University of South Florida (USF) Health located in Tampa, Florida and *The Villages*, an older adult active living community in southwest central Florida. *The Villages* is located across three counties: Lake County, Marion County, and Sumter County. *The Villages'* environment promotes a healthy and active lifestyle through access to approximately 34 neighborhood centers and 1,908 organized resident clubs within *The Villages* property. Furthermore, 11 religious institutions are accessible by small electronic golf carts, of which nine are of the Christian faith and one of the Jewish faith. The study utilized community based participatory approaches with guidance from *Villages* residents, *Villages* leadership, and faculty and staff from USF colleges of Medicine, Public Health, Nursing, and School of Pharmacy. The study represents the largest health assessment of comprehensive health data collected for older adults in the United States at

one time (n=33,119).

The data used in this study are part of a three phase study, The USF Health in *The Villages* Study. During the formative stage, focus group participant recruitment began in September 2011. Participants were recruited through announcements about the study at community events, The USF Health satellite office located in *The Villages*, and *Villages* sanctioned clubs and organizations. *The Villages* residents filled out forms at local community events and the USF Health satellite office located in *The Villages* to indicate their interest in participating in the focus groups. Potential participants were randomly contacted for Phase One of the study, which consisted of focus groups to identify the health needs in the community. Focus groups (n= 451) were conducted between September 2011 to December 2011 and stratified by gender, age, and general health status (poor, fair and good). Focus group data from Phase One informed the development of the Phase Two quantitative health survey. Phase Two consisted of an administered population-based quantitative health survey. Phase Three consisted of focus groups with an emphasis on member validation of the quantitative health survey data and further clarification of salient themes.

This study uses data collected from Phase Two in which instruments were administered using a split ballot format which included a set of core demographic and self-reported health questions and topic health questions that varied by survey. The three surveys included questions related to mental health, self-rated health status, quality of life, chronic diseases, social cohesion, and social support.

Research aims and hypotheses

Study purpose. This study addresses two important gaps in the literature on religiosity and depressive symptoms in older adults. It examines the relationship of a wider range of

religious variables and depressive symptoms. Also, the study tests health behaviors and social support as mediators. The study examines the relationships of religiosity (organizational religiosity, subjective religiosity, and subjective spirituality) and depressive symptoms in older adults living in an active living community. Accordingly, the following two study aims and hypotheses were developed by the author:

Aim I. This study aims to examine three measures of religiosity in relation to depressive symptoms in older adults in an active living community.

Hypothesis I. It is hypothesized that higher organizational religiosity, subjective religiosity, and subjective spirituality are associated with lower depressive symptoms, after controlling for potential covariates of depressive symptoms.

Aim II. The study aims to examine two potential categories of mediators (health behaviors, social support) of relationships between the three measures of religiosity and depressive symptoms.

Hypothesis II. It is hypothesized that health behaviors and social support will mediate relationships between religiosity and depressive symptoms.

CHAPTER TWO:

MANUSCRIPT

Introduction

Depressive Symptoms in Older Adults

Older Adults 2012 reports that just fewer than 11% of older adult males and nearly 16% of females age 65 years and older show clinically relevant depressive symptoms (Federal Interagency Forum on Aging-Related Statistics, 2012). Clinical features of late-life depressive symptoms include depressed mood, lack of feelings or emotions, depression without sadness, inexplicable health worries, avoidance of social interactions and social withdrawal, prominent reduction of interest in activities, and increased pain experience (Gallo & Rabins, 1999). In older adults, depressive symptoms are associated with dementia, mortality and morbidity, and impaired function (Steffens et al., 2006). Among community-residing older adults, high levels of depressive symptoms are an independent risk factor for mortality (Schulz, Beach, Ives, Martire, Ariyo, & Kop, 2000). Depression can often be successfully treated, however many individuals do not receive adequate treatment as well as some do not benefit from treatments. Thus, additional research initiatives are needed to improve the treatment and prevention of late life depression. Despite all of the associated morbidity and mortality risks, depression is a treatable and common mental illness (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010).

Religious Involvement as a Protective Factor

Religion and health research have far reaching implications for the field of gerontology (George, Kinghorn, Koenig, Gammon, & Blazer, 2013), as religiosity may act as a buffer against

depressive symptoms. Religiosity has been shown to be associated with lower prevalence of mental disorders (Bonelli & Koenig, 2013), fewer depressive symptoms (Koenig, McCullough, & Larson, 2001; Sternthal, Williams, Musick, & Buck, 2010) higher likelihood of depression remission (Bosworth et al., 2003), and lower likelihood of depression onset (Ellison & Flannelly, 2009). Additionally, religious involvement is inversely associated with lifetime and 12- month major depressive disorders (Taylors, Chatters, & Abelson, 2012). The relationship between depression and religion however is complex (Taylors, Chatters, & Abelson, 2012; Ellison & Levin, 1998). In some instances church attendance (Baetz, Griffin, Bowen, Koenig, & Marcoux, 2004; Chatters et al., 2008), is inversely associated with depression whereas religious factors such as watching religious television and religious reading are related to higher depression rates (Koenig, George, & Titus, 2004; McCullough & Larson, 1999). Despite the multifaceted role of religion; when distinguishing religion as a protective factor versus religion as therapeutic in nature (i.e. positive relationships with depressive symptoms); findings consistently demonstrate that religion has a beneficial impact on depressive symptoms (Taylor, Chatters, & Abelson, 2012). Overall, these varying findings emphasis the multidimensional aspect of religion and role of mechanisms and causal pathways within the relationship of religiosity and depressive symptoms (Levin & Chatters, 1998; Taylor, Chatters, & Abelson, 2012).

Gaps in research. Differentiating the relationship of depressive symptoms in older adults with multiple dimensions of religiosity is needed. To address this research gap, the current study utilizes a multidimensional approach (Johnstone, McCormack, Yoon, & Smith, 2012) through measures of organizational religiosity (i.e., church and religious service attendance), subjective religiosity (i.e., do you consider yourself religious), and spirituality (i.e., do you consider yourself spiritual). In a recent literature review, few studies were found that utilized multiple

dimensions of religiosity as measures (Basu-Zharku, 2011). Most research has focused on organizational religiosity, with less attention on subjective religiosity and spirituality. Studies show that organizational religiosity is associated with less depressive symptoms, higher quality of life, better self-rated health, and less perceived pain (Levin, 2012a; Levin, 2012b; Lucchetti, et al., 2011). Despite preliminary findings that spirituality may increase with age, there is still a need for additional research that assesses multiple dimensions of religiosity, to determine whether depressive symptoms in older adults are also associated with subjective religiosity as well as spirituality (Moberg, 2005).

Mediational model. In addition to the need for the assessment of multiple dimensions of religiosity, there is a gap in the literature evaluating the underlying mechanisms of the relationship between religiosity and depressive symptoms (George, Ellison, & Larson, 2002). The field of gerontology has produced limited studies toward testing and developing theories regarding the effects of religion. According to Levin and Chatters (2008, p.162), “research on religion, aging, and health, while demonstrating significant effects, is theoretically impoverished.” Considering the limited theoretically guided research within this area, this study’s theoretical foundation incorporates the testing of potential mediators (See Figure 1.). Mediators, moderators, and mechanisms explain empirically found relationships among independent and dependent outcomes (Levin & Chatters, 2008). Although the mediation model is commonly referenced in studies of religion and health, it is seldom tested (Son and Wilson, 2011).

Health behavior and social support. Healthier lifestyle behaviors are frequently promoted by religious principles, suggesting one of the more direct relationships between religious indicators and improved mental health outcomes (Powell, Shahabi, & Thoresen, 2003;

Son & Wilson, 2011). Certain religions often include restrictions of behaviors that are considered risk factors for depressive symptoms such as limiting alcohol, tobacco, and illegal substance use, as well as avoiding risky sexual and violent actions (George, Larson, Koenig, & McCullough, 2000).

Furthermore, literature on social support provides a good foundation for understanding its' relationship to religion (Krause, Ellison, Shaw, Marcum, & Boardman, 2001). Social support is understood as assets people receive through their social ties and social networks (Rodriguez & Cohen, 1998). Social support research suggests that individuals can receive tangible, informational, emotional (Kinney et al., 2003), and appraisal (Holt, Clark, Wang, Williams, & Schulz, 2014; House, 1991) assistance from other people. Individuals who are actively engaged in religious communities develop social contacts within religious settings that flourish into supportive relationships (Krause, Ellison, Shaw, Marcum, & Boardman, 2001). Religious communities facilitate social interactions that often reduce feelings of alienation, a common feeling among older adults (Koenig, McCullough, & Larson, 2001). Social support is provided through readily available avenues for social bonds outside of one's family through religious fellowship, which is often considered a mandate for some religions (George, Larson, Koenig, & McCullough, 2000). Health behaviors and social support have been shown to mediate the relationship between religiosity and mental health outcomes in some instances (Son & Wilson, 2011) however, research has shown mixed findings. For example, in a sample of African American older adults living in an urban setting, low levels of smoking was found to mediate the relationship between church attendance and health (Koenig & Vaillant, 2009). Furthermore, in a large population study of Asian-Americans social support was found to be a mediator between religious attendance and depression (Ai, Huang, Bjorck, & Appel, 2013). However, it is

important to note that research findings on religion and health mechanisms are still in the early stages of conceptualizing (Ellison, Hummer, Burdette, & Benjamin's, 2010). For example, in review of research studies, although, having a healthy lifestyle was concluded a mediator, mixed evidence was found for social support, of which several research studies did not report evidence of mediation (George, Ellison, & Larson, 2002). These mixed findings warrant additional research of other proposed mediators (Koenig & Vaillant, 2009) and expanding the exploration of mediators to a multidimensional assessment of religiosity.

Research Aims and Hypotheses

Study purpose. This study addresses two important gaps in the literature on religiosity and depressive symptoms in older adults residing in an active living community. It examines the relationship of a wider range of religious variables and depressive symptoms. Also, the study tests health behaviors and social support as mediators.

Aim I. This study aims to examine three measures of religiosity (i.e., organizational religiosity, subjective religiosity, and subjective spirituality) in relation to depressive symptoms in older adults in an active living community.

Hypothesis I. It is hypothesized that higher organizational religiosity, subjective religiosity, and subjective spirituality are associated with lower depressive symptoms, after controlling for potential covariates of depressive symptoms.

Aim II. The study aims to examine two categories of potential mediators (health behaviors, social support) of relationships between the three measures of religiosity and depressive symptoms.

Hypothesis II. It is hypothesized that health behaviors and social support will mediate relationships between religiosity and depressive symptoms.

Methodology

The USF Health in *The Villages* Study

Description of *The Villages*. *The Villages* is an active living community of approximately 89,000 residents, primarily over the age of 55 years, located in three central Florida counties: Lake County, Marion County, and Sumter County. Residents of *The Villages* are afforded access to over 160 local shops and businesses, community wide activities, health care facilities and providers, and diverse recreational activities. *The Villages* supports a healthy lifestyle through health educational events, 34 recreations centers, over 800 daily recreational activities, and 1,908 organized resident clubs within *The Villages* properties. *The Villages* encompasses approximately 40 square miles and is home to a plethora of entertainment activities including two Town Center movie theatres, Savannah Center performing arts center, free nightly entertainment, private club, and *The Villages* philharmonic orchestra. Media outlets in the community include *The Villages* Daily Sun newspaper with a circulation of 47,000, *The Villages* News Network, and *The Villages.net*. *The Villages* provides residents with an environment that promotes social cohesion and social capital, with a goal of becoming “America’s Healthiest Hometown.”

Overview. The data were collected as part of a larger multiple method three phase study, The University of South Florida (USF) Health in *The Villages* Study. During the formative stage (Phase One), October 2011 to January 2012, 59 focus groups (n=451) were conducted. Residents of *The Villages* were randomly contacted to provide community input and identify the health needs in the community. Focus group data from Phase One informed the development of

The Villages Health Assessment, a population-based quantitative health survey; administered January 2012 to April 2012 (Phase Two). The health survey was administered using a split ballot design that allowed for a wide range of measures to be collected across *The Villages* population. During February 2013 to April 2013, Phase Three consisted of 30 focus groups (n=146) with an emphasis on member validation of the quantitative health survey data and further clarification of salient themes collected from early surveys.

Data collection. This study's quantitative analysis includes data collected from *The Villages* Health Assessment (Survey Two) administered in Phase Two. During January 2012, residents of *The Villages* were provided a notice about the upcoming health survey. Additionally, announcements were made about the survey through Town Hall meetings, community wide presentations, and several advertisements in local news media outlets. During February to April 2012, quantitative health surveys were mailed to 88,527 residents in *The Villages*, and 33,119 (37.1%) completed surveys were returned by mail or submitted online (N=3,803). During the data collection period, February to April 2012, residents were encouraged to complete the survey through reminders at local community events and advertisements in local media outlets. Return of completed survey packets demonstrated informed passive consent as indicated by the USF Institutional Review Board (IRB).

Survey Design. Multiple occupants within one residence were provided with individual survey packets for each resident. Mailing addresses of *Villages* residents were provided by *The Villages* development team. Survey packets included a cover letter with the research study's purpose, instructions on how to complete and return the survey, and information about the survey's anonymity. Additionally, the packet included an envelope for return at designated drop boxes placed at community mail boxes. The survey was administered using a split-ballot format,

of which three surveys included a common set of core questions: demographic and self-reported health questions. Each survey also included a set of topical measures: Health Behaviors (Survey One), Mental Health/ Health Care Access (Survey Two), and Quality of Life and Social Support/ Social Cohesion (Survey Three). The three surveys included short and well established surveys instruments related to: health behaviors (alcohol use, medication compliance, and tobacco use), mental health, health care access, self-rated health status, quality of life, and social support/ cohesion. The variables of interest in this study were administered via Survey 2 of which 10,495 surveys were returned. All returned paper versions of the survey were mailed to Scantron for upload into the company's survey tracking software and exported into SPSS. Paper surveys that were unable to be uploaded into the survey tracking software (n=721) were entered by trained Graduate Assistants. The data were cleaned and 3% of survey cases were double verified for data quality assurance purposes.

Measurement Domains for this Analysis

For the purpose of this study, analyses focused on measures of self-rated health, health behaviors, social support, organizational religiosity, subjective religiosity, and subjective spirituality. Demographic questions included age, ethnicity, relationship status, gender, educational level and the following instruments (see Appendix A).

Religious Indicators

Religiosity measures. Measures of religiosity included subjective religiosity, subjective spirituality, and organizational religiosity. Subjective religiosity was measured by the question, do you consider yourself a religious person represented by responses of yes and no. Subjective spirituality was measured by the question, do you consider yourself a spiritual person, with responses of yes and no. Organizational religiosity was measured by the following question,

how often do you attend church or other religious services; with responses of daily, a few times per week, weekly, a few times per month, monthly, a few times per year, only at the holidays, and I do not attend. Items were recoded to reflect representing do not attend and representing attends weekly or more, 2 representing less than weekly or monthly, and 3 representing attends yearly and at holidays.

Behavioral Health Outcome

Depressive Symptoms. The Patient Health Questionnaire (PHQ-2) is a 2-item screener tool that measured depressive symptoms. The PHQ-2 is a validated (Löwe, Kroenke, & Gräfe, 2005; Kroenke, Spitzer, & Williams, 2003); research shows that the PHQ-2 has approximately 78% specificity and 87% sensitivity for major depressive disorder and a 86% specificity and 79% sensitivity for any depressive disorder. The PHQ-2 is considered comparable to longer depression scales (Löwe, Kroenke, & Gräfe, 2005). This measure was dichotomized by negative for PHQ-2 (non-depressed) for sum scores less than three and positive for PHQ-2 (depressed) for sum scores three and higher.

Potential Mediators (Health Behaviors)

Alcohol and tobacco use. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) is a brief instrument that measures recent (within the past three months) and lifetime use of ten substances. A team of international substance abuse researchers developed the ASSIST for the World Health Organization (WHO) aimed at detection of substance use and related problems in primary and medical healthcare settings (Humeniuk & Ali, 2006). Two questions measuring recent and lifetime tobacco use were included in this study. The Alcohol Use Disorders Identification Test (AUDIT) was developed by WHO as a brief assessment tool for excessive drinking behaviors. This study included one item from the AUDIT, which assessed

whether someone has been concerned about the participant's drinking behavior (Bergman & Kallman, 2002).

Medication Adherence. The Simplified Medication Adherence Questionnaire (SMAQ) is a short and reliable instrument for assessing medication adherence (Knobel et al., 2002; Oretga et al., 2011). This tool assesses patients about their medication adherence habits to a specified treatment. The instrument is comprised of six questions, of which three questions were used in this study. Three instrument items were changed from the original question of: do you ever forget to take your medication modified to have you ever forgotten to take your medication. Also, the question sometimes if you feel worse, do you stop taking your medicines was modified to when you feel bad, have you ever discontinued your medication. Finally, the question are you careless at times about taking your medicine was modified to do you always take your medication at the appropriate time.

Dietary Habits (Eating Breakfast and Fruits/Vegetables). Three questions measuring dietary habits were used in this study from the Determine Your Nutrition Health Checklist. The Determine Your Nutrition Health Checklist was designed to assess risk of poor nutritional status (Nutritional Screening Initiative, 1991). The Determine Your Nutritional Health Checklist question regarding eating few fruits or vegetables or milk products was changed to, "do you eat few fruits and vegetables." Modified versions of the Nutritional Health Checklist have shown capability of identifying older adults with an increased risk of nutrition-related health issues (Beck, Ovesen, & Osler, 1999).

Social Support. The National Health and Nutrition Examination Survey (NHANES) is a program of research studies developed to evaluate the health and diet of United States residents (CDC, 2007). The NHANES Survey uses a combination of data collection methods including

survey instruments, interviews, and physical examinations to collect data. The availability of emotional support of this study's participants was measured by a social support question from NHANES (CDC, 2007). The availability of a caretaker was measured by a one item from the Senior Health Questionnaire: whether a neighbor, friend, or family member could care for the participant, if necessary (Boult et al., 1993).

Demographics

Age and Gender. Age items were collapsed and recoded from the original categories of 55-60, 61-65, 66-70, 71-75, 76-80, 81-85, 86 and older and modified to 55-65, 66-85, and 86 and older.

Relationship status. Relationship status items were collapsed and recoded from original items of modified to single, married, divorced, separated, widowed, partner/significant other, committed relationship modified to not in a committed partnership, widowed, and in a committed partnership. Gender was measured by male and female.

Income. Income items were collapsed and recoded from less than \$25,000, \$26,000-\$50,000, \$51,000-\$75,000, \$76,000-\$100,000 and more than \$100,000 to less than \$25,000, \$26,000-\$50,000, and more than 50,000.

Education. Education items were collapsed and recoded from original items of less than a high school diploma, high school graduate, some college, associate's degree, bachelor's degree, post graduate degree and modified to less than a high school diploma, more than a high school diploma, and high school graduate.

Ethnicity. Original items were collapsed and recoded from White, Black, American Indian or Alaskan native, Asian or Pacific Islander, other, multiple races and modified to white and non-white.

Physical Health Outcomes

General Health Status. Self-rated health was measure by the following question, “In general, would you say that your health” with responses of excellent, good, fair, and poor. Items poor and fair were collapsed and recoded into the item poor/fair.

Physical Capabilities. Eastern Cooperative Oncology Group Performance Status (ECOG) is a one-item measure that assessed progression of disease through a likert scale of assessment of daily living abilities (Oken, et. al, 1982). The phrase “pre-disease performance” was replaced with the word “activities” and last item choice “dead” was removed. Items were recoded into the binary variables 1 representing fully active and 0 representing restricted activity.

Geriatric Health Questionnaire (Bodily pain). The Geriatric Health Questionnaire (GHQ) is a brief tool developed by Dr. Gerald Jogerst for use as a comprehensive functional assessment of geriatric patients (The University of Iowa, n.d.). One GHQ question measuring bodily pain was used in this study.

Data Analysis

The statistical software program SPSS was utilized to conduct all analyses. Descriptive statistics were obtained to describe the study sample by demographics and religious variables as well as depressive symptoms. Additionally, bivariate Spearman (r_s) correlations for all the variables of interests were analyzed. Chi-square analyses were used to determine bivariate associations among measures of depressive symptoms.

Aim I: Depressive Symptoms. To evaluate Aim I, one binary logistic regression was run that included three measures of religiosity and covariates as predictors of depressive symptoms defined by the PHQ-2. Backward stepwise selection was utilized to achieve a model that retained measures of religiosity and variables independently associated with depressive symptoms at the

0.05 level of significance.

Aim II: Health Behaviors and social support as mediators. Aim II was tested through a series of mediation analyses that were guided by the Baron and Kenny methodology (Baron & Kenny, 1986). The analyses evaluated possible mediators of the relationship of the three measures of religiosity and depressive symptoms. According to the Baron and Kenny method (1986), a mediator is established between a statistically significant association of a predictor and an outcome if the following criteria are met: 1) there is a statistically significant association between the independent variable (e.g., church attendance) and dependent variable (depressive symptoms); 2) there is a significant relationship between the predictor variable (e.g., church attendance) and the proposed mediator (e.g., health behavior); 3) there is a significant relationship between the proposed mediator (e.g., health behavior) and outcome variable (depressive symptoms); and 4) the strength of the relationship between the outcome variable (depressive symptoms) and predictor (e.g., church attendance) decreases significantly, while controlling for the potential mediator (e.g., health behavior) (Frazier, Tix, & Barron, 2004).

Results

Sample Characteristics

Table 1-2 shows characteristics of overall sample by demographics, health status, health behaviors, social support and depressive symptoms. There were 5,563 (52.0%) women and 4,862 (46.6%) men included in the analyses. Results show that 9.5% (n = 992) of participants reported depressive symptoms. The majority of participants were Caucasian (98.3%), married (81.3%), aged 66-70 years (27.6%), and had a household income of \$26,000- \$50,000 (24.6%). Individuals with an annual income of \$26,000-\$50,000 (32.6) reported the highest prevalence of depressive symptoms and the lowest prevalence (8.9%) was reported by individuals with a yearly

income of over \$100,000 or more ($p < .001$). Participants ages 71-75 years old reported the highest prevalence of depressive symptoms (24.5%) and lowest prevalence were individuals age 86 years old and older (4.6%) ($p < .001$). Compared to participants in a committed partnership, widowed participants were more likely to report depressive symptoms ($p < .05$). Tables 3-4, show the analyses of sample demographics by religious variables. Among measures of religiosity, 7,144 participants considered themselves to be religious (69.3%) and 3,160 (30.7%) did not. Regarding organizational religiosity, more participants attended religious services weekly or more (44.0%) than the participants (30%) who did not attend any religious services ($p < .001$). Among individuals who considered themselves religious, 60% attended religious services weekly or more compared to the 14.7% who did not attend religious services ($p < .001$). Among individuals who considered themselves spiritual, 51.4 % attended religious services weekly or more compared to the 22.3% who did not attend religious services ($p < .001$).

Spearman Correlations. Table 5 shows the spearman's bivariate analyses that were conducted across all religiosity variables, health behaviors, social support, and demographics. Significant negative correlates of subjective spirituality, subjective religiosity, and organizational religiosity, included lifetime tobacco use ($r = -.055, p < .01$; $r = -.064, p < .01$; $r = -.072, p < .01$) tobacco use within the past three months ($r = -.034, p < .01$; $r = -.041, p < .01$; $r = -.102, p < .01$), alcohol use ($r = -.065, p < .01$; $r = -.065, p < .01$; $r = -.109, p < .01$), and drinking concerns mentioned by another person ($r = -.049, p < .01$; $r = -.060, p < .01$; $r = -.054, p < .01$). Significant positive correlates of subjective spirituality, subjective religiosity, and organizational religiosity included eating few fruits and/or vegetables ($r = .038, p < .01$; $r = .040, p < .01$; $r = .082, p < .01$), availability of emotional support ($r = .037, p < .01$; $r = .033, p < .01$; $r = .034, p < .01$), availability of a caretaker ($r = .051, p < .01$; $r = .040, p < .01$; $r = .034, p < .01$), age ($r =$

.020, $p < .01$; $r = .094$, $p < .01$; $r = .123$, $p < .01$), and gender ($r = .187$, $p < .01$; $r = .097$, $p < .01$; $r = .075$, $p < .01$). Eating breakfast however, was a significant positive correlate of only spirituality and organizational religiosity ($r = -.045$, $p < .01$; $r = -.023$, $p < .01$).

Aim I Results: Depressive Symptoms

Table 6-6a, the overall binary logistic regression model of the presence of depressive symptoms was significant ($\chi^2 (37) 310.265$, $p < .001$). Furthermore, the model was able to accurately classify 91% of the study participants. In the final model, spirituality and subjective religiosity were not significant predictors of depressive symptoms. However, organizational religiosity was a significant predictor of depressive symptoms. Individuals who attended church or religious services weekly or more were 30% less likely to report depressive symptoms than those who did not attend church or religious services. Participants who attended church less than monthly and/or at holidays were 29% less likely to report depressive symptoms than those who do not attend religious services. Other significant predictors of depressive symptoms included yearly income of \$25,000-\$50,000, being a widow, having restricted activity, and having a health status of good and poor-fair status.

Aim II Results: Health Behaviors and Social Support as Mediators

To evaluate possible mediators of the relationship of organizational religiosity and depressive symptoms, a series of mediation analyses were conducted guided by the Baron and Kenny methodology (Baron & Kenny, 1986).

Step 1. Criterion 1 was tested by conducting three regression analyses, in which “organizational religiosity”, “subjective religiosity”, and “subjective spirituality” were regressed onto depressive symptoms. Consistent with the overall regression model and chi-square only “organizational religiosity” (overall $p < .01$; attends weekly or more OR: $.787$, $p < .01$, 95% CI

[.676, .915]; attends less than weekly to monthly OR: .858, $p >.05$, 95% CI [.672, 1.095] ; attends yearly and at holidays OR: .729, $p <.01$, 95% CI [.595, .892]) was found to be significantly associated with depressive symptoms, whereas “subjective religiosity” (OR = 1.048, $p >.05$, 95% CI [.910, 1.207]) and “subjective spirituality” (OR = 1.141, $p >.05$, 95% CI [.969, 1.343]) did not meet the first criterion for mediation.

Step 2. To test criterion 2 for mediation, eleven regression analyses were performed in which “organizational religiosity” was regressed onto each proposed mediator (i.e. health behaviors and social support). Organizational religiosity was associated with the “lifetime tobacco use” (overall $p <.001$; attends weekly or more OR = .721, $p <.001$, 95% CI [.656, .792]; attends less than weekly to monthly OR = .881, $p >.05$, 95% CI [.758, .1025]; attends yearly and at holidays OR = .977, $p >.05$, 95% CI [.865, 1.104], “tobacco use within the last three months” (overall $p <.001$, attends weekly or more OR = .356, $p <.001$, 95% CI [.290, .438]; attends less than weekly to monthly OR = .691, $p <.05$, 95% CI [.513, .931]; attends yearly and at holidays OR = .927, $p >.05$, 95% CI [.749, 1.148]), “concerns about drinking” (overall $p <.001$; attends weekly or more OR = .519, $p <.001$, 95% CI [.413, .653]; attends less than weekly to monthly OR = .679, 95% CI [.471, .980]; attends yearly and at holiday OR = .658, $p <.01$, 95% CI [.492, .879]), “consuming 3 or more drinks of alcohol (i.e., beer, liquor, or wine) everyday” (overall $p <.001$; attends weekly or more OR = .415, $p <.001$, 95% CI [.354, .487]; attends less than weekly to monthly OR = .532, $p <.001$, 95% CI [.408, .693]; attends yearly and at holidays OR = .746, $p <.01$, 95% CI [.620, .897]), “always eats breakfast”(overall $p <.001$; attends weekly or more OR = 1.670, $p <.001$, 95% CI [1.480,1.886]; attends less than weekly to monthly OR = 1.058 $p >.05$, 95% CI [.881, 1.271]; attends yearly and at holidays OR = 1.173, $p <.05$, 95% CI [1.011, 1.361]), “eats few fruits and/or vegetables” (overall $p =.01$, attends weekly or more OR = .897,

$p < .022$, 95% CI [.818, .984]; attends less than weekly to monthly OR=.807, $p < .01$, 95% CI [.696, .935]; attends yearly and at holidays OR = .963, $p > .05$, 95% CI [.855, 1.085]), “availability of emotional support “(overall $p < .01$; attends weekly or more OR = 1.486, $p < .001$, 95% CI [1.196, 1.846]; attends less than weekly to monthly OR = 1.526, $p < .05$, 95% CI [1.048, 2.222]; attends yearly and at holidays OR = 1.305, $p > .05$, 95% CI [.989, 1.724], and “availability of a caretaker” (overall $p < .01$, attends weekly or more OR = 1.409, $p < .001$ 95% CI [1.168, 1.699]; attends less than weekly to monthly OR = 1.242, $p > .05$, 95% CI [.917, 1.684]; attends yearly and at holidays OR = 1.238, $p > .05$, 95% CI [.975, 1.573]). However, organizational religiosity was not associated with “ever forgotten to take your medication on the weekend” (overall $p > .05$; attends weekly or more OR = .997, $p > .05$, 95% CI [.897, 1.108]; attends less than weekly to monthly OR = 1.177, $p > .05$, 95% CI [.999, 1.388]; attends yearly and at holidays OR = 1.015, $p > .05$, 95% CI [.887, 1.162]), and “always takes medication at the appropriate time” (overall $p > .05$, attends weekly or more OR= 1.094, $p > .292$, 95% CI [.926, 1.293]; attends less than weekly to monthly OR=.898, $p > .292$, 95% CI [.696, 1.159]; attends yearly and at holidays OR = 1.117, $p > .318$, 95% CI [.899, 1.387]), therefore these two variables did not meet the second criterion for mediation.

Step 3. To test criterion 3 for mediation, nine regression analyses were conducted in which proposed mediators significant in step 2 (i.e., health behaviors and social support) were regressed onto depressive symptoms. Depressive symptoms were significantly associated with “concerns about drinking (OR= .641, $p < .01$, 95% CI [.481, .855])”, “always eats breakfast”(OR= 1.283 $p < .01$, 95% CI [1.089, 1.512]), “eats few fruits and/or vegetables” (OR= .757, $p < .001$, 95% CI [.660, .867]), “availability of emotional support “ (OR= 2.283, $p < .001$, 95% CI [1.784, 2.921]), and “availability of caretaker” (OR= 2.121, $p < .001$, 95% CI [1.709, 2.633]) However,

depressive symptoms were not associated with “lifetime tobacco use” (OR= .962, $p > .05$, 95% CI [.841, 1.100]), “tobacco use within the last three months” (OR= .950, $p > .05$, 95% CI [.722, 1.251], “consuming three or more drinks of alcohol” (i.e., beer, liquor, or wine) everyday” (OR= 1.147, $p > .05$, 95% CI [.903, 1.457]) therefore these three variables did not meet the third criterion for mediation.

Step 4. Criterion four was examined by conducting five regression analyses where organizational religiosity was regressed onto depressive symptoms while controlling for the five proposed mediators that were significant in step 3. Depressive symptoms were significantly associated with “organizational religiosity” ($p = .01$), while controlling for “concerns about drinking” (OR= .647, $p < .01$, 95% CI [.485, .864]). Depressive symptoms were significantly associated with “organizational religiosity” ($p = .001$), while controlling for “eats few fruits and vegetables” (OR= .738, $p < .001$, 95% CI [.667, .816]). Depressive symptoms were significantly associated with “organizational religiosity” ($p < .01$), while controlling for “availability of emotional support” (OR= 2.319, $p < .001$, 95% CI [1.810, 2.971]). Depressive symptoms were significantly related with “organizational religiosity” ($p = .01$), while controlling for “availability of a caretaker” (OR= 2.119, $p < .001$, CI 95% [1.702, 2.639]). Depressive symptoms were significantly associated with “organizational religiosity” ($p < .01$), while controlling for “always eats breakfast” (OR= 1.244, $p = .01$, 95% CI [1.053, 1.471]). The relationship between depressive symptoms and “organizational religiosity” did not reduce significantly for any of the proposed mediators, despite controlling for the proposed variables (Baron & Kenny, 1986). Overall, the results of the regression analyses suggest that none of proposed mediators met the criterion for mediation.

Discussion

Summary of Findings

This study examined the relationships of three measures of religiosity (i.e. organizational religiosity, subjective religiosity, and spirituality) and depressive symptoms in older adults in an active living community. Across measures of religiosity, organizational religiosity emerged as the only significant predictor of depressive symptoms. Additionally, the study examined potential mediators (i.e. health behaviors and social support) of relationships between measures of religiosity and depressive symptoms. The relationship of organizational religiosity and depressive symptoms remained statistically significant and unchanged while controlling for proposed mediators of health behaviors and social support. Therefore, findings demonstrate that proposed mediators of health behaviors and social support do not meet the criteria for classification as mediators.

Aim I findings demonstrate that organizational religiosity predicted depressive symptoms whereas subjective religiosity and spirituality were not associated with depressive symptoms. This finding is consistent with previous literature that supports church attendance as the strongest predictor of health status among religious variables (Idler et al., 2008; Powell, Shahabi, & Thoresen, 2003; Strawbridge, Shema, Cohen, & Kaplan, 2001). Therefore, the results of the study support the hypothesis that organizational religiosity is associated with depressive symptoms, while failing to support the hypotheses for subjective religiosity and spirituality. Also, it is noteworthy that 41% of participants with depressive symptoms attended religious services weekly or more due to its implications for behavioral health practice. These findings

further demonstrate the complex relationships between measure of religiosity and depressive symptoms found in literature (Ellison & Levin, 1998). More specific religiosity domains (i.e. private prayer practices, religious affiliation) rather than broad subjective measures (i.e. subjective religiosity) may help to better further understand the relationship between religiosity and depressive symptoms. Regarding Aim II, the study findings do not support the hypothesis that health behaviors (i.e. alcohol use, tobacco use, medication adherence) and social support mediates the association between measures of religiosity and depressive symptoms. This study's findings are different from previous literature where tobacco use (Koenig & Vaillant, 2009) and social support (Ai, Huang, Bjorck, & Appel, 2013) were found to mediate the relationship between religiosity and depressive symptoms.

The difference among study findings may be attributed to varying cultural factors. For example, in a study consisting of all Asian Americans (i.e. Chinese, Filipino, & Vietnamese) social support mediated the relationship between religious attendance and major depression. Authors argued that the findings were consistent with the collectivist nature of Asian cultures; thus suggesting a possible role of collective religious involvement among the particular population (Ai, Huang, Bjorck, & Appel, 2013). The authors concluded that additional in-depth analyses were needed due to cross-cultural variations within the population (Ai, Huang, Bjorck, & Appel, 2013). Additionally, in a homogenous sample of African Americans, social support was found to mediate the relationship between church attendance and health (Prado et al., 2004). Cultural and social factors often encourage African Americans to seek social support and counseling from sources such as ministers and clergy. For instance, issues of cost, mistrust, and stigma historically have discouraged African Americans from using specialty mental health care, thus ministers and faith leaders often act as a source of social support and therapeutic resource.

Particularly, among African Americans, church participation and church membership has been shown to be more supportive of their mental health needs than traditional psychotherapy (Smith, 1981). Whereas this study was comprised of a homogenous Caucasian sample whose planned retirement community provided access to readily available social support through participation in activities at neighborhood centers and organized resident clubs. There is a need for understanding how characteristics (i.e. activities, social support, and organized clubs) of planned retirement communities' influence the relationship of religiosity and depressive symptoms. For example, research findings suggest that neighborhood social capital, social cohesion, and quality of services within a neighborhood are significantly associated with older adults' well-being. Moreover, among older adults social cohesion, social capital, and neighborhood services mediated the relationship between both marital status and income and well-being (Cramm, van Dijk, Nieboer, 2012). Therefore other protective factors (i.e. social cohesion, social capital, or built environment) beyond social support and health behaviors may play more of a mechanistic role between religiosity and depressive symptoms. Additionally, the lack of health behavior mediation may be attributed to cultural factors as well (Aim II). The study's sample was relatively healthy, with a majority reporting good health (60%) status and over a quarter reporting excellent health (27.6%). Additionally, a majority (96%) of participants did not report drinking concerns or using tobacco product within the past three months (94.3%). Thus future research should examine other possible mediators of depressive symptoms such as socio-emotional factors beyond health behaviors such as grief and/or widowhood or positive psychology factors [i.e. hope, forgiveness, (Sternthal, Williams, Musick, & Buck, 2010)]. In previous research, state forgiveness partially mediated the relationship between spirituality and depressive symptoms (Lawler-Row, 2010). Additionally, in a comprehensive overview of

religion and well-being, 80% of studies reported a positive correlation between religiosity and greater optimism about the future and greater hope (Koenig, McCullough, & Larson, 2001). Being religious may enhance a sense of hope which in turn may influence depression rates (Dein, 2006). Moreover, floor and ceiling effects can impact responsiveness and sensitivity of instruments (Rodrigues et al., 2013). In this study, floor effects (percentage with minimum score) (Peyrot & Rubin, 2005) were observed in PHQ-2 scores in 71.7% of participants with the minimum score of, which may have underestimated the influence of possible mediators in analyses (Youngstedt, 2003). Collectively, these findings demonstrate the complexity of the relationship of religiosity (van Olphen et al., 2003) and depressive symptoms; and the need for research that examines potential mechanisms.

Implications

Behavioral Health Research

The findings of this study support the continued use of a multidimensional approach of religiosity (Sternthal, Williams, Musick & Buck, 2010) when conducting research. For example, in this study organizational religiosity predicted depressive symptoms whereas spirituality and subjective religiosity lacked statistical significance. Results support authors, Powell, Shahabi, & Thoresen's (2003) conclusion that although spirituality often overlaps with religiosity, it is distinct; which warrants additional conceptualization and research. The results of this study support the utilization of multiple measures of religiosity such as private prayer practices, satisfaction with church relationships, listening to religious services, and religious affiliation. Data analyses were guided by a theoretical framework that included religious predictors of depressive symptoms as well as possible mediators. Findings support continued use of theoretically guided religion and health research and additional explanatory studies of significant

relationships between organizational religiosity and depressive symptoms.

Although, measures of health behaviors and social support were not considered mediators in this study, findings have future research implications. The findings suggest that the measures of health behaviors and social support utilized in this study do not explain the relationship between organizational religiosity and depressive symptoms in an active living community of older adults. As such researchers should explore other health behaviors such as physical activity as possible mediators. Additionally, researchers should examine the role that organizational religiosity plays in predicting depressive symptoms possibly as a coping resource (Jenkins & Pargament, 1995). Furthermore, researchers should use qualitative methodology to capture participants' perspectives about the role that organizational religiosity plays in coping with depressive symptoms and overall mental health. Researchers should continue efforts to further examine proposed mechanisms between the relationship of organizational religiosity and depressive symptoms.

Behavioral Health Policy

On March 23, 2010, President Barack Obama signed into law the historic healthcare policy, the Patient Protection and Affordable Care Act (PPACA); known as the Affordable Care Act. The healthcare law included a Mental Health Parity and Addiction Equity Act (ACA) that required insurance companies to provide coverage of substance use and mental health services, including behavioral health treatment (i.e. psychotherapy and counseling sessions) (Centers for Medicare & Medicaid Services, n.d.) as part of the ten essential health benefits within the health legislation (U.S. Centers for Medicare & Medicaid Services, n.d.). The ACA promotes access to behavioral health services by prohibiting insurance companies from denying healthcare coverage or charging more money to any individual due to their medical history (U.S. Centers for

Medicare & Medicaid Services, n.d.). The HHS interactive website includes a healthcare law toolkit to equip faith and community based organizations with resources about the new law, such as fact sheets, talking points, and call to action documents (HHS, n.d.). Additionally, the Centers for Medicare & Medicaid Services (CMS) worked with faith-based liaisons to launch an enrollment initiative called “Second Sunday” to help increase enrollment, awareness, and education about the health insurance marketplace at faith-based organizations nationwide. “Second Sunday” aimed to utilize local ministries (i.e. health ministries, first lady ministries, men’s ministries, pulpit announcement, and mother boards) to promote the open enrollment period. CMS partnered with several faith-based liaisons as well as Enroll America, Navigators, Certified Application Counselors to help consumers with enrolling in the health insurance marketplace nationwide. Additionally, CMS created pulpit announcements, bookmarks, and flyers for local faith-based organizations across to help promote enrollment initiatives (HHS, 2013). The findings of this study support this type of behavioral health policy driven collaboration within faith-based settings at the organizational level, given the high number of depressed participants in this study who were attending church regularly (41%).

Recently, national agencies have included faith leaders as critical partners in meeting behavioral health needs. For example, the Action Alliance is a grant funded collaborative initiative by the Substance Abuse and Mental Health Services Administration (SAMHSA) and U.S. DHHS. The Action Alliance developed a faith community task force with a goal of disseminating educational seminars and training materials for use by faith communities and religious leaders. The task force includes representatives from the National Institute for Mental Health (NIMH), Bethlehem College and Seminary, SAMHSA, and the U.S. Army. The task force recently (September 2013) hosted a webinar entitled “The Role of Faith Leaders in Suicide

Prevention” (National Action Alliance for Suicide Prevention, 2012a). Policy makers should continue to engage faith-based partnerships as modeled by the Action Alliance, and include parish nurses/ faith community nurses, lay health workers in policy making decisions (Glueckauf et al., 2009 & Gum et al., 2012).

Behavioral Health Practice

Faith- based collaborative initiatives. There is a need for critical dialogue among faith leaders, public health professionals, and behavioral health professionals about innovative ways to meet the needs of those experiencing depressive symptoms. This study’s findings demonstrate that faith-based institutions may present opportunities for behavioral health professionals to engage with individuals who exhibit depressive symptoms. Among the 9.5% of participants who reported depressive symptoms, 41% attended church or religious services weekly. Thus, almost half of the older adults with depressive symptoms in *The Villages* can be found in a religious activity at least weekly. Based on their choice to regularly engage in religious activities, they are likely to be receptive to participating in faith-based approaches to address their depression.

Collaborative initiatives could include organizing depressive symptoms screenings in faith-based settings, utilizing faith-based institutions for mental health referrals and promoting behavioral health prevention. Previous research has shown that health promotion programs in churches have been utilized to tackle a variety of medical diseases such as HIV/AIDS, cancer (Campbell et al., 2004; Holt et al., 2009), diabetes (Dodani, Kramer, Williams, Crawford, & Kriska, 2009), obesity (McNabb, Quinn, Kerver, Cook, & Karrison, 1997), hypertension (Dodani, Sullivan, Pankey, & Champagne, 2011) and asthma (Ford, Edwards, Rodriguez, Gibson, & Tiley, 1996; Edwards, 2010). In a study of Pastors, parish nurses, and religious leaders, 69% indicated an interest in screening for common mental illnesses (Dossestt, Fuentes,

Klap, & Wells, 2005). Clergy, Pastors, and other religious leaders are often seen as influential “gatekeepers” to mental health services. Previous research and the findings of the study truly support future collaborative efforts with these key stakeholders (Hankerson & Weissman, 2012; Gum et al., 2010; Hankerson, Watson, Lukacho, Fullilove, & Weissman, 2013; Neighbors, Musick, & Williams, 1998). In a study of a diverse population of older adults, 21.4% chose a religious leader as their primary choice of mental health treatment. Also, 59.3% would be willing to see a spiritual professional (Gum et al., 2010). Furthermore, research findings report that Ministers and religious leaders believe that offering church-based depression services are feasible (Hankerson, Watson, Lukachko, Fullilove, & Weissman, 2013). This study’s findings support promoting depressive screenings in faith-based settings thus public health professionals should explore using these settings for broad behavioral health promotion. Behavioral health promotion initiatives could include depression screenings at health fairs, educational events at worship services or faith-based events and providing educational materials in worship bulletins and/or newsletters. Older adults often underutilize mental health services; as such partnering with churches may help to bridge the gap between screening and utilization of services.

Faith community leaders. Research demonstrates that faith leaders (i.e. parish nurses, health ministers) are interested in opportunities for training in behavioral health. Among religious leaders, 67% were interested in providing education on mental health through presentations and bulletins; however, they currently lacked the resources or organizational capacity. Furthermore, 79% were interested in receiving additional training in counseling for clergy as well as lay peer counseling (Dossestt, Fuentes, Klap, & Wells, 2005). Among Ministers, time constraints and an absence of formalized procedures for referring and counseling are reported as limitations to providing sufficient depression care within faith-based settings

(Hankerson, Watson, Lukachko, Fullilove, Weissman, 2013). Ministers reported feeling “unequipped” to respond to severe incidents of depression within their congregation (Hankerson, Watson, Lukachko, Fullilove, Weissman, 2013). Considering Ministers’ interests and concerns, it is recommended that parish nurses (Glueckauf, et al., 2009) health ministry leaders, and clergy should be trained in recognizing depressive symptoms (Hankerson, Watson, Lukachko, Fullilove, Weissman, 2013; Bopp & Webb, 2012). Overall, need exists for initiatives aimed towards the faith community to help religious leaders meet the behavioral health needs of older adults within congregations (Shellman, 2004). Because of ministers’ time and resource constraints, promising models include embedding trained professionals in the faith-based setting to address mental health issues, using models that integrate evidence-based behavioral health strategies with faith-based practices (Glueckauf et al., 2009; Gum et al., 2012).

Study Limitations and Strengths

Although, this study furthers understanding of differing measures of religiosity through the inclusion of organizational religiosity and subjective religiosity as well as spirituality it is not without limitations. The use of the cursory measures of religiosity limits an in-depth understanding of religion and depressive symptoms. While organizational religiosity was found to be a significant predictor of depressive symptoms a lack of more in-depth measures of religiosity limits a deep knowledge of this relationship.

Moreover, this study’s sample was homogenous (i.e. medium to high income bracket, Caucasian), limiting the generalizability of the results. Furthermore, the use of cross-sectional survey data does not allow for determining causality, however given the limitations, the population based survey and partnership with an active living community is the strength of this study. The partnership between USF Health and *The Villages* provides a research platform for

strengthening knowledge of religiosity as protective factors of depressive symptoms.

Furthermore, the study utilized questions that focused on events that occurred in current time or previous events that were easier to recall. Finally, this study's robust data included reliable and highly valid instruments (PHQ-2); as such, this study furthers our understanding of the literature regarding planned retirement communities. Despite the aforementioned limitations, this study makes an excellent contribution to our understanding of the relationship of religiosity and depressive symptoms in older adults in active living communities as well as possible mediators.

CHAPTER THREE:

DISCUSSION AND IMPLICATIONS

Integration of Religion and Spirituality in Interventions

Pew Research's Religion & Public Life Project (2013) reports that 82% of Americans feel that religion is either very important or somewhat important to them. Moreover, 80% of depressed clients would like for their religious beliefs to be incorporated in the mental health treatment they receive (Koenig, 2012). In this study, a majority (69.3%) of respondents considered themselves religious and a greater percentage (81.2%) self-identified as spiritual. Researchers and practitioners have begun to explore ways to merge religiosity and spiritual principles with depression interventions at the individual level (Hodge, 2006). In a nationally representative sample of mental health practitioners, 70% of respondents had incorporated religious language or principles into their work with clients (Canda & Furman, 1999). In the context of the findings of this study, it is recommended that religiosity and spirituality be integrated in mental health promotion at the individual level, such as spirituality modified cognitive therapy, and at the organizational level through faith-based mental health initiatives.

Individual level

An intervention's utility is contingent upon its level of perceived relevance (Wolf, 1978; Hodge, Bonifas, & Chou, 2010). Therapy approaches incorporating perspectives that clients deem as important are likely to demonstrate a better clinical fit over approaches with perspectives that client's deem as unimportant (Hodge, Bonifas, & Chou, 2010; Sue & Sue,

2008). Spiritually modified therapeutic approaches are more likely befitting for clients that place a high level of importance on spirituality (Azhar & Varma, 2000; Propst, 1996). Spiritually modified cognitive therapy is adapted from cognitive therapy, which aims to replace unhealthy patterns of thought with more positive schemas (Hodge, 2006; Ellis, 1996). Spiritually modified cognitive therapy is similar to cognitive behavioral therapy due to its emphasis on changing negative thoughts; however, it incorporates spiritual and religious principles relevant to the client (Hodge, 2006). In a systematic review of spirituality modified cognitive therapy, it was found to be at least as effective as traditional cognitive therapy (McCullough, 1999). Moreover, findings were equal to or more favorable than the traditional approach (cognitive behavior therapy), and evidence suggests that spiritually modified cognitive therapy meets the American Psychological Association criteria as a well-established intervention (Chambles & Olenick, 2001) for depression, especially amongst Christians (Hodge, 2006). Although, this modality is less likely to appeal to relatively secular clients and may not be well suited for every client, the opposite is true for clients that are spiritually motivated (Hodge, Bonifas, & Chou, 2010). For instance authors, Hodge, Bonifas & Chou (2010) argue that Spiritually Modified Cognitive Behavioral Therapy might be an appropriate fit for some older adults with depressive symptoms because of a demonstrated salience of spirituality shown in this population (Taylor Chatters, & Jackson, 2007). Older adults have generally reported higher levels of interest in spiritual variables and spiritual engagement (Gallup & Lindsay, 1999; Gallup & Jones, 2000). The participants in this study also showed a level of salience of spirituality as 81.2% reported that they considered themselves spiritual. While some older adults are not interested in spirituality, generally spirituality is considered significant constructs in the lives of many older adults (Taylor, Chatters, & Jackson, 2007 & Hodge, Bonifas, & Chou, 2010). Considering the promising

outlook of spiritually modified cognitive behavioral therapy, future research initiatives should prioritize evaluating this modality among older adults to ensure this population is provided the most efficacious therapy for depression (Hodge, Bonifas, & Chou, 2010).

Research initiatives regarding the efficaciousness of spiritually modified therapeutic approaches such as spiritually modified cognitive behavioral therapy is needed especially among older adults coping with depression (Hodge, Bonifas, & Chou, 2010). Koenig (2012) recently, led a research study to examine whether therapy that uses clients' religious resources improved depression slower or faster than traditional cognitive behavioral therapy. Phase I began with randomized control trials at Duke University Health Systems and Glendale Adventist Medical Center. This preliminary phase included development of a manual for administering religious cognitive behavior therapy (RCBT) as well as delivery of RCBT and conventional CBT via Skype, instant message, and over the telephone. Additionally, authors examined potential participants' desired modality of RCBT, of which more than 80% preferred sessions over the phone and 9% online via Skype. Initially, the RCBT manual was created within a framework of Christianity and will be modified for other religions (i.e. Buddhist, Hindu, Muslim, and Jewish clients). Both spirituality modified cognitive therapy and RCBT are promising individual level interventions of depression. Such initiatives align with both practitioners and researchers who have advocated for the inclusion of religious themes in field of gerontology (Hodge, Bonifas, & Chou, 2010), especially in treatments of depression (Koenig, 2012). Research initiatives evaluating individual spiritual modified therapeutic approaches are warranted as they further our understanding of the treatments' impact on depression.

Religious beliefs. Religious beliefs about mental illness can influence decision to utilize or avoid behavioral health services (Trice & Bjorck, 2006). Individual religious beliefs often

promote improved well-being and mental health at the individual level through principles such as the Judeo-Christian scripture, “Do not be anxious about anything, but in every situation, by prayer and petition, with thanksgiving, present your requests to God” (Philippians 4:6 New International Version). Additionally, positive mental health is promoted through the scripture, “Therefore do not worry about tomorrow, for tomorrow will worry about itself. Each day has enough trouble of its own” (Matthew 6:34 New International Version). Levin (1994) argues that Biblical aspects of Judeo-Christian religions are especially relevant to older adults because of the religion’s focus on topics like providing a supportive community, sense of hope for change and healing, importance of forgiveness, and emphasis on building interpersonal relationships. The individual beliefs above exemplify how religious principles can congruently support initiatives to coalesce religiosity with individual depression treatment.

However, although religious principles can support depression treatment and a majority of the literature suggests a positive effect of religiosity on mental health (Bonelli & Koenig, 2013), it is important to note possible harmful effects of religions. Religions that specifically forbade their members from seeking medical care can negatively impact longevity of life (George, Ellison, & Larson, 2002). Such research is noteworthy because certain religious beliefs and taboos may prevent members from seeking behavioral health services. The belief that devout spirituality guarantees mental health and/or mental illness is associated with spiritual failure may cause religious individuals to become discouraged from seeking help from behavioral health professionals (Trice, Bjorck, 2006). Furthermore, in a sample of older adults researchers found that a majority of participants (85%) held a faith-based explanatory model of depression (Wittink, Joo, Lewis, Barg, 2009). Study participants described the cause of depression as a “loss of faith” and stated that spiritual coping methods of prayer, talking to the pastor, and going to

church could help relieve depression and enhance medical treatments. Authors concluded that among individuals who describe a lack of faith as a cause of depression; and “given that the spiritual element is absent from the biomedical account of depression, there is a risk that a person with a spiritual explanation of depression may feel like an outsider” (Wittink, Joo, Lewis, Barg, 2009, p. 406). In order to combat this barrier authors suggested that discussing a patient’s faith in clinical settings may help individuals express their current depression symptoms who may view “loss of faith” as a cause of depression (Wittink, Joo, Lewis, Barg, 2009). Future research might help elucidate the inclusion of spiritual perspectives both as possible barriers and benefits to the detection and treatment of depression (Wittink, Joo, Lewis, Barg, 2009).

Organizational level

Faith-based health promotion programs present a myriad of opportunities for a variety of behavioral health interventions. This study’s findings show that a considerable number of individuals (41%) with depressive symptoms attended religious or church services regularly. One example of a faith-based wellness program begins with a holistic approach that builds upon aspects already found in faith-based settings. An example of this model is demonstrated by authors Gum et al., (2012) design of a church based wellness program for older adults. The program was developed from input around Senior Pastors, community members, and older adult church members about strategies to meet the mental health needs of older adults. The study findings led to the development of a multi-level holistic senior wellness program that utilized the church as its foundation. The Senior Wellness Program facilitated health program classes and activities and collaboratively worked with church health ministries. The program components included support services for older adults with emotional issues and resources, such as: coping skills training and a referral program. The referral program provided support for

older adults with social, health, and financial concerns through an available directory of community resources as well as a holistic evaluation of the individual's need. The inclusion of the visitation program allowed for opportunities for social support to homebound seniors. At the organizational level, this model is an example of a multicomponent program that can be integrated in religious settings for older adults.

Training of Religious Leaders

Offering mental health curriculum to faith leaders could equip them with the necessary training to meet the behavioral health needs of their congregants. Public health professionals suggest providing training as short-term courses with information on referral services, choosing specific types of mental health services (Loue, 2010), and depressive symptomology. With the increased use of distance learning services within academic institutions, public health professionals could possibly collaborate with universities to offer such technology to leaders in the faith-based community. A recent example is the aforementioned suicide webinar hosted by Action Alliance for faith leaders in September 2013 (National Action Alliance for Suicide Prevention., n.d.). Also, gerontology educators are encouraged to create curriculum and conferences that are aimed towards faith community leaders and lay ministers to help them meet the needs of older adults within congregations (Shellman, 2004). Overall, there is need for training initiatives to meet the behavioral health concerns of faith-based communities.

An example of behavioral health training for faith-based communities is demonstrated in a study conducted by Brown, Scott, Blount, Roman, and Brown (2006). African American churches were provided training and technical resources to develop and implement substance abuse and alcohol prevention programs. The activities included workshops and technical assistance that occurred in faith-based settings. Findings showed a significant increase in

knowledge of creating a research proposal and implementing substance abuse prevention programs ($p = .001$). Furthermore, 69% of the study's participants implemented substance abuse prevention programs as a result of the training received. Overall, the study demonstrated faith-based institutions can effectively integrate behavioral health prevention programs.

Moreover, at the national level, an exemplary training and educational initiative is the forged partnership with the American Association of Pastoral Counselors and Pathways to Promise (Pathways to Promise, 2011). Pathways to Promise is a collaborative faith-based consortium consisting of the United Methodist General Board of Church & Society (GBCS), General Board of Global Ministries, and national faith community leaders and advocates (Day, 2011). The national training initiative was developed after a National Mental Health Summit hosted in Belleville, Illinois in 2009, which led to subsequent pilot projects in St. Louis, Missouri. National Training Initiative (NTI) sites have expanded to Los Angeles, Cincinnati, Chicago, and Washington (Day, 2011). The NTI sites are made up of a region, county, or city. A diverse planning group is created to oversee the NTI site, which includes the following representatives: community mental health providers, faith-based nurses, faith-based groups, families, community allies, and pastoral counselors. The NTI planning group assists with organizing neighborhood groups of community partners and congregations who participate in seminars, core curriculum training, and continuing education on substance use and mental health. Furthermore, neighborhood clusters are developed and then encouraged to create a local calendar of collaborative educational events, participate in a statewide network, and connect to national cooperatives. Also, the program includes an interactive website with information on pastoral crisis interventions activities; programs to implement and develop in congregations, agencies, and organizations; agency referrals; and train the trainer resources (Pathways to Promise, 2011).

Collectively, these initiatives demonstrate promising opportunities for collaborative behavioral health training for faith-based communities.

Issue of Measurement

Gerontological research on religiosity and health has encountered challenges due to a lack of sophistication in studies and that published research often, “still rehashes the same old issues that were being addressed over 20 years ago”, states authors Levin and Chatters (2008, p. 164). Problems present in the literature include methodological issues of measurement of conceptualizing religion and a “failure” to examine theory guided connections between religion and health (Levin & Chatters, 2008, p.164). Authors described a common practice of a lack of theoretical justification and usual inclusion of limited measures of religiosity (e.g., church attendance) within research studies. These statements showcase the need for further research that examines other measures of religiosity, such as frequency of prayers and frequency of watching religious programming.

At the individual level, future research should examine how experiences such as sermons, rituals, and other activities of collective worship within organizational religiosity contribute to feelings of affirmation and validation (Ellison and Levin, 1998), especially in relation to depressive symptoms. At the organizational level, religiosity measures such as satisfaction with relationship with members within faith-based institutions, availability of members to listen to problems, and closeness to members are integral in furthering the understanding of the relationship between religiosity and depressive symptoms as well as clarifying the characteristics that contribute to reduced depressive symptoms.

Conclusion

In conclusion, religion has proven to be a very powerful mechanism of empowerment, a

tool for self-affirmation, journey for ultimate meaning, and coping with struggles (Neighbors, Musick, & Williams, 1998). It is imperative that faith-based initiatives are recognized for their great potential to serve as a mental health resource and possible mechanisms for implementation of therapeutic initiatives (Smith, 1981). There is a need for research that evaluates the integration of spiritual care for physical and psychological coping among older adults (Ballew, Hannum, Gaines, Marx, & Parrish, 2012). Additionally, measures of religiosity can provide insight as the baby boomer population copes with depressive symptoms (Koenig, McCullough, & Larson, 2001). This study can help academicians, practitioners, and faith community leaders by further delineating the relationship of religiosity and depressive symptoms among older adults. As Dr. William Herbert Foege, a U.S. epidemiologist states, “it’s not impossible to dream of thousands of congregations working alongside public health, sharing an understanding that health is a seamless whole – physical, mental” (Centers for Disease Control and Prevention, 1999, p.2). Overall, Dr. David Satcher’s quote exemplifies the future of religion and health, “through partnerships with faith organizations and the use of health promotion and disease prevention sciences, we can form a mighty alliance to build strong, healthy, and productive communities” (Centers for Disease Control and Prevention, 1999, p.2).

Table 1. Prevalence of Depressive Symptoms

Demographics		Sample	Depressive Symptoms	
		(N=10425) Frequency (%)	No (N=9,433) Frequency (%)	Yes (N=992) Frequency (%)
Gender (ns)	Male	4862 (46.6%)	4399 (46.6%)	463 (46.7%)
	Female	5563 (53.4%)	5034 (53.4%)	529 (53.3%)
Age***	55-60	760 (7.3%)	685 (7.2%)	75 (7.4%)
	61-65	2070 (19.9%)	1906 (19.9%)	164 (16.3%)
	66-70	2866 (27.6%)	2639 (27.6%)	227 (22.5%)
	71-75	2457 (23.7%)	2213 (23.1%)	244 (24.2%)
	76-80	1305 (12.6%)	1179 (12.3%)	126 (12.5%)
	81-85	696 (6.4%)	565 (5.9%)	100 (9.9%)
	86+	266 (2.6%)	220 (2.3%)	46 (4.6%)
Relationship Status***	Single	208 (2.0%)	186 (1.9%)	22 (2.2%)
	Married	8602 (81.3%)	7828 (81.8%)	774 (76.9%)
	Divorced	316 (3.0%)	280 (2.9%)	36 (3.6%)
	Separated	58 (0.5%)	55 (0.6%)	3 (0.3%)
	Widowed	842 (8.0%)	718 (7.5%)	124 (12.3%)
	Partner/Significant other	294 (2.8%)	272 (2.8%)	22 (2.2%)
	Committed relationship	77 (0.7%)	67 (0.7%)	10 (1.0%)
Income***	Under \$25,000	577 (5.7%)	495 (5.4%)	82 (8.6%)
	\$26,000 - \$50,000	2465 (24.6%)	2157(23.7%)	308 (32.5%)
	\$51,000 - \$75,000	2346 (23.4%)	2133 (23.5%)	213 (22.4%)
	\$76,000 - \$100,000	1500 (14.9%)	1393 (15.3%)	107 (11.3%)
	Over \$100,000	1312 (13.1%)	1228 (13.5%)	84 (8.9%)
	Prefer not to answer	1840 (18.3%)	1685 (18.5)	155 (16.3%)
Ethnicity (ns)	White	10599 (98.3%)	9377 (98.4%)	978 (97.3%)
	Black	68 (0.6%)	56 (0.6%)	10 (1.0%)
	American Indian or Alaskan Native	5 (0.0%)	4 (0.0%)	1 (0.1%)
	Asian or Pacific Islander	44 (0.4%)	39 (0.4%)	4 (0.4%)
	Other	24 (0.2%)	18 (0.2%)	6 (0.6%)
	Multiple Races	44 (0.4%)	38 (0.4%)	6 (0.6%)
Hispanic origin (ns)	No	10045 (99.0%)	9097 (99.1%)	948 (98.4%)
	Yes	99 (1.0%)	84 (0.9%)	15 (1.6%)
Education***	Less than a high school diploma	255 (2.5%)	215 (2.3%)	40 (4.1%)
	High school graduate	2276 (22.1%)	2006 (21.5%)	270 (27.7%)
	Some college	2433 (23.6%)	2183 (23.4%)	250 (25.6%)
	Associates degree	1008 (9.8%)	909 (9.7%)	99 (10.2%)
	Bachelor's degree	2289 (22.2%)	2131 (22.8%)	158 (16.2%)
	Post Graduate degree	2044 (19.8%)	1886 (20.2%)	158(16.2%)
	Do not know	5 (0.0%)	5 (0.1%)	0 (0.0%)

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, ns= not significant

Table 2. Prevalence of Depressive Symptoms (Health Status, Health Behaviors, and Social Support)

Demographics		Sample	Depressive Symptoms	
		(N=10425) Frequency (%)	No (N=9,433) Frequency (%)	Yes (N=992) Frequency (%)
General health status***	Poor-Fair	1302 (12.4%)	1012 (10.6%)	290 (29.0%)
	Good	6303 (60.0%)	5813 (61.1%)	490 (49.0%)
	Excellent	2905 (27.6%)	2685 (28.2%)	220 (22.0%)
	None	2178 (20.7%)	2002 (21.0%)	176 (17.6%)
Pain***	Very mild	3630 (34.4%)	3390 (35.5%)	240 (24.0%)
	Mild	2272 (21.6%)	2070 (21.7%)	202 (20.2%)
	Moderate	2045 (19.4%)	1776 (18.6%)	269 (26.9%)
	Severe or more	414 (3.9%)	300 (3.1%)	114 (11.4%)
Physical capabilities***	Fully Active	8260 (80.2%)	7654 (81.9%)	606 (63.0%)
	Restricted Activity	2045 (19.8%)	1689 (18.1%)	356 (37.0%)
Lifetime tobacco use (ns)	Yes	6482 (61.6%)	5856 (61.6%)	626 (62.5%)
	No	4033 (38.4%)	3657 (38.4%)	376 (37.5%)
Tobacco use within the past three months (ns)	Never	9910 (94.3%)	8967 (94.3%)	943 (94.0%)
	Once or twice monthly	110 (1.0%)	98 (1.0%)	12 (1.2%)
	Weekly	53 (0.5%)	51 (0.5%)	2 (0.2%)
	Almost daily	119 (1.1%)	107 (1.1%)	12 (1.2%)
	Daily	320 (3.0%)	286 (3.0%)	34 (3.4%)
Alcohol use (having 3 or more alcoholic everyday) (ns)	Yes	940 (9.0%)	860 (9.1%)	80 (8.0%)
	No	9481 (91.0%)	8567 (90.9%)	914 (92.0%)
Drinking concerns mentioned by another person**	Yes	413 (4.0%)	356 (3.8%)	57 (5.8%)
	No	9981 (96.0%)	9052 (96.2%)	929 (94.2%)
Ever forgotten to take medication (ns)	Yes	5246 (52.5%)	4727 (52.3%)	519 (54.3%)
	No	4741 (47.5%)	4305 (47.7%)	436 (45.7%)
Taking medication at the appropriate time**	Yes	9190 (91.6%)	8328 (91.9%)	862 (89.3%)
	No	839 (8.4%)	736 (8.1%)	103 (10.7%)
Ever forgotten to take medication on the weekend (ns)	Yes	2688 (27.3%)	2416 (27.1%)	272 (28.8%)
	No	7154 (72.7%)	6483 (72.9%)	671 (71.2%)
Always eats breakfast**	Yes	8737 (83.2%)	7942 (83.5%)	795 (79.8%)
	No	1766 (16.8%)	1565 (16.5%)	201 (20.2%)
Eating few fruits and/or vegetables***	Yes	6071 (58.3%)	5436 (57.7%)	635 (64.3%)
	No	4335 (41.7%)	3983 (42.3%)	352 (35.7%)
Availability of emotional support***	Yes	10026 (95.7%)	9119 (96.1%)	907 (91.5%)
	No	454 (4.3%)	370 (3.9%)	84 (8.5%)
Availability of a caretaker***	Yes	9821 (93.9%)	8937 (94.4%)	884 (88.8%)
	No	640 (6.1%)	529 (5.6%)	111 (11.2%)

*** $p \leq 0.01$, ** $p \leq .01$, * $p \leq 0.05$, ns= not significant

Table 3. Organizational Religiosity, by demographics

Demographics	Weekly or more Frequency (%)	Less than weekly to monthly Frequency (%)	A few times during year/holiday Frequency(%)	I do not attend Frequency (%)
Gender***				
Male	1966 (40.5 %)	410 (8.5 %)	864 (17.8 %)	1612 (33.2 %)
Female	2608 (47.0%)	522 (9.4 %)	908 (16.4 %)	1512 (27.2 %)
Age***				
55-60	219 (28.9 %)	74 (9.8%)	142 (18.8 %)	322 (42.5 %)
61-65	735 (35.5 %)	192 (9.3 %)	404 (19.5 %)	739 (35.7 %)
66-70	1217 (42.6 %)	278 (9.7 %)	508 (17.8 %)	853 (29.9%)
71-75	1235 (50.5 %)	224 (9.2 %)	360 (14.7 %)	626 (25.6 %)
76-80	708 (54.5 %)	105 (8.1 %)	201 (15.5 %)	284 (21.9 %)
81-85	364 (54.4 %)	42 (6.3 %)	91 (13.6 %)	172 (25.7 %)
86+	117 (42.7%)	16 (5.8 %)	48 (17.5 %)	93 (33.9 %)
Total	4467 (44.0 %)	946 (9.0 %)	1795 (17.0 %)	3165 (30.0 %)
Relationship status***				
Single	91 (2%)	14 (1.5%)	31 (1.7 %)	71 (2.2%)
Married	3830 (82.3 %)	759 (80.2%)	1444 (80.2 %)	2542 (80.3%)
Divorced	101 (2.2 %)	39 (4.1%)	70 (3.9 %)	111 (3.5%)
Separated	11 (0.2%)	6 (0.6%)	16 (0.9 %)	25 (0.8%)
Widowed	434 (9.3 %)	62 (6.6%)	139 (7.7 %)	211 (6.7%)
Partner/Significant other ¹	86 (1.8%)	37 (3.9%)	53 (2.9 %)	120 (3.8%)
Committed relationship ²	30 (0.6%)	7 (0.7%)	10 (0.1%)	30 (0.9%)
Annual household income**				
Under \$25,000	260 (5.9%)	38 (4.2%)	91 (5.3%)	185 (6.1%)
\$26,000-\$50,000	1116 (25.4%)	188 (20.9%)	402 (23.6%)	768 (25.2%)
\$51,000-\$75,000	994 (22.6%)	214 (23.8%)	408 (23.9%)	730 (24.0%)
\$76,000-\$100,000	674 (15.3%)	158 (17.5%)	244 (14.3%)	435 (14.3%)
Over \$100,000	542 (12.3%)	150 (16.6%)	244 (14.3%)	382 (12.5%)
Prefer not to answer	805 (18.3%)	153 (17.0%)	318 (18.6%)	546 (17.9%)
Ethnicity (ns)				
White	4553(44.0 %)	927 (9.0 %)	1751 (16.9%)	3110 (30.1%)
Black	28(42.4%)	6 (9.1%)	17 (25.8 %)	15 (22.7 %)
American Indian or Alaskan Native	1 (20.0 %)	0 (0.0%)	2 (40.0 %)	2 (40.0 %)

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, ns= not significant Living with partner/significant other¹ In committed relationship, but not living together²

Table 4. Religiosity and Depressive Symptoms

Religiosity	Sample Frequency (%)	Depressive Symptoms	
		No Frequency (%)	Yes Frequency (%)
Do you consider yourself a religious person? (ns)			
Yes	7144 (69.3%)	6470 (69.4%)	674 (68.4%)
No	3160 (30.7%)	2849 (30.6%)	311 (31.6%)
Do you consider yourself a spiritual person? (ns)			
Yes	8345 (81.2%)	7566 (81.4%)	779 (79.3%)
No	1931 (18.8 %)	1728 (18.6%)	203 (20.7%)
How often do you attend church or a religious services?***			
Weekly or more	4453 (43.9%)	4146 (44.2%)	407 (41.1%)
Less than weekly to monthly	931 (9.0 %)	841 (9.0%)	90 (9.1%)
Less than monthly and/or at holidays	1752 (16.9 %)	1606 (17.1%)	146 (14.7%)
I do not attend	3128 (30.2 %)	2781 (29.7%)	347 (35.1%)

*** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$, ns= not significant

Table 5. Correlation Matrix of Religiosity, Health Behaviors, Social Support, and Covariates

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Subjective spirituality	1.000																								
Subjective religiosity	.470**	1.000																							
Organizational religiosity	.367**	.557**	1.000																						
Age	.020 [†]	.094**	.123**	1.000																					
Gender	.187**	.097**	.075**	-.115**	1.000																				
Ethnicity	-.015	.005	.001	-.012	.012	1.000																			
Annual household income	-.006	-.022*	-.003	-.137**	-.065**	-.008	1.000																		
Relationship status	-.018	.003	.001	-.116**	-.153**	.008	.281**	1.000																	
Education	.014	-.049**	.024*	-.108**	-.094**	-.022 [†]	.199**	.057**	1.000																
Hispanic origin	-.008	-.013	-.007	-.005	.023*	-.059**	-.011	.001	-.021 [†]	1.000															
General health status	.055**	-.003	.020*	-.153**	.072**	.017	.116**	.049**	.109**	-.016	1.000														
Pain	.008	-.002	-.015	.060**	-.005	.011	-.052**	-.002	-.040**	.016	-.385**	1.000													
Physical capabilities	.013	-.024*	.008	-.165**	.014	-.007	.111**	.092**	.051**	-.016	.418**	-.361**	1.000												
Lifetime tobacco use	-.055**	-.064**	-.072**	.090**	-.181**	.024*	-.020*	.003	-.007	-.018	-.097**	.072**	-.063**	1.000											
Tobacco use within the past three months	-.034**	-.041**	-.102**	-.041**	-.052**	-.001	-.012	-.046**	-.020*	.009	-.024*	.005	.004	.188**	1.000										
Alcohol use (having 3 or more alcoholic everyday)	-.065**	-.065**	-.109**	-.019	-.100**	.008	.017	.014	.006	-.018	.015	-.017	.014	.128**	.066**	1.000									
Drinking concerns mentioned by another person	-.049**	-.060**	-.054**	-.013	-.090**	.004	.006	.020*	.012	.000	-.036**	.042**	-.024*	.095**	.061**	.349**	1.000								
Ever forgotten to take medication	-.002	-.015	.015	.022 [†]	-.024*	-.007	-.004	-.011	.019	.010	-.100**	.106**	-.071**	.068**	.010	-.003	.023*	1.000							
Taking medication at the appropriate time	-.007	.020*	.009	.005	-.035**	.047**	.001	.040**	-.009	-.025*	.026**	-.016	.026**	-.010	-.010	-.023*	-.039**	-.177**	1.000						
Ever forgotten to take medication on the weekend	-.004	-.024*	-.001	-.046**	-.001	-.008	.019	-.003	.043**	-.001	-.052**	.068**	-.045**	.030**	.006	-.001	.034**	.572**	-.248**	1.000					
Eating few fruits and/or vegetables	.038**	.040**	.082**	.088**	-.002	.016	-.020*	.015	-.002	-.003	.033**	-.019	.003	-.075**	-.152**	-.097**	-.082**	-.052**	.111**	-.066**	1.000				
Always eats breakfast	-.045**	.015	-.023*	.010	-.052**	-.009	-.041**	-.015	-.056**	.031**	-.094**	.054**	-.039**	.021*	.032**	.009	.010	.050**	-.038**	.033**	-.087**	1.000			
Availability of emotional support	.037**	.033**	.034**	-.024*	.018	.019	.056**	.119**	-.003	-.012	.037**	-.010	.019*	-.011	-.004	.001	-.007	-.008	.021*	-.008	.006	-.009	1.000		
Availability of a caretaker	.051**	.040**	.034**	-.045**	.023*	.013	.060**	.100**	-.008	-.003	.083**	-.041**	.071**	.008	-.015	.000	-.004	-.003	.018	-.001	.015	-.019	.276**	1.000	
Patient Health Questionnaire (PHQ-2)	-.016	-.006	-.027**	.031**	.000	-.024*	-.077**	-.045**	-.056**	.019	-.109**	.100**	-.138**	.006	.004	-.011	.030**	.012	-.027**	.011	-.029**	.039**	-.066**	-.068**	1.000

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table 6. Regression of Religiosity, Proposed Mediators, and Covariates on Depressive Symptoms

Predictors	B	P-Value	Odds Ratio	Odds Ratio	
				Lower	Upper
Subjective Spirituality (ns)	-0.01	0.932	0.99	0.779	1.258
Yes (Ref)					
Subjective Religiosity (ns)	-0.125	0.28	0.883	0.704	1.107
Yes (Ref)					
Organizational Religiosity*		0.017			
Attends yearly and at holidays	-0.352	0.01	0.703	0.538	0.919
Less than weekly to monthly	-0.222	0.181	0.801	0.578	1.109
Attends weekly or more	-0.331	0.005	0.718	0.571	0.904
Do not attend (Ref)					
Age (ns)		0.853			
66-85	-0.033	0.741	0.967	0.794	1.179
86+	0.085	0.751	1.089	0.642	1.848
55-65 (Ref)					
Gender (ns)	-0.067	0.462	0.935	0.782	1.118
Female (Ref)					
Ethnicity (ns)	-0.351	0.245	0.704	0.389	1.273
Non-white (Ref)					
Annual household income***		0.001			
Less than 25,000	0.027	0.888	1.028	0.703	1.503
26,000-50,000	0.351	.000	1.421	1.178	1.715
More than 50,000 (Ref)					
Relationship Status*		0.025			
Not in a committed partnership	-0.129	0.501	0.879	0.603	1.28
Widowed	0.375	0.012	1.455	1.086	1.95
Committed partnership (Ref)					
Education (ns)		0.272			
Less than a High School Diploma	0.092	0.725	1.097	0.657	1.831
More than a High School Diploma	-0.146	0.152	0.864	0.708	1.055
High School Graduate (Ref)					
Hispanic Origin (ns)	0.022	0.955	1.022	0.473	2.207
Yes (Ref)					

***p≤.001, **p≤.01, *p≤.05, ns= not significant. Binary logistic regression model was utilized. Covariates and variables were classified as statistically significant factors if they were found to be statistically associated with the outcome on step one and continued to be statistically associated with the outcome on step 1 in the model including religiosity measures of interest. All measures included in the model that were found to be statistically associated with the outcome on step 1 with the inclusion of the religiosity measures remained in the model if significant at following steps. The above model accounts for 17.1% of the variance Nagelkerke R square =.091. Hosmer-Lemeshow goodness of fit test X²=8,817, df=8, p=.358

Table 6a. (Continued) Regression of Religiosity, Proposed Mediators, and Covariates on Depressive Symptoms

Predictors	B	P-Value	Odds Ratio	Odds Ratio	
				Lower	Upper
General health status***		.000			
Poor- Fair	0.397	0.009	1.487	1.104	2.003
Good	-0.294	0.008	0.745	0.599	0.927
Excellent (Ref)					
Pain***		.000			
Very mild	-0.323	0.014	0.724	0.56	0.937
Mild	0.031	0.82	1.032	0.788	1.35
Moderate	0.211	0.132	1.235	0.938	1.627
Severe or More	0.82	.000	2.272	1.56	3.307
None (Ref)					
Physical capabilities***	0.437	.000	1.549	1.246	1.925
Fully Active (Ref)					
Lifetime tobacco use (ns)	0.031	0.739	1.031	0.861	1.234
Yes (Ref)					
Tobacco use within the past three months (ns)		0.847			
Once or twice monthly	0.118	0.775	1.126	0.499	2.538
Weekly	-1.11	0.276	0.33	0.045	2.427
Almost daily	-0.035	0.933	0.966	0.432	2.161
Daily	-0.078	0.743	0.925	0.582	1.471
Never (Ref)					
Alcohol use (ns)	0.172	0.294	1.188	0.861	1.638
Yes (Ref)					
Drinking concerns mentioned by another person (ns)	-0.427	0.032	0.652	0.441	0.964
Yes (Ref)					
Ever forgotten to take medication (ns)	-0.019	0.857	0.981	0.8	1.203
Yes (Ref)					
Taking medication at the appropriate time (ns)	0.202	0.163	1.223	0.921	1.624
Yes (Ref)					
Ever forgotten to take medication on weekend (ns)	0.008	0.943	1.008	0.804	1.264
Yes (Ref)					
Always eats breakfast (ns)	0.175	0.113	1.191	0.959	1.479
Yes (Ref)					
Eating few fruits and/or vegetables***	-0.191	0.03	0.826	0.696	0.981
Yes (Ref)					
Availability of emotional support (ns)	0.4	0.027	1.492	1.047	2.125
Yes (Ref)					
Availability of a caretaker*	0.496	0.001	1.643	1.22	2.212
Yes (Ref)					

p≤.001, **p≤ .01, *p≤.05, ns= not significant.p≤.001, **p≤ .01, *p≤.05, ns= not significant. Binary logistic regression model was utilized. Covariates and variables were classified as statistical significant factors if they were found to be statistically associated with the outcome on step one and continued to be statistically associated with the outcome on step 1 in the model including religiosity measures of interest. All measures included in the model that were found to be statistically associated with the outcome on step 1 with the inclusion of the religiosity measures remained in the model if significant at following steps. The above model accounts for 17.1% of the variance Nagelkerke R square =.091. Hosmer-Lemeshow goodness of fit test X²=8,817, df=8, p=.358. The above model accounts for 17.1% of the variance Nagelkerke R square =.091. Hosmer-Lemeshow goodness of fit test X²=8,817, df=8, p=.358

Appendix A. Survey Measures

	Measures/Variables	Question	Response
Depressive symptoms	Patient Health Questionnaire-2	Over the past two weeks, how often have you had little interest or pleasure in doing things?	Not at all, several days, more than half the days, nearly every day
		Over the past two weeks, how often have you been bothered by feeling down, depressed or helpless?	
Religiosity	Organizational religiosity	How often do you attend church or other religious services?	Daily, a few times per week, weekly, a few times per month,
	Spirituality	Do you consider yourself a spiritual person?	monthly, a few times per year, only at the holidays, I do not attend Yes, no
	Subjective religiosity	Do you consider yourself a religious person?	Yes, no
Health Behaviors	Lifetime tobacco use	If your life, have you ever used tobacco products (cigarettes, chewing tobacco, cigars, etc.)?	Yes, no
	Alcohol use (having 3 or more alcoholic everyday)	Do you have 3 or more drinks of beer, liquor or wine almost everyday?	Yes, no
	Tobacco use within the past three months	In the past three months, how often have you used tobacco products (cigarettes, chewing tobacco, cigars, etc.)?	Never, almost daily, once or twice monthly, daily, weekly
	Drinking concerns	Has a relative, friend, doctor or other health care worker been concerned about your drinking or suggested you cut down?	Yes, no
	Breakfast	Do you always eat breakfast?	Yes, no
	Fruits or vegetables	Do you eat few fruits or vegetables (i.e., fewer than 3 vegetables and 2 fruits a day)?	Yes, no
	Ever forgotten to take medication	Have you ever forgotten to take your medication?	Yes, no
	Ever forgotten to take medication on weekend	Have you ever forgotten to take your medication during the weekend?	Yes, no
	Taking medication at the appropriate time	Do you always take you medication at the appropriate time?	Yes, no
	Social Support	Availability of emotional support	Can you count on anyone to provide you with emotional support such as taking over problems or helping make a difficult decision?
Availability of caretaker		Is there a friend, neighbor or relative who could take care of you for a few days, if necessary?	Yes, no
Demographics	Gender	Are you?	Male, female
	Age	What is your current age?	Under 55, 55-60, 61-65, 66-70, 71-75, 76-80, 81-85, 86 and above
	Hispanic origin	Are you of Hispanic origin?	Yes, no
	Race	What is your race ?	White, black, American Indian or alaskan native, asian or pacific islander, other
	Education	Please mark the highest level of education for yourself and your parents	Less than a high school diploma, high school graduate, some college, associates degree , bachelor's degree, post graduate degree, don't know
	Relationship Status	What is your current relationship status? (mark all that apply)	Single, married, divorced, separated, widowed, living with partner/significant other, in committed relationship but not living together
	Annual Household Income	What is your gross annual household income (including pensions, retirement income, etc.)?	Under \$25,000, \$26,000-\$50,000, \$51,000-\$75,000, \$76,000-\$100,000, Over \$100,000, Prefer not to answer
General Health	Health Status	In general, would you say that your health is:?	Excellent, good, fair, poor
	Physical Capabilities	Please rate your ability to do activities unassisted by choosing the option below that best represents your current physical capabilities?	Fully active, able to carry on activities without restriction. Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work. Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours. Capable of only limited self-care, confined to bed or chair more than 50% of waking hours. Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair.

REFERENCES

- Adams, K.B., Sanders, S., & Auth, E.A. (2004). Loneliness and depression in independent living retirement communities: Risk and resilience factors. *Aging and Mental Health*, 8(6), 475-485.
- Agronin, M. E., & Maletta, G. J. (2011). *Principles and practice of geriatric psychiatry*. Philadelphia, PA: Lippincott Williams & Wilkins/Wolters Kluwer Business.
- Ai, A. L., Bjorck, J. P., Appel, H. B., & Huang, B. (2013). Asian American spirituality and religion: Inherent diversity, uniqueness, and long-lasting psychological influences. In J. J. Exline & J. W. Jones (Authors) & K. I. Pargament (Ed.), *APA handbook of psychology, religion, and spirituality context, theory, and research* (Vol. 1, pp. 581-598). Washington, DC: American Psychological Association.
- Ai, A. L., Huang, B., Bjorck, J., & Appel, H. B. (2013). Religious attendance and major depression among Asian Americans from a national database: The mediation of social support. *Psychology of Religion and Spirituality*, 5(2), 78-89. doi: 10.1037/a0030625
- Al-Nsour, M., Zindah, M., Belbeisi, A., Rolle, I. V., Walke, H., Strine, T., ... Mokdad, A. (2013). Frequent mental distress, chronic conditions, and adverse health behaviors in the behavioral risk factor surveillance survey, Jordan, 2007. *Preventing Chronic Disease*, 10. doi: 10.5888/pcd10.130030
- American Psychiatric Association. (2013). *Highlights of Changes from DSM-IV-TR to DSM-5* (Rep.). Retrieved <http://www.dsm5.org/Documents/changes%20from%20dsm-iv-tr%20to%20dsm-5.pdf>

- Andrews, G., Cuijpers, P., Craske, M. G., Mcevoy, P., & Titov, N. (2010). Computer Therapy for the Anxiety and Depressive Disorders Is Effective, Acceptable and Practical Health Care: A Meta-Analysis (B. T. Baune, Ed.). *PLoS ONE*, 5(10), E13196. doi: 10.1371/journal.pone.0013196
- Baetz, M., Griffin, R., Bowen, R., Koenig, H. G., & Marcoux, E. (2004). The Association Between Spiritual and Religious Involvement and Depressive Symptoms in a Canadian Population. *The Journal of Nervous and Mental Disease*, 192(12), 818-822. doi: 10.1097/01.nmd.0000146735.73827.85
- Balfour, D. J., & Ridley, D. L. (2000). The Effects of Nicotine on Neural Pathways Implicated in Depression. *Pharmacology Biochemistry and Behavior*, 66(1), 79-85. doi: 10.1016/S0091-3057(00)00205-7
- Ballew, S. H., Hannum, S. M., Gaines, J. M., Marx, K. A., & Parrish, J. M. (2012). The role of spiritual experiences and activities in the relationship between chronic illness and psychological well-being. *Journal of Religion and Health*, 51(4), 1386-1396. doi: 10.1007/s10943-011-9498-0
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182. doi: 10.1037//0022-3514.51.6.1173
- Basu-Zharku, I. O. (2011). The influence of religion on health. *Student Pulse*, 3(01). Retrieved February 10, 2014, from <http://www.studentpulse.com/articles/367/2/the-influence-of-religion-on-health>
- Beck, A. M., Ovesen, L., & Osler, M. (1999). The 'Mini Nutritional Assessment' (MNA) and the 'Determine Your Nutritional Health' Checklist (NSI Checklist) as predictors of morbidity

- and mortality in an elderly Danish population. *British Journal of Nutrition*, 81(01), 31-36.
doi: 10.1017/S0007114599000112
- Beeghley, L., Bock, E. W., & Cochran, J. K. (1990). Religious change and alcohol use: An application of reference group and socialization theory. *Sociological Forum*, 5(2), 261-278. doi: 10.1007/BF01112595
- Bensley, L.S., Van Eenwyk, J., & Simmons, K.W. (2000). Childhood family violence history and women's risk for intimate partner violence and poor health. *American Journal of Preventive Medicine*, 25(1), 38-44.
- Bergman, H., & Kallman, H. (2002). Alcohol use among swedes and A psychometric evaluation of The Alcohol Use Disorders Identification Test. *Alcohol and Alcoholism*, 37(3), 245-251. doi: 10.1093/alcalc/37.3.245
- Bonelli, R. M., & Koenig, H. G. (2013). Mental disorders, religion and spirituality 1990 to 2010: A systematic evidence-based review. *Journal of Religion and Health*, 52(2), 657-673.
doi: 10.1007/s10943-013-9691-4
- Bopp, M., & Webb, B. (2012). Health promotion in megachurches: An untapped resource with megareach? *Health Promotion Practice*, 13(5), 679-686. doi:
10.1177/1524839911433466
- Bosworth, H. B., Park, K., Mcquoid, D. R., Hays, J. C., & Steffens, D. C. (2003). The impact of religious practice and religious coping on geriatric depression. *International Journal of Geriatric Psychiatry*, 18(10), 905-914. doi: 10.1002/gps.945
- Boult, C., Dowd, B., McCaffrey, D., Boult, L., Hernandez, R., & Krulewitch, H. (1993). Screening elders for risk of hospital admission. *Journal of American Geriatrics*, 41(8),

811-817.

Braam, A. W., Prince, M. J., Beekman, A. T., Delespaul, P., Dewey, M. E., Geerlings, S. W., ...

Copelan, J. R. (2005). Physical health and depressive symptoms in older Europeans:

Results from EURODEP. *The British Journal of Psychiatry*, *187*(1), 35-42. doi:

10.1192/bjp.187.1.35

Brown, D., Scott, W., Lacey, K., Blount, J., Roman, D., & Brown, D. (2006). Black churches in

substance use and abuse prevention efforts. *Journal of Alcohol and Drug Education*,

50(2), 43-65.

Campbell, M. K., James, A., Hudson, M. A., Carr, C., Jackson, E., Oakes, V., ... Tessaro, I.

(2004). Improving multiple behaviors for colorectal cancer prevention among african

american church members. *Health Psychology*, *23*(5), 492-502. doi: 10.1037/0278-

6133.23.5.492

Canda, E. R., & Furman, L. D. (1999). *Spiritual diversity in social work practice: The heart of*

helping. New York: Free Press.

Centers for Disease Control and Prevention. (2011, December 16). Mental Health: Depression.

Retrieved from <http://www.cdc.gov/mentalhealth/basics/mental-illness/depression.htm>

Centers for Disease Control and Prevention and National Association of Chronic Disease

Directors. (2008). The State of Mental Health and Aging in America Issue Brief 1: What

Do the Data Tell Us? Atlanta, GA: National Association of Chronic Disease Directors.

Centers for Disease Control and Prevention (CDC). National Center for Health Statistics

(NCHS). National Health and Nutrition Examination Survey Data. Hyattsville, MD: U.S.

- Department of Health and Human Services, Centers for Disease Control and Prevention, 2007. Accessed from: http://www.cdc.gov/nchs/nhanes/nhanes2007-2008/SSQ_E.htm
- Centers for Disease Control and Prevention. (2013). *The State of Aging and Health in America 2013*. Atlanta, GA: Centers for Disease Control and Prevention, US Dept. of Health and Human Services.
- Centers for Medicare & Medicaid Services. (n.d.). Centers for Medicare & Medicaid Services (CMS.gov). Retrieved from <http://www.cms.gov/>
- Chambles, D. L., & Olendick, T. H. (2001). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology*, 52(1), 685-716. doi: 10.1146/annurev.psych.52.1.685
- Chatters, L. M., Bullard, K. M., Taylor, R. J., Woodward, A. T., Neighbors, H. W., & Jackson, J. S. (2008). Religious participation and DSM-IV disorders among older African Americans: Findings from the National Survey of American Life. *American Journal of Geriatric Psychiatry*, 16(12), 957-965. doi: 10.1097/JGP.0b013e3181898081
- Chitwood, D. D., Weiss, M. L., & Leukefeld, C. G. (2008). A systematic review of recent literature on religiosity and substance use. *Journal of Drug Issues*, 38(3), 653-688. doi: 10.1177/002204260803800302
- Ciechanowski, P., Katon, W., Russo, J. (2000). Depression and diabetes: Impact of depressive symptoms on adherence, function, and costs. *Journal of the American Medical Association*, 160(21), 3278-3285.
- Coulombe, J.A., Reid, G.J., Boyle, M.H. Racine, Y. (2010). Concurrent associations among sleep problems, indicators of inadequate sleep, psychopathology, and shared risk factors in a

- population-based sample of healthy Ontario children. *Journal of Pediatric Psychology*, 35(7), 790-799
- Day, J. (2011). Mental illness training initiative: Pathways to Promise runs pilot program in St. Louis. Retrieved from <http://umc-gbcs.org/faith-in-action/mental-illness-training-initiative>
- Debnam, K., Holt, C.L., Clark, E.M., Roth, D.L., & Southward, P. (2012). Relationship between religious social support and general social support with health behaviors in a national sample of African Americans. *Journal of Behavioral Medicine*. 35(2), 179-189.
- Dein, S. (2006). Religion, spirituality and depression: Implications for research and treatment. *Primary Care and Community Psychiatry*, 11(2), 67-72. doi: 10.1185/135525706X121110
- Diagnostic and statistical manual of mental disorders: DSM-5*. (2013). Arlington, VA: American Psychiatric Association.
- Dijk, H. M., Cramm, J. M., & Nieboer, A. P. (2013). The experiences of neighbor, volunteer and professional support-givers in supporting community dwelling older people. *Health & Social Care in the Community*, 21(2), 150-158. doi: 10.1111/hsc.12006
- Dodani, S., Kramer, M.K., Williams, L., Crawford, S., & Kriska, A. (2009). Fit body and soul: A church-based behavioral lifestyle program for diabetes prevention in African Americans. *Ethnicity & Disease*, 19, 135-141.
- Dodani, S., Sullivan, D., Pankey, S., & Champagne, C. (2011). HEALS: A faith-based hypertension control and prevention program for African American churches: Training of church leaders as program interventionists. *International Journal of Hypertension*, 2011, 1-7. doi: 10.4061/2011/820101
- Dossett, E., Fuentes, S., Klap, R., & Wells, K. (2005). Brief reports: Obstacles and opportunities

- in providing mental health services through a faith-based network in Los Angeles. *Psychiatric Services*, 56(2), 206-208. doi: 10.1176/appi.ps.56.2.206
- Edwards, J. (2010). INSPIRE curriculum delivered in a Faith-Based setting. *Family & Community Health*, 33(2), 117-122. doi: 10.1097/FCH.0b013e3181d5938c
- Ellis, A. (1996). *Better, deeper, and more enduring brief therapy: The rational emotive behavior therapy approach*. New York: Brunner/Mazel.
- Ellison, C. G., & Flannelly, K. J. (2009). Religious involvement and risk of major depression in a prospective nationwide study of African American adults. *The Journal of Nervous and Mental Disease*, 197(8), 568-573. doi: 10.1097/NMD.0b013e3181b08f45
- Ellison, C. G., & Levin, J. S. (1998). The Religion-Health Connection: Evidence, Theory, and Future Directions. *Health Education & Behavior*, 25(6), 700-720. doi: 10.1177/109019819802500603
- Ellison, C. G., Hummer, R. A., Burdette, A. M., & Benjamins, M. R. (2010). Race, religious involvement, and health: The case of African Americans. In C. G. Ellison & R. A. Hummer (Eds.), *Religion, families, and health: Population-based research in the United States* (pp. 321-348). New Brunswick, NJ: Rutgers University Press.
- Federal Interagency Forum on Aging-Related Statistics. (2012) Older Americans 2012: Key Indicators of Well-Being. Federal Interagency Forum on Aging-Related Statistics. Washington, DC: U.S. Government Printing Office. Accessed from: http://www.agingstats.gov/agingstatsdotnet/Main_Site/Data/2012_Documents/Docs/EntireChartbook.pdf

- Fiske, A., Wetherell, J.L. & Gatz, M. (2009). Depression in Older Adults. *Annual Review Clinical Psychology*, 5, 363-389.
- Ford, M. E., Edwards, G., Rodriguez, J. L., Gibson, R. C., & Tiley, B. C. (1996). An empowerment-centered, church-based asthma education program for African American adults. *Health & Social Work*, 21(1), 70-75.
- Gallo, J., & Rabins, P. (1999). Depression without sadness: Alternative presentations of depression in late life. *American Family Physician*, 60(3), 820-826.
- Gallup, G., & Jones, T. K. (2000). *The next American spirituality: Finding God in the twenty-first century*. Colorado Springs: Cook Communications.
- Gallup, G., & Lindsay, D. M. (1999). *Surveying the religious landscape: Trends in U.S. beliefs*. Harrisburg, PA: Church Publishing.
- George, L. K., Ellison, C. G., & Larson, D. B. (2002). Explaining the relationships between religious involvement and health. *Psychological Inquiry*, 13(3), 190-200. doi: 10.1207/S15327965PLI1303_04
- George, L. K., Kinghorn, W. A., Koenig, H. G., Gammon, P., & Blazer, D. G. (2013). Why gerontologists should care about empirical research on religion and health: Transdisciplinary perspectives. *The Gerontologist*, 53(6), 898-906. doi: 10.1093/geront/gnt002
- George, L. K., Larson, D. B., Koenig, H. G., & McCullough, M. E. (2000). Spirituality and health: What we know, what we need to know. *Journal of Social and Clinical Psychology*, 19(1), 102-116.
- Glueckauf, R.L., Davis, W., Allen, K., Chipi, P., Schettini, G., Tegen, L.,...Ramirez, C. (2009). Integrative cognitive-behavioral and spiritual counseling for rural dementia caregivers

- with depression. *Rehabilitation Psychology*, 54(4), 449-461.
- Gum, A. M., Ayalon, L., Greenberg, J. M., Palko, B., Ruffo, E., & Areán, P. A. (2010). Preferences for professional assistance for distress in a diverse sample of older adults. *Clinical Gerontologist*, 33, 136-151. doi: 10.1080/07317110903551901
- Gum, A. M., Watson, M. A., Smith, B. A., Briscoe, R., Goldsmith, J., & Henley, B. (2012). Collaborative design of a church-based, multidimensional senior wellness program by older adults, church leaders, and researchers. *Journal of Religion, Spirituality & Aging*, 24(3), 213-234. doi: 10.1080/15528030.2012.634758
- Hankerson, S. H., & Weissman, M. M. (2012). Church-based health programs for mental disorders among African Americans: A review. *Psychiatric Services*, 63(3), 243-249. doi: 10.1176/appi.ps.201100216
- Hankerson, S. H., Watson, K. T., Lukachko, A., Fullilove, M. T., & Weissman, M. (2013). Ministers' Perceptions of Church-Based Programs to Provide Depression Care for African Americans. *Journal of Urban Health*, 90(4), 685-698. doi: 10.1007/s11524-013-9794-y
- He, W., Sengupta, M., Velkoff, V. A., & DeBarros, K. A. (2005). *65 in the United States, 2005* (pp. 23-209) (United States, U.S. Dept. of Commerce, Economics and Statistics Administration, U.S. Census Bureau). Washington, D.C.: U.S. Dept. of Commerce, Economics and Statistics Administration, U.S. Census Bureau.
- Hodge, D. R. (2006). A template for spiritual assessment: A review of the JCAHO requirements

- and guidelines for implementation. *Social Work*, 51(4), 317-326. doi:
10.1093/sw/51.4.317
- Hodge, D. R., Bonifas, R. P., & Chou, R. J. (2010). Spirituality and older adults: Ethical guidelines to enhance service provision. *Advances in Social Work*, 11(1), 1-16.
- Hoffman, C., Rice, D., & Sung, H. Y. (1996). Persons with chronic conditions. Their prevalence and costs. *The Journal of the American Medical Association*, 276(18), 1473-1479. doi:
10.1001/jama.276.18.1473
- Holt, C., Clark, E., Wang, M. Q., Williams, B. R., & Schulz, E. (2014). The religion–health connection among African Americans: What Is the role of Social Capital? *Journal of Community & Applied Social Psychology*. doi: 10.1002/casp.2191
- Holt, C. L., Wynn, T. A., Southward, P., Litaker, M. S., Jeames, S., & Schulz, E. (2009). Development of a Spiritually Based Educational Intervention to Increase Informed Decision Making for Prostate Cancer Screening Among Church-Attending African American Men. *Journal of Health Communication*, 14(6), 590-604. doi:
10.1080/10810730903120534
- Holt, C.L., Haire-Joshu, D.L., Lukwago, S.N., Lewellyn, L.A., & Kreuter, M.W. (2005). The role of religiosity in dietary beliefs and behaviors among urban African American women. *Cancer Control, Cancer Culture and Literacy Supplement*, 12, 84-90
- Holt, J. B., Miller, J. W., Naimi, T. S., & Sui, D. Z. (2006). Religious affiliation and alcohol

- consumption in the United States. *Geographical Review*, 96(4), 523-542. doi: 10.1111/j.1931-0846.2006.tb00515.x
- House, J. S. (1981). *Work stress and social support*. Reading, MA: Addison-Wesley Pub.
- Humeniuk, R & Ali, R. (2006). Validation of the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) and pilot brief intervention [electronic resource]: a technical report of phase II findings of the WHO ASSIST. Accessed from: http://www.who.int/substance_abuse/activities/assist_technicalreport_phase2_final.pdf
- Idler, E. L., Boulifard, D. A., Labouvie, E., Chen, Y. Y., Krause, T. J., & Contrada, R. J. (2008). Looking Inside the Black Box of “Attendance at Services”: New Measures for Exploring an Old Dimension in Religion and Health Research. *International Journal for the Psychology of Religion*, 19(1), 1-20. doi: 10.1080/10508610802471096
- Jenkins, R. A., & Pargament, K. I. (1995). Religion and spirituality as resources for coping with cancer. *Journal of Psychosocial Oncology*, 13(1-2), 51-74. doi: 10.1300/J077V13N01_04
- Johnstone, B., McCormack, G., Yoon, D. P., & Smith, M. L. (2012). Convergent/Divergent validity of the brief multidimensional measure of religiousness/spirituality: Empirical support for emotional connectedness as a “spiritual” construct. *Journal of Religion and Health*, 51(2), 529-541. doi: 10.1007/s10943-011-9538-9
- Kaiser Family Foundation. Medicare spending and financing fact sheet. 2011. Kaiser Family Foundation Web site. <http://www.kff.org/medicare/upload/7305-06.pdf>
- Kaskutas, L. A., Kaskutas, L. A., Bond, J., & Weisner, C. (2003). The role of religion, spirituality and alcoholics anonymous in sustained sobriety. *Alcoholism Treatment Quarterly*, 21(1), 1-16. doi: 10.1300/J020v21n01_01

- Khokhar, W. A., Ali, M. M., Hameed, I., & Sadiq, J. (2008). Psychotropic medication: Resistance, adherence and religious objections. *Advances in Psychiatric Treatment*, *14*(1), 78-79. doi: 10.1192/apt.14.1.78b
- Kinney, A.Y., Bloor, L.E., Dudley, W.N., Millikan, R.C., Marshall, E., Martin, C., Sandler, R.S. (2003). Roles of Religious Involvement and Social Support in Risk of Colon among Blacks and Whites, *American Journal of Epidemiology*, *158*(11), 1097-1107
- Knobel, H., Alonso, J., Casado, J. L., Collazos, J., González, J., Ruiz, I., ... Ocampo, A. (2002). Validation of a simplified medication adherence questionnaire in a large cohort of HIV-infected patients: The GEEMA Study. *Aids*, *16*(4), 605-613. doi: 10.1097/00002030-200203080-00012
- Koenig, H. G. (2012). Religious versus Conventional Psychotherapy for Major Depression in Patients with Chronic Medical Illness: Rationale, Methods, and Preliminary Results. *Depression Research and Treatment*, *2012*, 1-11. doi: 10.1155/2012/460419
- Koenig, H. G., George, L. K., & Titus, P. (2004). Religion, spirituality, and health in medically ill hospitalized older patients. *Journal of the American Geriatrics Society*, *52*(4), 554-562. doi: 10.1111/j.1532-5415.2004.52161.x
- Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of religion and health*. New York, New York: Oxford University Press.
- Koenig, L. B., & Vaillant, G. E. (2009). A prospective study of church attendance and health over the lifespan. *Health Psychology*, *28*(1), 117-124. doi: 10.1037/a0012984
- Krause, N. (2003). Race, religion, and abstinence from alcohol in late life. *Journal of Aging and*

- Health*, 15(3), 508-533. doi: 10.1177/0898264303253505
- Krause, N., Ellison, C. G., Shaw, B. A., Marcum, J. P., & Boardman, J. D. (2001). Church-based social support and religious coping. *Journal for the Scientific Study of Religion*, 40(4), 637-656. doi: 10.1111/0021-8294.00082
- Kretchy, I., Owusu-Daaku, F., & Danquah, S. (2013). Spiritual and religious beliefs: Do they matter in the medication adherence behavior of hypertensive patients? *BioPsychoSocial Medicine*, 7(1), 15. doi: 10.1186/1751-0759-7-15
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003). The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. *Medical Care*, 41(11), 1284-1292. doi: 10.1097/01.MLR.0000093487.78664.3C
- Kvaavik, E., Batty, G. D., Ursin, G., Huxley, R., & Gale, C. R. (2010). Influence of individual and combined health behaviors on total and cause-specific mortality in men and women: The United Kingdom health and lifestyle survey. *Archives of Internal Medicine*, 170(8), 711-718.
- Lawler-Row, K. A. (2010). Forgiveness as a mediator of the religiosity—health relationship. *Psychology of Religion and Spirituality*, 2(1), 1-16. doi: 10.1037/a0017584
- Levin, J., & Chatters, L. M. (2008). Religion, aging, and health: Historical perspectives, current trends, and future directions. *Journal of Religion, Spirituality & Aging*, 20(1-2), 153-172. doi: 10.1080/15528030801922103
- Levin, J. (2012a). A faith-based agenda for the Surgeon General: Challenges and recommendations. *Journal of Religion and Health*, 51, 57-71.

- Levin, J. (2012b). Jewish ethical themes that should inform the national healthcare discussion: A prolegomenon. *Journal of Religion and Health*, 51, 589–600.
- Levin, J., Chatters, L. M., & Taylor, R. J. (2011). Theory in religion, aging, and health: An overview. *Journal of Religion and Health*, 50(2), 389-406. doi: 10.1007/s10943-009-9319-x
- Levin, J. S., & Chatters, L. M. (1998). Research on religion and mental health: An overview of empirical findings and theoretical issues. In H. G. Koenig (Ed.), *Handbook of Religion and Mental Health* (pp. 70–84). San Diego, CA: Academic Press.
- Levin, J. S. (Ed.). (1994). *Religion in aging and health: Theoretical foundations and methodological frontiers*. Thousand Oaks, CA: Sage Publications.
- Lewinsohn, P.M., Rohde, P., & Seeley, J.R. (1994). Psychosocial risk factors for future adolescent suicide attempts. *Journal of Consulting and Clinical Psychology*, 62, (2), 297–305.
- Loue, S. (2010). Faith-based mental health treatment of minors. *Journal of Legal Medicine*, 31(2), 171-201. doi: 10.1080/01947641003800203
- Lucchetti, G., Lucchetti, A. G., Badan-Neto, A., Peres, P., Peres, M., Moreira-Almeida, A., ... Koenig, H. (2011). Religiousness affects mental health, pain and quality of life in older people in an outpatient rehabilitation setting. *Journal of Rehabilitation Medicine*, 43(4),
- Löwe, B., Kroenke, K., & Gräfe, K. (2005). Detecting and monitoring depression with a two-item questionnaire (PHQ-2). *Journal of Psychosomatic Research*, 58(2), 163-171. doi: 10.1016/j.jpsychores.2004.09.006

- Mccullough, M. E., & Larson, D. B. (1999). Religion and depression: A review of the literature. *Twin Research*, 2(02), 126-136. doi: 10.1375/twin.2.2.126
- Mccullough, M. E. (1999). Research on religion-accommodative counseling: Review and meta-analysis. *Journal of Counseling Psychology*, 46(1), 92-98. doi: 10.1037//0022-0167.46.1.92
- McGuire, L.C., Strine, T.W., Okoro, C.A., Ahluwalia, I.B., Ford, E.S. (2007). Healthy lifestyle behaviors among older U.S. adults with and without disabilities, Behavioral Risk Factor Surveillance System, 2003. *Preventing Chronic Disease: Public Health Research, Practice, and Policy*, 4(1):A09.
- McNabb, W.L., Quinn, M.T., 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.
- Moberg, D. O. (2005). Research in spirituality, religion, and aging. *Journal of Gerontological Social Work*, 45(1-2), 11-40. doi: 10.1300/J083v45n01_02
- National Action Alliance for Suicide Prevention. (2012a). About Us. Retrieved January 10, 2014, from <http://actionallianceforsuicideprevention.org/about-us>
- National Action Alliance for Suicide Prevention. (n.d.). Faith Communities Task Force. Retrieved February 2, 2014, from <http://actionallianceforsuicideprevention.org/task-force/faith-communities>
- Neighbors, H. W., Musick, M. A., & Williams, D. R. (1998). The African American Minister as a Source of Help for Serious Personal Crises: Bridge or Barrier to Mental Health Care? *Health Education & Behavior*, 25(6), 759-777. doi: 10.1177/109019819802500606

- Oken, M. M., Creech, R. H., Tormey, D. C., Horton, J., Davis, T. E., Mcfadden, E. T., & Carbone, P. P. (1982). Toxicity and response criteria of the Eastern Cooperative Oncology Group. *American Journal Of Clinical Oncology*, 5(6), 649-656. doi: 10.1097/00000421198212000-00014
- Oregon Center for Health Statistics (1997). *Suicide and suicidal thoughts by Oregonians*, Portland, OR: Oregon Department of Human Resources.
- Pathways to Promise. (2011). Pathways to Promise: A National Training Initiative. Retrieved from <http://pathways2promise.org/nti.htm>
- Patten, S., & Ramasubbu, R. (2003). Effect of depression on stroke morbidity and mortality. *Can. J. Psychiatry*, 48(4), 250-257.
- Peyrot, M., & Rubin, R. R. (2005). Validity and Reliability of an Instrument for Assessing Health-Related Quality of Life and Treatment Preferences: The Insulin Delivery System Rating Questionnaire. *Diabetes Care*, 28(1), 53-58. doi: 10.2337/diacare.28.1.53
- Powell, L. H., Shahabi, L., & Thoresen, C. E. (2003). Religion and spirituality: Linkages to physical health. *American Psychologist*, 58(1), 36-52. doi: 10.1037/0003-066X.58.1.36
- Prado, G., Feaster, D. J., Schwartz, S. J., Pratt, I. A., Smith, L., & Szapocznik, J. (2004). Religious Involvement, Coping, Social Support, and Psychological Distress in HIV-Seropositive African American Mothers. *AIDS and Behavior*, 8(3), 221-235. doi: 10.1023/B:AIBE.0000044071.27130.46

- Propst, L. R. (1996). Cognitive-behavioral therapy and the religious person. In E. P. Shafranske (Ed.), *Religion and the clinical practice of psychology* (pp. 391-407). Washington, DC: American Psychological Association.
- Report of Nutrition Screening I: Toward a common view* (Rep.). (1991). Washington, DC: Nutrition Screening Initiative.
- Rodrigues, S. D., Rodrigues, R. C., Sao-Joao, T. M., Pavan, R. B., Padilha, K. M., & Gallani, M. (2013). Impact of the disease: Acceptability, ceiling and floor effects and reliability of an instrument on heart failure. *Revista Da Escola De Enfermagem Da USP*, 47(5), 1090-1097. doi: 10.1590/S0080-623420130000500012
- Rodriguez, M., & Cohen, S. (1998). Social support. In S. Cohen (Author), *Encyclopedia of Mental Health* (pp. 535-544). New York, NY: Academic Press.
- Schulz, R., Beach, S., Ives, D., Martire, L., Ariyo, A., & Kop, W. (2000). Association between depression and mortality in older adults: The cardiovascular health study. *Archives of Internal Medicine*, 160(12), 1761-1768. doi: 10.1001/archinte.160.12.1761
- Shellman, J. (2004). "Nobody ever asked me before": Understanding life Experiences of african american elders. *Journal of Transcultural Nursing*, 15(4), 308-316. doi: 10.1177/1043659604268961
- Smith, A. (1981). Religion and mental health among blacks. *Journal of Religion & Health*, 20(4), 264-287. doi: 10.1007/BF01572627
- Son, J., & Wilson, J. (2011). Religiosity, psychological resources, and physical health. *Journal for the Scientific Study of Religion*, 50(3), 588-603. doi: 10.1111/j.1468-

5906.2011.01588.x

Spitzer, J. (2003). *Caring for Jewish patients*. Abingdon: Radcliffe Medical.

Steffens, D. C., Et al., Otey, E., Alexopoulos, G., Butters, M., Cuthbert, B., Ganguli, M., ...

Yesavage, J. (2006). Perspectives on depression, mild cognitive impairment, and cognitive decline. *Archives of General Psychiatry*, 63(2), 130-138. doi:

10.1001/archpsyc.63.2.130

Sternthal, M. J., Williams, D. R., Musick, M. A., & Buck, A. C. (2010). Depression, anxiety, and religious life: A search for mediators. *Journal of Health and Social Behavior*, 51(3), 343-359. doi: 10.1177/0022146510378237

Strawbridge, W. J., Shema, S. J., Cohen, R. D., & Kaplan, G. A. (2001). Religious attendance increases survival by improving and maintaining good health behaviors, mental health, and social relationships. *Annals of Behavioral Medicine*, 23(1), 68-74. doi:

10.1207/S15324796ABM2301_10

Strine, T.W., Balluz L., Chapman, D.P., Moriarty, D.G., Owens, M., & Mokdad A.H. Risk behaviors and healthcare coverage among adults by frequent mental distress status, 2001. *American Journal of Preventative Medicine*, 26(3), 213-216.

Sue, D. W., & Sue, D. (2008). *Counseling the culturally diverse: Theory and practice* (5th ed.).

Hoboken, NJ: John Wiley & Sons.

Suárez, F., Plumed, J., Valentín, P., Palomo, P., Cepeda, M., Aguiar, D., & Estudio Vatren, G.

(2011). Validation on the simplified medication adherence questionnaire (SMAQ) in renal transplant patients on tacrolimus. *Official Publication of the Spanish Nephrology Society*,

- 31(6), 690-696. doi: 0.3265/Nefrologia.pre2011.Aug.10973
- Taylor, R. J., Chatters, L. M., & Abelson, J. M. (2012). Religious involvement and DSM-IV 12-month and lifetime major depressive disorder among african americans. *The Journal of Nervous and Mental Disease*, 200(10), 856-862. doi: 10.1097/NMD.0b013e31826b6d65
- Taylor, R. J., Chatters, L. M., & Jackson, J. S. (2007). Religious and spiritual involvement among older african americans, caribbean blacks, and Non-Hispanic whites: Findings from the National Survey of American Life. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 62(4), S238-S250. doi: 10.1093/geronb/62.4.S238
- Trice, P. D., & Bjorck, J. P. (2006). Pentecostal Perspectives on Causes and Cures of Depression. *Professional Psychology: Research and Practice*, 37(3), 283-294. doi: 10.1037/0735-7028.37.3.283
- Trim, R. S., Schuckit, M. A., & Smith, T. L. (2010). Predicting drinking onset with discrete-time survival analysis in offspring from the San Diego prospective study. *Drug and Alcohol Dependence*, 107(2-3), 215-220. doi: 10.1016/j.drugalcdep.2009.10.015
- Tsai, A.C, Chi, S.H., & Wang, J. (2013). Cross-sectional and longitudinal associations of lifestyle factors with depressive symptoms in ≥ 53 -year old Taiwanese—results of an 8-year cohort study. *Preventive Medicine*, 57(2), 92–97.
- United States, Centers for Disease Control and Prevention, Public Health Practice Program Office. (1999). *Engaging Faith Communities as Partners in Improving Community Health Engaging Faith Communities as Partners in Improving Community Health*. Retrieved from <https://secure.ce->

credit.com/articles/100871/Engaging_Faith_Communities_Health.pdf

The University of Iowa.(n.d.) Geriatric Health Questionnaire. Date Accessed January 4, 2013.

Website: <http://www.healthcare.uiowa.edu/igec/tools/toolPopup.asp?toolID=38>.

U.S. Centers for Medicare & Medicaid Services. (n.d.). Do Marketplace insurance plans cover mental health and substance abuse services? Retrieved from

<https://www.healthcare.gov/do-marketplace-insurance-plans-cover-mental-health-and-substance-abuse-services/>

U.S. Centers for Medicare & Medicaid Services. (n.d.). Rights, Protections, and the Law.

Retrieved March 3, 2014, from <https://www.healthcare.gov/rights-protections-and-the-law/>

U.S. Department of Health & Human Services. (2013, November 13). “Second Sunday”

enrollment events. Retrieved from

<http://www.hhs.gov/partnerships/resources/newsletter/111413.html#%E2%80%9CSecond%20Sunday%E2%80%9D%20enrollment%20events>

U.S. Department of Health & Human Services. (n.d.). The Affordable Care Act and Your

Community. Retrieved from http://www.hhs.gov/partnerships/aca_act_and_community/

U.S. Department of Health & Human Services. (2009). The role of religiosity in the lives of the

low-income population: A comprehensive review of the evidence. Retrieved from:

<http://aspe.hhs.gov/hsp/09/religiosity/report.shtml>.

U.S. Religion map and religious populations: U.S. Religious Landscape Study Pew Forum on

Religion & Public Life. (2013). Retrieved March 23, 2014, from

<http://religions.pewforum.org/maps>

Van Olphen, J., Schulz, A., Israel, B., Chatters, L., Klem, L., Parker, E., & Williams, D. (2003).

- Religious involvement, social support, and health among African-American women on the east side of Detroit. *Journal of General Internal Medicine*, 18(7), 549-557. doi: 10.1046/j.1525-1497.2003.21031.x
- Varma, S., & Azhar, M. (2000). Mental illness and its treatment in Malaysia. In I. Al-Issa (Ed.), *Al-Junūn: Mental illness in the Islamic world* (pp. 163-186). Madison, CT: International Universities Press.
- Vasiliadis, H., Dionne, P., Prévile, M., Gentil, L., Berbiche, D., & Latimer, E. (2013). The excess healthcare costs associated with depression and anxiety in elderly living in the community. *American Journal Geriatric Psychiatry*, 21(6), 536-548. doi: 10.1016/j.jagp.2012
- Vincent, G. K. & Velkoff, V.A. (2010). THE NEXT FOUR DECADES: The Older Population in the United States: 2010 to 2050, Current Population Reports, P25-1138, U.S. Census Bureau, Washington, DC.
- Weaver, A., Flannelly, K., & Strock, A. (2005). A review of research on the effects of religion on adolescent tobacco use published between 1990 and 2003. *Adolescence*, 40(160), 761-776.
- Werner, Carrie A. (2011). The Older Population: 2011. U.S. Census Bureau, Census Briefs, C2010BR-09, Washington, DC: U.S. Government Printing Office. Retired online: <http://www.census.gov/prod/cen2010/briefs/c2010br-09.pdf>.
- Whooley, M. A., Boyd, A., Gardin, J., & Williams, D. (2002). Religious involvement and cigarette smoking in young adults: The CARDIA study. *Archives of Internal Medicine*, 162(14), 1604-1610. doi: 10.1001/archinte.162.14.1604
- Wittink, M. N., Joo, J. H., Lewis, L. M., & Barg, F. K. (2009). Losing Faith and Using Faith:

Older African Americans Discuss Spirituality, Religious Activities, and Depression.

Journal of General Internal Medicine, 24(3), 402-407. doi: 10.1007/s11606-008-0897-1

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis*, 11(2), 203-214. doi: 10.1901/jaba.1978.11-203

World Health Organization. (2012, October). Depression. Retrieved from <http://www.who.int/mediacentre/factsheets/fs369/en/>

Youngstedt, S. D. (2003). Ceiling and floor effects in sleep research. *Sleep Medicine Reviews*, 7(4), 351-365. doi: 10.1053/smrv.2001.0239