

THE EFFECTS OF HEALTH BELIEFS AND DEPRESSION ON LATINO AND AFRICAN
AMERICAN OLDER ADULTS

by

GABRIELA ORSAK

Presented to the Faculty of the Graduate School of
The University of Texas at Arlington in Partial Fulfillment
of the Requirements
for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

MAY 2015

Copyright © by Gabriela Orsak 2015

All Rights Reserved



Acknowledgements

First, I would like to thank my former Faculty Mentor, Dr. Pablo Mora, for all of his direction and belief in this project and during the first few years of graduate school. He will be sadly missed, but quietly remembered. Next, I would like to thank my current Faculty Mentor and Dissertation Committee Chairman, Dr. Angela Liegey Dougall, for all of her support and guidance she has provided me throughout the years. She has helped guide my graduate career by providing vital support throughout this process. Without her support, this would not have been possible. Thank you for always believing in me and allowing me to pursue my graduate degree. I would also like to thank my other members of my committee, Dr. Jared Kenworthy, Dr. Daniel Levine, Dr. Jeffrey Gagne, and Dr. Heekyeong Park as well.

Finally, I would like to thank my husband, Michael Orsak, for all of his undying support during these past 5 years. Without him, I would never have been able to achieve everything that I have. He provides the constant encouragement that I need to keep going, even thru the difficult times I have encountered.

April 3, 2015

Abstract

THE EFFECTS OF HEALTH BELIEFS AND DEPRESSION ON LATINO AND AFRICAN
AMERICAN OLDER ADULTS

Gabriela Orsak, PhD

The University of Texas at Arlington, 2015

Supervising Professor: Angela Liegey Dougall

Disparities among minorities are prevalent, and it is pertinent to identify why. The relationships between culture, depressive symptoms, symptom identity, mental health-related quality of life, functional limitations, self-assessed health and care seeking were examined. The study interviewed 240 European American, African American, and Hispanic/Latino older adults. Contrary to expectations, no differences were found in symptom identity, mental health-related quality of life, self-assessed health, functional limitations and care seeking from a psychologist or psychiatrist, or any other mental health professional among cultures. No differences were observed among depressive symptom groups in symptom identity, and care seeking. As expected, patients with no depressive symptoms had better mental health-related quality of life, self-assessed health, and less functional limitations than those with above threshold depressive symptoms. As expected, European Americans with subthreshold depressive symptoms had better self-assessed health than Hispanics/Latinos with sub-threshold depressive symptoms. Contrary to expectations, acculturation did not predict health outcomes nor did it moderate the relationship between symptom identity and health. In conclusion, few differences among cultural and depressive symptom groups were found. Other factors, such as perceived control, may better explain health disparities among minorities.

Table of Contents

Acknowledgements	iii
Abstract	iv
List of Illustrations	vii
List of Tables	viii
Chapter 1 Introduction.....	1
Depression in Minorities	1
Subthreshold depressive symptoms.....	1
Comorbidities among older adults	2
Attitudes toward mental illness	4
Commonsense Model of Self-Regulation	7
Symptom identity	9
Heterogeneity of depression.....	11
Overall Aims	12
Hypotheses	12
Chapter 2 Methods.....	17
Patients	17
Procedures	19
Measures	19
Demographics	19
Patient Health Questionnaire	20
Revised Illness Perceptions Questionnaire.....	20
Acculturation Scale	20
Mental Health-Related Quality of Life.....	21
Self-Assessed Health	21

Functional Limitations	21
Care Seeking	21
Chapter 3 Results	23
Hypothesis one	25
Hypothesis two	26
Hypothesis three	27
Hypothesis four	28
Hypothesis five	32
Hypothesis six	37
Hypothesis seven	50
Hypothesis eight	52
Chapter 4 Discussion	57
References	64
Biographical Information	80

List of Illustrations

Figure 1-1 Common Sense Model of Self-Regulation 11

Figure 3-1 Interaction between Culture and Depressive Symptoms Groups on Mental Health-Related Quality of Life 39

Figure 3-2 Interaction between Culture and Depressive Symptoms Groups on Self-Assessed Health 41

Figure 3-3 Mental Health-Related Quality of Life among European American, African American, and Hispanic/Latino Older Adults 47

Figure 3-4 Functional Limitations among European American, Hispanic/Latino and African American Older Adults 48

Figure 3-5 Self-Assessed Health among European American, African American, and Hispanic/Latino Older Adults 49

List of Tables

Table 2-1 Groups Divided by Ethnicity/Culture and Depressive Symptom Group	17
Table 2-2 Medical and Demographic Variables across Culture.....	18
Table 2-3 Medical and Demographic Variables across Depressive Symptom Group.....	18
Table 3-1 Results of Mixed Analyses of Covariance Examining Group Differences in Symptom Identity for Hypotheses One, Two, and Three.....	25
Table 3-2 Results from the Exploratory Analysis Assessing Hypothesis One.....	26
Table 3-3 Results from the Exploratory Analysis Assessing Hypothesis three	27
Table 3-4 Results of Mixed Analyses of Covariance Examining Group Differences in Mental Health-Related Quality of Life, Functional Limitations, Self-Assessed Health, and Care Seeking from a Doctor, Psychologist or Psychiatrist, or Any Other Mental Health Professional Testing Hypotheses Four, Five, and Six	29
Table 3-5 Results from Exploratory Analyses Assessing Hypothesis Five	34
Table 3-6 Results Assessing Exploratory Analyses for Hypothesis Six	42
Table 3-7 Regression Analyses Assessing Effects of Acculturation on Mental Health- Related Quality of Life, Functional Limitations, Self-Assessed Health, and Care Seeking from a Doctor, Psychologist or Psychiatrist, or Any Other Mental Health Professional ...	50
Table 3-8 Last Step of the Multiple Moderated Regression Analyses Testing Hypothesis Eight	53

Chapter 1

Introduction

Depression in Minorities

It is estimated that by 2030 older adults will comprise 20% of the population, as opposed to 13% in 2000 (U.S. Census Bureau, 2010b). In addition to this, minority populations, including African Americans and Hispanics/Latinos, constitute a large portion of the US population. Current data indicates that African Americans represent 12.9% and Hispanics 16.9% of the population (U.S. Census Bureau, 2010a). Around 10 to 12% report mental health problems such as depression, with an additional 23% reporting sub-threshold depressive symptoms (STDS). African American and Hispanic/Latino older adults are 1.16 and 1.44 times, respectively, more likely to exhibit elevated rates of depressive symptoms than European Americans (Dunlop, Song, Lyons, Manheim, & Chang, 2003). This constitutes a major illness burden among these groups since older adults in minority populations are much less likely to receive or seek care for these conditions (Borowsky et al., 2000; Cabassa, Lester, & Zayas, 2007; Nicolaidis et al., 2010; Sclar & Robison, 1999; Williams, Chapman, Wong, & Turkheimer, 2013a). Despite advances in medical technology and an emphasis on public health initiatives, racial and ethnic disparities in healthcare persist, even when variances in treatment due to insurance, access to care, and health status are accounted for (Smedley, Stith, & Nelson, 2009). These findings suggest that minority population older adults continue to be more vulnerable to mental health problems than their non-minority counterparts. Therefore, it is critical to identify potential risk factors and their subsequent effects on health, particularly regarding the effects of STDS, cultural attitudes toward mental health care services, acculturation, and illness beliefs on health outcomes such as care seeking.

Subthreshold depressive symptoms

Subthreshold depressive symptoms (STDS) are a highly prevalent condition, especially among the older adult population, where STDS are two to three times more prevalent (Dunlop

et al., 2003; Meeks, Vahia, Lavretsky, Kulkarni, & Jeste, 2011). Sub-threshold depressive symptoms are a subtype of depression, with individuals considered to be at increased risk for developing major depressive disorder and poor health outcomes including poor quality of life, self-assessed health, and functional limitations, with research indicating effects similar to patients with depression (Cuijpers & Smit, 2004; Juruena, 2012; Fukao, Takamatsu, Kubota, Miyauchi, & Hanafusa, 2011; Grabovich, Lu, Tang, Tu, & Lyness, 2010; Hallas, Wray, Andreou, & Banner, 2011; Hirsch, Sirois, & Lyness, 2011; Hybels, Blazer, & Pieper, 2001).

It has become difficult to distinguish patients with depression from patients with STDS, especially due to a lack of biological characteristics that are unable to differentiate patients with STDS from patients with above threshold depressive symptoms. The two conditions share similar symptoms, while at the same time, patients in one condition (e.g. patients with STDS) can exhibit different symptoms than patients in the other condition (e.g. patients with above threshold depressive symptoms; Juruena, 2012). Because of this, patients with STDS may experience similar negative health outcomes as patients with above threshold depressive symptoms (Cuijpers & Smit, 2004; Juruena, 2012; Fukao, Takamatsu, Kubota, Miyauchi, & Hanafusa, 2011; Grabovich, Lu, Tang, Tu, & Lyness, 2010; Hallas, Wray, Andreou, & Banner, 2011; Hirsch, Sirois, & Lyness, 2011; Hybels, Blazer, & Pieper, 2001). It is hypothesized that STDS are a part of the long-term clinical structure of major depressive disorder, and therefore, difficult to differentiate from each other (Cuijpers & Smit, 2004). Therefore, it is essential to examine the effects that STDS have on health as they present a major illness burden to a population that is already suffering from other chronic comorbid conditions.

Comorbidities among older adults

Older adults typically suffer from multiple medical conditions. In 2008, two-thirds of all Medicare beneficiaries reported having more than two comorbid conditions (Freid, Bernstein, & Bush, 2012), with numbers expected to increase (Freid et al., 2012). STDS are often a comorbid chronic condition with other diseases and may endure over time with remission rates

that range between 46 and 71% and symptoms that persist after 3 to 6 years (Hermens et al., 2004). Research has indicated that around 13% of patients with diabetes report comorbid depression and diabetes (Bell et al., 2005). However, this comorbidity is much more common among minority populations. About 31.1% of Mexican American and 15% of African American older adults suffer from both in parallel (Bell et al., 2005; Blazer & Moody-Ayers, 2002). Comorbid chronic conditions and STDS increase healthcare costs, emergency department services, medical inpatient hospital services, mortality, and morbidity, as well as result in poorer quality of life (Chopra et al., 2005; Himelhoch, Weller, Wu, Anderson, & Cooper, 2004; Jacobson, de Groot, & Samson, 1997; Lyness, Yu, & Tang, 2009; Penninx et al., 1999). The coexistence of STDS can further complicate the diagnosis, treatment, and natural course of other chronic conditions via mechanisms such as self-management. For example, when comorbid with conditions such as diabetes, the medical prognosis of both diseases is far worse in terms of the complications, treatment resistance, and mortality (Simon et al., 2005).

Several hypotheses have been proposed to better explain why chronic conditions and depression are often comorbid. In diabetes, research has supported a bi-directional hypothesis (Golden, 2007). Depression increases the risk of developing diabetes by causing physiological alterations, such as increased counter regulatory hormone release and alterations in glucose transport. These alterations may lead to insulin resistance, which can lead to the development of type 2 diabetes (Golden, 2007). Another potential explanation may be via behavioral mechanisms such as physical inactivity. A lack of physical activity can then lead to the development of several chronic conditions, such as obesity, hypertension, or coronary heart disease (Lee et al., 2012; Renn, Feliciano, & Segal, 2011). Finally, another potential explanation posits that the presence of consistent psychosocial stressors related to having a chronic illness, such as diabetes and obesity, may aid in the development of depression (Markowitz, Friedman, & Arent, 2008; Renn et al., 2011). Therefore, the presence of STDS and other chronic

conditions are intertwined and attitudes toward mental health may further complicate the treatment of STDS and mental health care seeking.

Attitudes toward mental illness

Increasing our knowledge of how minority individuals act upon STDS is critical. Research suggests that even depressive symptoms that have not reached clinical significance have a negative impact on well-being. Sub-threshold depressive symptoms are associated with impairment in physical functioning, increased disability, poorer self-rated health, use of psychotropic medications, perceived low social support and increased mortality (Hybels, Blazer, & Pieper, 2001). However, depression and STDS are often under-diagnosed, especially in minority populations such as Hispanics/Latinos and African Americans (Akincigil et al., 2012; Nicolaidis et al., 2010; Sorkin et al., 2011; Young, Klap, Sherbourne, & Wells, 2001). Therefore, the failure to detect sub-threshold depressive symptoms, or above threshold depressive symptoms, may be a contributing factor to health inequalities among minority populations. Under-diagnoses may be due to cultural factors, such as cultural identity, negative attitudes toward mental illness care (e.g. antidepressants) or stigma associated with mental illness (Cooper et al., 2003; Nicolaidis et al., 2010; Ward & Heidrich, 2009; Williams, Chapman, Wong, & Turkheimer, 2013b). This may then lead to the underutilization of mental health care services (Bridges, de Arellano, Rheingold, Danielson, & Silcott, 2010).

Past research has examined the link between perceptions of mental illness and its treatment and the under-utilization of mental health services. Overall, depressed patients are less likely to endorse emotional symptoms of depression than physical symptoms, even when directly asked about their emotional symptoms (Simon, von Korff, Piccinelli, Fullerton, & Ormel, 1999). Depression is often stigmatized, especially among African American and Hispanic/Latino populations. Such stigmatization may explain why patients often report physical, rather than emotional, symptoms of depression to their primary care physicians (Kurt Kroenke et al., 1994). According to barrier theory, cultural values and attitudes, such as viewing mental illness as an

emotional problem and not considering psychiatrists as regular sources of help for emotional problems, predisposes minorities to underutilize mental health services (Rogler, Malgady, & Rodriguez, 1989). However, research in this area is limited.

The few studies that have examined Hispanic/Latino and African American attitudes toward depression treatments in primary care reveal that certain attitudes may deter older adults from seeking mental health care. These attitudes include being ashamed of what providers will think of them if they discuss emotional problems not knowing that providers could help them with depression (Alvidrez, 1999; Cooper et al., 2003; Van Hook, 1999). African Americans and Hispanic/Latino older adults rely on the family to help deal with mental health problems and believe that mental illness is best treated within the family. Because minority individuals view mental illness as highly stigmatizing, they may exhibit more intergroup trust and rely on family for support in these matters.

Research examining the differences in beliefs about depression, depression care, care seeking and prevalence is limited among African American and Hispanic/Latino older adults. However, research has found some similarities and differences between the two groups. African Americans report the highest prevalence rates of depression, with European Americans and Hispanic/Latinos reporting similar levels. Compared to European Americans, Hispanics and African Americans are more likely to view anti-depressants as addictive and less likely to find these medications acceptable to treat depression. Hispanics/Latinos also preferred counseling to treat depression when compared to European Americans. However, African Americans are less likely than European Americans to find counseling an acceptable form of treatment for depression (Cooper et al., 2003). Several potential explanations may be able to explain why these differences exist.

Hispanic/Latino and African American cultures are more collectivist than European Americans who are considered more individualistic (Center for Disease Control and Prevention, 2013; Mazulla, 2011). Individualists act on and make their own choices while collectivists

consider the opinions of the group as the most important element in decision making. Minorities stigmatize seeking care for mental health problems, and individuals in the Hispanic/Latino culture may be less likely to seek care.

Among the Hispanic/Latino culture, acculturation, or the extent to which a member of a minority group (e.g. Hispanics/Latinos) adopt the different aspects of the culture, or majority group (e.g. European Americans), may play an important role in determining care-seeking (Hooper, Baker, de Ybarra, McNutt, & Ahluwalia, 2012; Roncancio, Ward, & Berenson, 2011). Acculturation of minority groups such as Hispanics/Latinos increases individualistic viewpoints, and also serves to increase the acceptance of North American norms. Hispanic/Latino and African American collectivist values are often contrary to mainstream, more individualistic US values. One such example can be the values of individualism and autonomy that are promoted in mental health care. For example, a combination of individual therapy and medication taking is often prescribed for patients with depression. However, this practice disregards the integration of the family and community. This cultural indifference may be one of the factors that contributes to stigmatization of mental health care services (Andrés-Hyman & Ortiz, 2006). Henceforth, since European Americans view seeking care for mental health problems as less stigmatizing, individuals, who are more acculturated view mental illness as less stigmatizing and shameful. Therefore, they may be more likely to recognize the appropriate symptoms of depression as they may be more willing to acknowledge both the physical and mental symptoms of depression and seek care (Bauer, Chen, & Alegría, 2012; Bermúdez-Parsai, Mullins Geiger, Marsiglia, & Coonrod, 2012; Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000; Sadule-Rios, Tappen, Williams, & Rosselli, 2014).

Finally, social norms may explain why minorities fail to seek care. Hispanics/Latinos value others' opinions. Among the Hispanic/Latino culture, men often will delay seeking care until they become so ill that they must visit an emergency room (Center for Disease Control and Prevention, 2013). In addition to this, although the matriarch is often responsible for determining

whether a family member requires care, husbands/fathers often dictate when another member is able to see a doctor (Center for Disease Control and Prevention, 2013). Women in African American households often determine when to seek care. However, African Americans often delay seeking care as “toughing it out” is often encouraged (Cooper et al., 2003; Vogel, Wester, & Larson, 2007). Although they prefer counseling over medication taking, they are less likely to come in for follow-up care. When compared to European Americans, African Americans are also more likely to view individuals with mental illness as dangerous, irrespective of past experience with an individual with mental illness (Abdullah & Brown, 2011). Other studies have found that African Americans are more likely to express wanting more segregation from those who are considered mentally ill, compared to European Americans and Hispanics/Latinos (Rao, Feinglass, & Corrigan, 2007). However, symptom knowledge of depression, or the symptom identity of depression, may also affect health outcomes such as willingness to seek care. A theoretical background may better explain this relationship.

Commonsense Model of Self-Regulation

According to the Commonsense Model of Self-Regulation (CSM; Nerenz & Leventhal, 1983), individuals are active problem solvers (Figure 1). When a patient first experiences symptoms, or is diagnosed with a certain disease, they begin to form two parallel, yet interrelated responses: cognitive and emotional. These responses will then specify which actions an individual will take in order to remove the health threat. Under the cognitive response, individuals will begin to form illness representations or “lay” beliefs about the illness, such as the beliefs about the symptoms that are associated with the disease. They are then matched to specific prototypes of the disease (e.g. depressed individuals are sad). Cultural norms can help shape these beliefs. Nevertheless, once an individual develops an illness representation, it will then influence the procedures for management that the individual will or will not undergo. This is then followed by an appraisal based on the perceived effects of past management.

Sometimes, a lack of experience with a specific condition or a presentation of atypical symptoms may lead an individual to not properly identify the condition, and therefore, may result in a failure to seek care or non-adherence. Conditions that do not fit into specific prototypes of disease can result in poor management. For example, one symptom of diabetes is blurry vision. However, this symptom does not adequately match the prototype for diabetes that many individuals have developed, such as tiredness. This can then result in non-adherence as the individual does not truly believe they have diabetes. On the other hand, hypertension is an asymptomatic disease, however, patients believe that symptoms such as nervousness and dizziness are associated with the condition. However, hypertension as an asymptomatic condition does not fit the prototype for the disease.

At the same time that a patient will form illness representations, they will also form an emotional response (e.g. depressive symptoms). This reaction can influence illness representations that the patient has developed. In addition, illness representations can influence the emotional reaction. Nevertheless, similar to illness representations, once an emotional response is formed, the individual begins to manage this response. In addition, STDS may not be properly identified and treated among Hispanic/Latino and African American older adults because the prototype of depression does not fit the symptoms they are experiencing. For instance, research has shown that older adults often suffer from increased depressive symptoms without experiencing negative affect (Gallo, Rabins, & Lyketsos, 1997). However, these older adults were still at increased risk for death, impairment of activities of daily living, psychological distress and cognitive impairment.

Individuals are also able to obtain new information about the condition and evaluate their attempts to moderate, cure, or cope with the condition. During this process, they may develop new illness representations based upon their past experiences or illness representations may be influenced by other illness representations. Therefore, illness representations can change over time due to new information being adopted, discarded or

adapted (Hale, Treharne, & Kitas, 2007). In all, illness representations of depression may differ among Hispanics/Latinos, African Americans and European Americans. Therefore, minority populations' illness representations of depression may be different than that of European Americans. Hispanics/Latinos, and African Americans are more likely to endorse emotional symptoms of depression (Cabassa et al., 2007; Nicolaidis et al., 2010). Therefore, somatic depressive symptoms may not be identified as depression by Hispanics/Latinos as compared to European Americans. Such differences may help to elucidate the ethnic disparities that exist in the under-diagnosis of depression among minority populations. One such illness representation is symptom identity.

Symptom identity

Symptom identity, or the name that is given to the disease along with the list of symptoms that one *believes* accompany the condition, is another illness representation that may affect health. Symptom identity is the process of matching symptoms to a certain disease and is typically measured as the number of symptoms endorsed as part of an illness. According to the model, individuals will seek to identify certain symptoms (e.g., sad mood) as being associated with a certain disease (e.g., depression). Hence the more symptoms an individual identifies as belonging to a disease, the higher their symptom identity will be. Depression is often associated with emotional and physical symptoms. Hence, an individual that recognizes the physical symptoms of depression but not the emotional symptoms of depression will have lower symptom identity than an individual who recognizes both the emotional and physical symptoms of symptom identity. Therefore, an individual with higher symptom identity is able to recognize and treat the disease more effectively than a patient with low symptom identity. Patients with depression may not recognize that their symptoms and functional impairment are linked to depression and not another comorbid condition, because depression is often comorbid with other chronic illnesses. Previous research has found significant differences in illness symptom between patients with no depressive symptoms and patients with STDS, and between

patients with no depressive symptoms and above threshold depressive symptoms, but not between patients with STDS and above threshold depressive symptoms (Hallas, Wray, Andreou, & Banner, 2011). Therefore, determining how patients group identify symptoms of depression is crucial to determining whether they will seek care for their condition (Brown et al., 2001).

Symptom identity can be influenced by one's social and cultural environment. Minority populations, such as Hispanic/Latinos and African Americans, are less likely to seek care for mental health related illnesses or to take antidepressant medications (Cooper et al., 2003; Kessler, 1994; Pincay & Guarnaccia, 2007). European Americans are more likely to endorse both the emotional and physical symptoms of depression when compared to other minority populations (Cooper et al., 2003; Pincay & Guarnaccia, 2007). Asian Americans are also more likely to experience physical rather than emotional symptoms, whereas Hispanic/Latino patients are more likely to endorse emotional symptoms (Pincay & Guarnaccia, 2007). In addition, depression is more stigmatized among minority populations, and, therefore, when a patient appropriately recognizes some of the symptoms they are experiencing as depression, they may not seek care for the issue due to their cultural beliefs (Cooper et al., 2003; Georg Hsu et al., 2008). This may be the case when emotional symptoms of depression are identified because these symptoms carry more of a stigmatized viewpoint. However, STDS may not be recognized because symptom presentation is often heterogeneous.

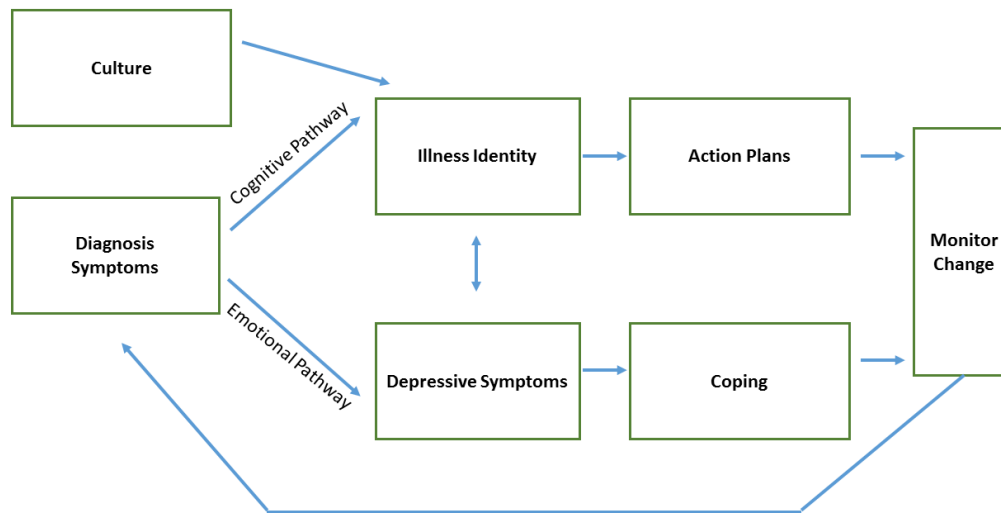


Figure 1-1 Common Sense Model of Self-Regulation

Heterogeneity of depression

Depression often consists of both physical and mental symptoms. Literature has suggested heterogeneity in the manifestation of depressive symptoms, in that symptoms may vary between individuals (e.g., symptom presentation; Nandi, Beard, & Galea, 2009). Such heterogeneity may make it difficult to identify individuals who require treatment or for individuals themselves to identify depressive symptoms. Older adults often report more somatic and anhedonia symptoms than dysphoria and negative affect (Gallo et al., 1997). Such symptom presentation may conflict with their understanding of depression and make it difficult for individuals to attribute these atypical symptoms to depression (Petrie, Broadbent, & Kydd, 2008). Instead, they may attribute them to physical causes, especially if the older adult already suffers from other conditions (Drayer et al., 2005). However, even if symptoms are properly identified, Hispanic/Latinos who have more collectivist rather than individualistic points of view may not be likely to seek care.

Overall Aims

It is critical to examine the relationship between symptom identity, acculturation, and depressive symptoms among Hispanic/Latino and African American older adults. These relationships, may in turn, impact self-assessed health, mental health-related quality of life, functional limitations, and care seeking behavior. The first aim of the study examined patterns of symptom identity of depression among Hispanic/Latino, African American and European American older adults with no depression, STDS, and above threshold depressive symptoms. The second aim of the study examined the effects of ethnicity and depressive symptomatology on care seeking, mental health-related quality of life, functional limitations and self-assessed health. Finally, the third aim of the study examined the role of acculturation among Hispanic/Latino older adults on functional limitations, mental health related quality of life, self-assessed health, and care seeking.

Hypotheses

First, the current project explored several hypotheses based on the CSM. The relationship between symptom identity and depression was examined. It was hypothesized that older adults with STDS would report lower levels of symptom identity, as compared to older adults with no depressive symptoms. However, they would report similar levels of symptom identity than patients with above threshold depressive symptoms (Hypothesis one). This was based upon previous research which found that patients with no depressive symptoms reported better symptom identity than patients with STDS and above threshold depressive symptoms. However, no significant differences were found between patients with STDS and above threshold depressive symptoms (Hallas et al., 2011).

Further, the relationship between culture and symptom identity was examined. It was hypothesized that Hispanic/Latino and African American older adults would report lower levels of symptom identity than European Americans. However, no significant differences would be found between African American and Hispanic/Latino older adults (Hypothesis two). This

hypothesis was based upon previous research which found that Hispanic/Latino and African Americans identify less symptoms of depression (symptom identity) than European Americans (Cooper et al., 2003; Pincay & Guarnaccia, 2007).

Next, the relationship between culture, symptom identity and depressive symptoms were examined. It was hypothesized that there would be a significant interaction between culture and depressive symptoms (Hypothesis three), as previous research found main effects of culture and depressive symptomatology (Cooper et al., 2003; Hallas et al., 2011; Pincay & Guarnaccia, 2007). Specifically, it was hypothesized that European American older adults with no depressive symptoms would report the highest levels of symptom identity when compared to European American older adults with STDS and above threshold depressive symptoms, as well as Hispanic/Latino and African American older adults in all depressive groups. Hispanic/Latino and African American older adults with no depressive symptoms would report higher symptom identity than Hispanic/Latino and African American older adults with STDS and above threshold depressive symptoms. Additionally, Hispanic/Latino and African American older adults with no depressive symptoms would report lower symptom identity than European American older adults in all depressive groups. Hispanic/Latino and African American older adults with STDS and above threshold depressive symptoms would report the lowest levels of symptom identity.

The study further examined the relationship between culture and health. It was hypothesized that European American older adults would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care from a doctor, psychologist or psychiatrist, or any other mental health professional than Hispanic/Latino and African American older adults. However, mental health-related quality of life, self-assessed health, functional limitations, and willingness to seek care from a doctor, psychologist or psychiatrist, or any other mental health professional would be similar among African American and Hispanic/Latino older adults (Hypothesis four). This was based upon previous research which found that European American older adults report better health-related

quality of life, self-assessed health, functional limitations, and are more willing to seek care for depression than Hispanic/Latino and African American older adults. Differences were not reported between Hispanic/Latino and African American older adults (Akincigil et al., 2012; Jackson-Triche et al., 2000; Jylhä, 2009; Liang et al., 2010; Mancuso, Rincon, McCulloch, & Charlson, 2001).

Next, the relationship between depressive symptoms and health was examined. It was hypothesized that older adults with no depressive symptoms would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care from a doctor, psychologist or psychiatrist, or other mental health professional than older adults with STDS and above threshold depressive symptoms. However, mental health-related quality of life, self-assessed health, functional limitations, and willingness to seek care from a doctor, psychologist or psychiatrist, or other mental health professional would be similar among older adults with STDS and above threshold depressive symptoms (Hypothesis five). This hypothesis was based upon the CSM, which hypothesizes that depressive symptomatology can negatively affect health outcomes. Negative effects on health for patients with STDS and above threshold depressive symptoms were hypothesized because research found similar negative effects on health for both patients with STDS and above threshold depressive symptoms. Additionally, it has been proposed that patients with depression spend a majority of the time in subthreshold states, making the distinction between STDS and above threshold depressive symptoms challenging (Chopra et al., 2005; Cuijpers & Smit, 2004; Horowitz, Reinhardt, & Kennedy, 2005; Hybels et al., 2001; Juruena, 2012; Meeks, Vahia, Lavretsky, Kulkarni, & Jeste, 2011).

Furthermore, the relationship between culture, depressive symptoms and health was examined. It was hypothesized that European American older adults in the no depressive symptoms group would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care from a doctor, psychologist or

psychiatrist, or other type of mental health professional than European American older adults with STDS and above threshold depressive symptoms and African American and Hispanic/Latino older adults in all depressive symptom groups. European American older adults with STDS would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care from a doctor, psychologist or psychiatrist or other mental health professional than African American and Hispanic/Latino older adults with STDS. African American and Hispanic/Latino older adults with no depressive symptoms would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care from a doctor, psychologist or psychiatrist, or other mental health professional than African American and Hispanic/Latino older adults with STDS and above threshold depressive symptoms. However, mental health-related quality of life, self-assessed health, functional limitations, and willingness to seek care from a doctor, psychologist or psychiatrist, or other mental health professional would be similar among African American and Hispanic/Latino older adults with STDS and above threshold depressive symptoms (Hypothesis six). This hypothesis was based on previous research which found main effects of culture and depressive symptomatology on health (Akincigil et al., 2012; Chopra et al., 2005; Cuijpers & Smit, 2004; Horowitz et al., 2005; Hybels et al., 2001; Jackson-Triche et al., 2000; Jylhä, 2009; Liang et al., 2010; Mancuso et al., 2001; Meeks et al., 2011).

Moreover, the relationship between acculturation and health was examined. It was hypothesized that lower levels of acculturation would predict poorer mental health-related quality of life, functional limitations, self-assessed health and failure to seek care from a doctor, psychologist or psychiatrist, or other mental health professional for depression (Hypothesis seven). This hypothesis was based on previous research which found that lower levels of acculturation predicted poorer health outcomes (Cooper et al., 2003; Hallas et al., 2011; Johnson, Carroll, Fulda, Cardarelli, & Cardarelli, 2010; Pincay & Guarnaccia, 2007; Roncancio et al., 2011).

Additionally, the relationship between acculturation, symptom identity and health was examined. It was hypothesized that acculturation would moderate the relationship between symptom identity and health, such that Hispanic/Latino older adults who report high levels of acculturation, would report high symptom identity which would be more positively associated with willingness to seek care from a doctor, psychologist or psychiatrist, or other mental health professional, mental health-related quality of life, and self-assessed health and negatively related to functional limitations (Hypothesis eight). This hypothesis was based upon previous research, which found effects between acculturation and health and symptom identity and health (Johnson et al., 2010; Roncancio et al., 2011).

Chapter 2

Methods

Patients

Two-hundred and forty uninsured older adults ($M = 55.98$ years, $SD = 9.76$) attending a free clinic in Arlington, Texas were recruited. Patients were divided into four groups (i.e. European American, Hispanic/Latino, African American) based upon previous literature (Angel, Prickett, & Angel, 2014; Horton & Loukas, 2013; Trief et al., 2013). Groups were further divided into three depressive symptom groups: no depressive symptoms, STDS, and above threshold depressive symptoms (Table 2-1). Patients were recruited between 2011 and 2012. Patients were required to read/speak English or Spanish, and be at least 40 years of age. Patients who were pregnant, a prisoner, or who had a hearing impairment were not included in the study. Demographic and medical variables by groups can be found in Tables 2-2 and 2-3. Subsequent chi-square and analysis of variance tests revealed some statistically significant differences between groups. Age, number of comorbidities, and education differed across cultural groups. Age, gender, and difficulty paying bills differed across depressive symptom groups.

Table 2-1 Groups Divided by Ethnicity/Culture and Depressive Symptom Group

Variable	No Depressive Symptoms	STDS	Above Threshold Depressive Symptoms	χ^2	<i>df</i>	Sig.
Culture				5.69	4	.223
European American	26 (10.8%)	11 (4.6%)	19 (7.9%)			
African American	28 (11.7%)	21 (8.8%)	11 (4.6%)			
Hispanic/Latino	58 (24.2%)	30 (12.5%)	36 (15.0%)			

Table 2-2 Medical and Demographic Variables across Culture

Variable	European American	African American	Hispanic/Latino	F/ χ^2	df	Sig.
Age, M (SE)	60.96 (1.19)	51.72 (1.15)	55.01 (.80)	16.10	2, 240	<.001
Gender				3.32	2	.190
Male	24 (10%)	20 (8.3%)	36 (15.0%)			
Female	32 (13.3%)	40 (16.7%)	88 (36.7%)			
Difficulty paying bills, M (SE)	2.06 (.09)	2.42 (.13)	2.07 (.13)	2.83	2, 237	.061
Number of comorbidities M (SE)	2.27 (.19)	2.45 (.18)	1.76 (.14)	4.95	2,174	.008
Education, M (SE)	3.38 (.23)	3.08 (.22)	2.04 (.16)	14.57	2, 239	<.001

Table 2-3 Medical and Demographic Variables across Depressive Symptom Group

Variable	No Depressive Symptoms	STDS	Above Threshold Depressive Symptoms	F/ χ^2	df	Sig.
Age, M (SE)	57.40 (.88)	54.81 (1.19)	53.20 (1.15)	4.50	2, 240	.012
Gender				14.52	2	.001
Male	48 (20%)	9 (3.8%)	23 (9.6%)			
Female	64 (26.7%)	53 (22.1%)	43 (17.9%)			

Table 2.3—*Continued*

Difficulty paying bills, M (SE)	2.40 (.09)	1.95 (.12)	1.89 (.12)	7.31	2, 237	.001
Number of comorbidities M (SE)	1.93 (.15)	2.04 (.19)	2.37 (.19)	4.95	2,174	.190
Education, M (SE)	2.66 (.17)	2.49 (.23)	2.64 (.23)	.18	2, 239	.837

Procedures

Data were collected between 2011 and 2012 by undergraduate and graduate assistants. Patients were approached by the research assistants in the waiting room. If patients agreed to participate in the study, they were taken to a private room to complete the study. After patients signed an informed consent form, they were interviewed face-to-face by the research assistants. Interviews were conducted in English or Spanish (98 = Spanish, 150 = English). Data were collected with laptop computers using Snap Surveys software (Snap Surveys, 2011) in order to minimize data entry error. Patients answered questions by choosing one of the possible answer choices provided in a binder. Interviews lasted approximately 60 to 90 minutes. Patients were compensated for participating in the study with a \$20 gift card to Walmart.

Measures

Demographics

Demographic information such as age, sex, race and other background information were gathered from patient responses. Income was assessed using a single item, “How difficult is it for you to pay your monthly bills?”. Answers were rated on a four point Likert scale (1 = “very difficult” to 4 = “not at all difficult”). Education was assessed with the use of a single item,

“What is your highest degree from school.” Answer choices varied from “no degree/grade school only” to “doctorate (MD, PhD.)”.

Patient Health Questionnaire

The patient health questionnaire (PHQ-8; Kroenke et al., 2009) was an eight-item depression scale used to assess severity of depressive symptoms. Scores ranged from 0 to 24 and each item was scored on a four point Likert scale (0 = “not at all” to 3 = “nearly every day”). It was designed to serve as a diagnostic tool that can establish provisional depression diagnoses (Becker, 2004; Kurt Kroenke & Williams, 2014; Manea, Gilbody, & McMillan, 2012; Wittkamp et al., 2009; Wittkamp, Naeije, Schene, Huyser, & van Weert, 2007). The cut-off score for above threshold levels of depressive symptoms was 10, subthreshold depressive symptoms was 5-9, and no depression was defined as a score of 0-4 ($\alpha = .87$). However, past research has proposed that the PHQ-8 could also be used to measure depressive symptom severity with higher scores indicating higher degrees of depressive symptomatology (Kroenke & Spitzer, 2002).

Revised Illness Perceptions Questionnaire

The revised illness perceptions questionnaire (IPQ-R; (Moss-Morris et al., 2002) provided a psychometrically acceptable assessment of the five key components (identity, consequences, timeline, control, and causes) of patients’ perceptions of depression based on Leventhal’s self-regulatory model. The identity scale consisted of 16 commonly experienced symptoms assessed by participants (using a yes or no format) on whether they believed depression caused symptoms, including: feel sad, have trouble sleeping, etc. The identity subscale was computed by summing the yes/no responses with higher scores indicating better knowledge of the symptoms of the disease ($\alpha = .91$).

Acculturation Scale

Acculturation was assessed using an 11 item acculturation scale adapted from the Acculturation rating scale for Mexican Americans-II (Cuellar, Arnold, & Maldonado, 1995) to

incorporate all Hispanic/Latino cultures. Only patients that indicated that they were Hispanic/Latino completed the questionnaire. The first item assessed whether patients were first or second generation Hispanic/Latinos. Items two through eleven were rated on a four point Likert scale (1 = “not at all” to 4 = “much or very often”). Scores from item two through eleven were averaged with higher scores indicating more acculturation ($\alpha = .85$).

Mental Health-Related Quality of Life

Mental health-related quality of life was measured using three items from the global health item bank from the National Institute of Health Patient-Reported Outcomes Measurement Information System (PROMIS; Hays, Bjorner, Revicki, Spritzer, & Cella, 2009). Items assessed quality of life, mental health, and satisfaction with personal relationships. Responses were rated with a five point Likert scale (1 = “excellent” to 5 = “poor”). Items were scored by summing the responses with lower scores indicating better mental health-related quality of life ($\alpha = .83$).

Self-Assessed Health

Self-assessed health was assessed with a response to a single item, “*In general, would you say your health is*”. The response was rated on a five point Likert scale (1 = “excellent” to “5 = “poor”) with higher scores indicating poorer health.

Functional Limitations

Functional limitations were assessed using a 5-item functional limitation scale adapted from the PROMIS functional limitations short form (Cella et al., 2010). Examples of items include, “Does your health now limit you in doing moderate work around the house like vacuuming, sweeping floors or carrying groceries?” Items were rated on a five point Likert scale (1 = “not at all” to 5 = “cannot do”) with higher scores indicating increased functional limitations ($\alpha = .91$).

Care Seeking

Care seeking was assessed with a response to three separate items. Items assessed whether, if participants were themselves suffering from depression, whether they would seek

care. Items were rated on a five point Likert scale (1 = "not at all" to 5 = "extremely") with higher scores indicating greater willingness to seek care. Care seeking from a general doctor was assessed with the use of a single item which stated, "If you, yourself, were suffering from depression, would you be likely to seek help from a doctor?". Care seeking from a psychologist or psychiatrist was assessed with a single item which stated, " If you, yourself, were suffering from depression, would you be likely to seek help from a psychologist or psychiatrist?". Care seeking from another mental health professional was assessed with the use of one item which stated, "If you, yourself, were suffering from depression, would you be likely to seek care from some other type of professional counselor?".

Chapter 3

Results

Prior to analyses, all variables were assessed for univariate outliers and proper distribution. The analyses were conducted using SPSS 21 Statistics software (IBM Statistics for Windows, Version 21.0, 2012). In order to account for unequal group sizes, bootstrapping, a resampling technique, was used in all analyses (Efron & Tibshirani, 1994). Bonferroni corrections were used to adjust for Type I error. A square transformation was performed to reduce negative skewness in symptom identity. Age, gender, education, difficulty paying bills, and number of comorbidities were considered as potential covariates. Subsequently, all were chosen as covariates. Chi square and analysis of variance tests assessing the relationship between the covariates and depressive symptom or cultural groups all came out as significant. Additionally, prior literature had found that age, gender, education, difficulty paying bills, and number of comorbidities were good predictors of health-related quality of life, functional limitations, care seeking and symptom identity (Atlantis, Goldney, Eckert, Taylor, & Phillips, 2012; Freedman & Martin, 1999; Liu et al., 2013; Paschalides & Wearden, 2004; Renn et al., 2011; Ross & Willigen, 1997; Scharloo, Jong, & Robert, 2005; Stenholm et al., 2014; Tang, 2007). Therefore, all subsequent analyses were tested with these covariates.

Hypotheses one, two, and three were tested together using a mixed analysis of covariance to examine differences in symptom identity among Hispanic/Latino, African American, and European American older adults and among patients with no depressive symptoms, STDS, and above threshold depressive symptoms. Exploratory analyses assessing depressive symptom severity as a continuous variable were conducted for Hypotheses one and three using a multiple moderated regression analysis. Hypothesis one hypothesized that increased depressive symptoms would lead to poorer symptom identity, while Hypothesis three hypothesized that the relationship between depressive symptoms and symptom identity would be moderated by culture. Thus, all variables were centered. The covariates were placed in the

first step, the predictor and the dummy codes in the second step, and the interaction terms in the third step of the regression analyses. Results from the second step of the analysis were used to assess Hypothesis one, while the combined R^2 in the final model was used to assess Hypothesis three.

Hypotheses four, five, and six were tested together using a mixed analysis of covariance to examine differences in mental health related quality of life, functional limitations, self-assessed health, and care seeking from a general doctor, psychologist or psychiatrist, or any other type of mental health professional among Hispanic/Latino, African American, and European American older adults and among older adults with no depressive symptoms, STDS, and above threshold depressive symptoms. Exploratory analyses for Hypotheses five and six were conducted using multiple moderated regression analyses. Hypothesis five hypothesized that increased depressive symptoms would predict poorer mental health-related quality of life, self-assessed health, increased functional limitations, and decreased care seeking from a doctor, psychologist or psychiatrist, or any other mental health professional. Hypothesis six hypothesized that this relationship would be moderated by culture. Thus, all variables were centered. The covariates were placed in the first step, the predictor and the dummy codes in the second step, and the interaction terms in the third step of the regression analysis. Results from the second step of the analysis were used to assess Hypothesis five, while the combined R^2 in the final model was used to assess Hypothesis six.

Hypothesis seven was tested using regression analyses, in which acculturation was hypothesized to predict mental health-related quality of life, functional limitations, self-assessed health, and care seeking from a general doctor, psychologist or psychiatrist, or any other type of mental health professional. All covariates were entered into the first step and the predictor into the second step of the regression model.

Hypothesis eight was tested using multiple moderated regression analyses in which acculturation was used as a moderator to examine the role of symptom identity on mental

health-related quality of life, functional limitations, self-assessed health, and care seeking from a general doctor, psychologist or psychiatrist, or any other type of professional counselor. All of the variables were centered. Then, the covariates were placed into the first step and the two predictors and the interaction term into the second step of the regression model.

Hypothesis one

A mixed analysis of covariance was conducted to test Hypotheses one through three. The first hypothesis stated that older adults with STDS would report lower levels of symptom identity, as compared to older adults with no depressive symptoms. However, they would report similar levels of symptom identity than patients with above threshold depressive symptoms. Contrary to expectations, a main effect of depressive symptom group was not found. Table 3-1 displays the results for Hypotheses one, two, and three. Hypothesis one was not supported.

Table 3-1 Results of Mixed Analyses of Covariance Examining Group Differences in Symptom Identity for Hypotheses One, Two, and Three

Predictor Variable	<i>df</i>	<i>F</i>	Significance	Partial η^2
Intercept	1, 174	36.29	<.001	.10
Age	1, 174	2.34	.128	.19
Gender	1, 174	3.13	.079	.01
Number of Comorbidities	1, 174	.34	.561	.02
Education	1, 174	4.78	.030	<.01
Difficulty Paying Bills	1, 174	1.93	.167	.03
Culture	2, 174	.53	.593	.01
Depressive Symptom Group	2, 174	1.07	.347	.01
Culture X Depressive Symptom Group	4, 174	.22	.925	.01

The exploratory analysis for Hypothesis one examined the effects of increased depressive symptoms on symptom identity. The second step of the model was not significant,

$R^2 = .09$, $F(8, 172) = 1.94$, $p = .058$. Contrary to expectations, depressive symptom severity did not predict symptom identity, and the hypothesis was not supported. Table 3-2 displays the results of the analysis. The exploratory analysis was consistent with the original mixed analysis of covariance model.

Table 3-2 Results from the Exploratory Analysis Assessing Hypothesis One

Predictor Variable	Outcome Variable	B	T	Significance	sR^2
	Symptom Identity				
Constant		230.83	33.38	<.001	
Age		-11.65	-1.61	.109	.12
Gender		.68	1.65	.101	.12
Number of Comorbidities		1.10	.40	.687	.03
Education		4.31	2.06	.041	.15
Difficulty Paying Bills		-6.36	-1.71	.090	.13
Dummy 1 Hispanic/Latino		3.30	.37	.715	.03
Dummy 2 African American		-5.48	-.54	.589	.04
Depressive Symptoms		.75	1.20	.233	.09

Note. Dummy code 1 was coded 1, 0, and 0 for Hispanic/Latino, African American, and European American, respectively. Dummy code 2 was coded, 0, 1, and 0 for Hispanic/Latino, African American, and European American, respectively.

Hypothesis two

Hypothesis two stated that Hispanic/Latino and African American older adults would report lower levels of symptom identity than European Americans. However, no significant differences would be reported between African American and Hispanic/Latino older adults.

Contrary to expectations, a main effect of culture was not found. Table 3-1 displays the results. Hypothesis two was not supported.

Hypothesis three

Hypothesis three stated that there would be a significant interaction between depressive symptom group and culture. Specifically, it was hypothesized that European American older adults with no depressive symptoms would report the highest levels of symptom identity when compared to European American older adults with STDS and above threshold depressive symptoms, as well as Hispanic/Latino and African American older adults in all depressive groups. Hispanic/Latino and African American older adults with no depressive symptoms would report higher symptom identity than Hispanic/Latino and African American older adults with STDS and above threshold depressive symptoms. Additionally, Hispanic/Latino and African American older adults with no depressive symptoms would report lower symptom identity than European American older adults in all depressive groups. Finally, Hispanic/Latino and African American older adults with STDS and above threshold depressive symptoms would report the lowest levels of symptom identity. Contrary to expectations, an interaction was not found. Table 3-1 displays the results. Hypothesis three was not supported.

The exploratory analysis for hypothesis three examined depressive symptoms as a continuous variable rather than a categorical variable. The final step of the model was not significant, therefore, an interaction effect was not found and the hypothesis was not supported, $R^2 = .09$, $F(10, 172) = 1.54$, $p = .131$. Table 3-3 displays the results of the final step of the analysis. The exploratory analysis was consistent with the original mixed analysis of covariance model.

Table 3-3 Results from the Exploratory Analysis Assessing Hypothesis three

Predictor Variable	Outcome Variable	B	T	Significance	s^2
	Symptom identity				
Constant		225.09	27.69	<.001	

Table 3.3—*Continued*

Age		-11.81	-1.61	.108	.12
Gender		.69	1.63	.106	.12
Number of Comorbidities		1.15	.42	.678	.03
Education		4.32	2.05	.042	.15
Difficulty Paying Bills		-6.18	-1.61	.109	.12
Dummy code 1 Hispanic/Latino		9.19	.97	.335	.07
Dummy code 2 African American		5.82	.56	.573	.04
Depressive symptoms		.98	.80	.425	.06
Depressive Symptoms X Dummy code 1 Hispanic/Latino		-.32	-.22	.829	.02
Depressive Symptoms X Dummy code 2 African American		-.28	-.18	.857	.01

Note. Dummy code 1 was coded 1, 0, and 0 for Hispanic/Latino, African American, and European American, respectively. Dummy code 2 was coded, 0, 1, and 0 for Hispanic/Latino, African American, and European American, respectively.

Hypothesis four

A mixed analysis of covariance was conducted to test Hypotheses four, five, and six (Table 3-5). Hypothesis four stated that European American older adults would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care from a general doctor, psychologist or psychiatrist, or any other type of professional counselor than Hispanic/Latino and African American older adults. However, mental health-related quality of life, self-assessed health, functional limitations, and willingness

to seek care from a psychologist or psychiatrist, or any other type of professional counselor would be similar among African American and Hispanic/Latino older adults.

Contrary to expectations, a main effect of culture on mental-health related quality of life, functional limitations, self-assessed health and care seeking from a psychologist or psychiatrist, or any other type of professional counselor was not found. Additionally, contrary to expectations, a main effect of culture on seeking care from a doctor was found; however, the relationship was not as hypothesized. Post-hoc analyses revealed that, contrary to expectations, African American older adults were more likely to seek care from a general doctor ($M = 4.17, SE = .19$) than European American ($M = 3.32, SE = .19$). No differences were found between Hispanic/Latino ($M = 3.78, SE = .14$) and European American older adults. However, as hypothesized, no differences were found between African American and Hispanic/Latino older adults, partially supporting the hypothesis.

Table 3-4 Results of Mixed Analyses of Covariance Examining Group Differences in Mental Health-Related Quality of Life, Functional Limitations, Self-Assessed Health, and Care Seeking from a Doctor, Psychologist or Psychiatrist, or Any Other Mental Health Professional Testing Hypotheses Four, Five, and Six

Predictor Variable	Outcome Variable	<i>df</i>	<i>F</i>	Sig.	Partial η^2
	Mental Health-Related Quality of Life				
Intercept		1, 160	16.09	< .001	.10
Gender		1, 160	.01	.285	<.01
Age		1, 160	1.15	.923	.01
Number of Comorbidities		1, 160	6.26	.013	.04
Education		1, 160	1.01	.317	.01
Difficulty Paying Bills		1, 160	11.43	.001	.10
Culture		2, 160	.84	.433	.01

Table 3.4—Continued

Depressive Sx Group		2, 160	16.27	< .001	.18
Depressive Sx X Culture		4, 160	4.62	.002	.11
	Functional Limitations				
Intercept		1, 173	3.06	.082	.02
Gender		1, 173	.72	.397	.01
Age		1, 173	.17	.683	.01
Number of Comorbidities		1, 173	11.78	.001	.07
Education		1, 173	.31	.579	<.01
Difficulty Paying Bills		1, 173	.56	.455	<.01
Culture		2,173	1.08	.344	.01
Depressive Sx Group		2,173	11.02	<.001	.12
Depressive Sx X Culture		4,173	1.39	.239	.03
	Self-Assessed Health				
Intercept		1, 123	14.31	<.001	.12
Gender		1, 123	<.01	.998	<.01
Age		1, 123	2.33	.129	.02
Number of Comorbidities		1, 123	.20	.654	<.01
Education		1, 123	.65	.421	.01
Difficulty Paying Bills		1, 123	.42	.52	<.01
Culture		2, 123	1.39	.253	.03
Depressive Sx Group		2, 123	3.11	.049	.05
Depressive Sx X Culture		4, 123	2.72	.033	.09

Table 3.4—Continued

	Care Seeking From a Doctor				
Intercept		1, 173	23.24	<.001	.13
Gender		1, 173	.99	.320	.01
Age		1, 173	.32	.575	<.01
Number of Comorbidities		1, 173	.05	.817	<.01
Education		1, 173	1.20	.276	.01
Difficulty Paying Bills		1, 173	2.91	.090	.02
Culture		2, 173	4.92	.008	.06
Depressive Sx Group		2, 173	1.76	.175	.02
Depressive Sx X Culture		4, 173	.66	.621	.02
	Care Seeking From a Psychologist or Psychiatrist				
Intercept		1, 174	15.87	<.001	.09
Gender		1, 174	.30	.588	<.01
Age		1, 174	.12	.725	<.01
Number of Comorbidities		1, 174	.28	.595	<.01
Education		1, 174	3.24	.074	.02
Difficulty Paying Bills		1, 174	.71	.398	<.01
Culture		2, 174	1.49	.229	.02
Depressive Sx Group		2, 174	.56	.575	.01
Depressive Sx X Culture		4, 174	1.09	.363	.03

Table 3.4—Continued

	Care Seeking From Other Mental Health Professional				
Intercept		1, 174	20.18	<.001	.11
Gender		1, 174	<.01	.972	<.01
Age		1, 174	.02	.894	<.01
Number of Comorbidities		1, 174	.92	.340	.01
Education		1, 174	.71	.401	<.01
Difficulty Paying Bills		1, 174	4.42	.037	.03
Culture		2, 174	1.34	.457	.01
Depressive Sx Group		2, 174	1.52	.222	.02
Depressive Sx X Culture		4, 174	1.24	.296	.03

Hypothesis five

The fifth hypothesis stated that older adults with no depressive symptoms would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care from a general doctor, psychologist or psychiatrist, or any other type of professional counselor a than older adults with STDS and above threshold depressive symptoms. However, mental health-related quality of life, self-assessed health, functional limitations, and willingness to seek care from a general doctor, psychologist or psychiatrist, or any other type of professional counselor would be similar among older adults with STDS and above threshold depressive symptom. Table 3-4 displays the results of the analyses.

As expected, a main effect of depressive symptom group on mental health-related quality of life was found. Post-hoc analyses revealed that the no depressive symptom group ($M = 3.95$, $SE = .46$) reported better mental health-related quality of life than the above threshold

depressive symptoms group ($M = 7.75$, $SE = .56$). However, contrary to expectations, no differences were found between the no depressive symptom and the STDS group ($M = 3.82$, $SE = .58$), while the above threshold depressive symptoms group reported poorer mental health-related quality of life than the STDS group.

As expected a main effect of depressive symptom group on functional limitations was found. Post-hoc analyses revealed that the no depressive symptom group ($M = 5.536$, $SE = .72$) reported less functional limitations than the above threshold depressive symptoms group ($M = 10.83$, $SE = .90$). However, contrary to expectations, no differences were found between the no depressive symptom and the STDS group ($M = 6.14$, $SE = .91$), while the STDS group reported less functional limitations than the above threshold depressive symptoms group.

Contrary to expectations, although a main effect of depressive symptom group on self-assessed health was found, post hoc analyses revealed that depressive symptoms groups reported similar self-assessed health. Contrary to expectations, a main effect of depressive symptom group and care seeking from a general doctor, a psychologist or psychiatrist, or any other professional counselor was not found. Hypothesis five was partially supported.

Exploratory analyses for Hypothesis five examined depressive symptom as a continuous predictor of mental health-related quality of life, functional limitations, self-assessed health, willingness to seek care from a doctor, psychologist or psychiatrist, or any other mental health professional. Table 3-5 displays the results of the analyses. The second steps of the model predicting mental health-related quality of life, functional limitations, self-assessed health, and willingness to seek care from a doctor were significant, $R^2 = .35$, $F(8, 158) = 10.01$, $p < .001$; $R^2 = .29$, $F(8, 171) = 8.26$, $p < .001$; $R^2 = .19$, $F(8, 121) = 3.29$, $p = .002$; $R^2 = .35$, $F(8, 171) = 2.92$, $p = .005$, respectively. Contrary to expectations, a main effect of depressive symptom severity on willingness to seek care from a doctor was not found. However, as expected, a main effect of depressive symptom severity on mental health-related quality of life, functional limitations, and self-assessed health was found. As expected, higher levels of

depressive symptom severity predicted poorer mental health-related quality of life, increased functional limitations, and poorer self-assessed health. Contrary to expectations, the second steps of the model predicting depressive symptom severity did not predict willingness to seek care from a psychologist or psychiatrist, or any other mental health professional, $R^2 = .07$, $F(8, 172) = 1.60$, $p = .127$; $R^2 = .25$, $F(8, 172) = 1.33$, $p = .232$, respectively. Exploratory analyses for Hypothesis five were partially supported. Most results yielded similar results from the original analyses. However, increased depressive symptoms predicted poorer self-assessed health, and therefore, yielded different results from the original analyses, which did not find an effect.

Table 3-5 Results from Exploratory Analyses Assessing Hypothesis Five

Predictor Variable	Outcome Variable	B	t	Significance	s^2
	Mental Health-Related Quality of Life				
Constant		4.49	7.57	<.001	
Age		-.02	-.67	.502	.04
Gender		.49	.80	.426	.05
Number of Comorbidities		.49	2.05	.043	.13
Education		-.19	-1.03	.306	.07
Difficulty Paying Bills		-1.06	-3.37	.001	.22
Dummy code 1 Hispanic/Latino		-.19	-.24	.810	.02
Dummy code 2 African American		.78	.92	.359	.06
Depressive Symptoms		.29	5.40	<.001	.37
	Functional Limitations				
Constant		7.66	8.76	<.001	

Table 3.5—Continued

Age		.02	.39	.700	.03
Gender		-.26	-.29	.773	.02
Number of Comorbidities		.99	2.91	.004	.19
Education		-.21	-.81	.421	.05
Difficulty Paying Bills		-.49	-1.06	.292	.07
Dummy code 1 Hispanic/Latino		-1.50	-1.33	.187	.09
Dummy code 2 African American		-.32	-.25	.802	.02
Depressive Symptoms		.44	5.68	<.001	.38
	Self-Assessed Health				
Constant		3.06	8.51	<.001	
Age		-.04	-1.86	.066	.16
Gender		.09	.25	.801	.02
Number of Comorbidities		-.01	-.04	.971	<.01
Education		-.07	-.64	.526	.05
Difficulty Paying Bills		-.13	-.72	.468	.06
Dummy code 1 Hispanic/Latino		.33	.73	.468	.06
Dummy code 2 African American		-.53	-.98	.329	.08
Depressive Symptoms		.07	2.30	.023	.20
	Care Seeking From a Doctor				
Constant		4.31	24.10	<.001	

Table 3.5—Continued

Age		.01	.69	.493	.05
Gender		-.22	-1.15	.253	.08
Number of Comorbidities		-.01	-.18	.854	.01
Education		.06	1.11	.268	.08
Difficulty Paying Bills		-.14	-1.44	.153	.11
Dummy code 1 Hispanic/Latino		-.45	-1.92	.057	.14
Dummy code 2 African American		-.91	-3.45	.001	.25
Depressive Symptoms		-.02	-1.29	.200	.09
	Care Seeking From a Psychologist or Psychiatrist				
Constant		3.82	17.43	<.001	
Age		<.01	-.03	.974	<.01
Gender		-.18	-.78	.437	.06
Number of Comorbidities		.06	.65	.518	.05
Education		.13	2.01	.046	.15
Difficulty Paying Bills		-.10	-.83	.410	.06
Dummy code 1 Hispanic/Latino		-.31	1.08	.282	.08
Dummy code 2 African American		-.56	-1.76	.081	.13
Depressive Symptoms		-.02	-.99	.324	.07

Table 3.5—Continued

	Care Seeking From Any Other Mental Health Professional				
Constant		3.40	16.47	<.001	
Age		<.01	.14	.891	.01
Gender		-.14	-.63	.528	.05
Number of Comorbidities		-.07	-.82	.412	.06
Education		.07	1.10	.274	.08
Difficulty Paying Bills		-.22	-1.94	.055	.14
Dummy code 1 Hispanic/Latino		-.25	-.91	.363	.07
Dummy code 2 African American		-.42	-1.39	.165	.11
Depressive Symptoms		-.02	-1.08	.282	.08

Note. Dummy code 1 was coded 1, 0, and 0 for Hispanic/Latino, African American, and European American, respectively. Dummy code 2 was coded 0, 1, and 0 for Hispanic/Latino, African American, and European American, respectively.

Hypothesis six

Hypothesis six stated that European American older adults in all depressive symptom groups would report better mental health-related quality of life, self-assessed health, less functional limitations and be more willing to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor than European American older adults with STDS and above threshold depressive symptoms and African American and Hispanic/Latino older adults in all depressive symptom groups. European American older adults with STDS would report better mental health-related quality of life, self-assessed health, less functional

limitations and be more willing to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor than African American and Hispanic/Latino older adults with STDS. African American and Hispanic/Latino older adults with no depressive symptoms would report better mental health-related quality of life, self-assessed health, less functional limitations and be more likely to seek care than African American and Hispanic/Latino older adults with STDS and above threshold depressive symptoms. However, mental health-related quality of life, self-assessed health, functional limitations, and willingness to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor would be similar among African American and Hispanic/Latino older adults with STDS and above threshold depressive symptoms. Table 3-4 displays the results of the last step of the analyses.

As expected, an interaction effect of culture and depressive symptom group on mental health-related quality of life was found. Post hoc analyses revealed results partially supported Hypothesis 6 (Figure 3-1). Contrary to expectations, no differences were observed among Latino/Hispanic older adults in any of the depressive symptom groups (no depressive symptoms $M = 4.55$, $SE = .76$; STDS $M = 4.62$, $SE = .76$; above threshold depressive symptoms $M = 4.91$, $SE = .78$). As expected European American older adults in the no depressive symptom group ($M = 3.96$, $SE = .92$) reported better mental health-related quality of life than European American older adults in the above threshold depressive symptoms group ($M = 8.96$, $SE = .90$). However, contrary to expectations, no differences were observed between European American older adults with no depressive symptoms and STDS ($M = 4.22$, $SE = 1.20$). Contrary to expectations, European American older adults with STDS reported better mental health-related quality of life than European American older adults with above threshold depressive symptoms. As expected, African American older adults in the no depressive symptom group ($M = 3.35$, $SE = .77$) reported better mental health related quality of life than African American older adults in the above threshold depressive symptoms group ($M = 9.38$, $SE = 1.16$). However, no differences were observed between African American older adults with no depressive

symptoms and STDS ($M = 2.62$, $SE = 1.02$). Contrary to expectations, African American older adults with STDS reported better mental health-related quality of life than African American older adults with above threshold depressive symptoms. Contrary to expectations, differences were not observed among Hispanic/Latino, European American and African American older adults in the no depressive symptom and STDS groups. Contrary to expectations, in the above threshold depressive symptoms group, Hispanic/Latino older adults reported better mental health-related quality of life than European American African American older adults. No differences were observed between European American older adults in the above threshold depressive symptoms group and African American older adults in the above threshold depressive symptoms group.

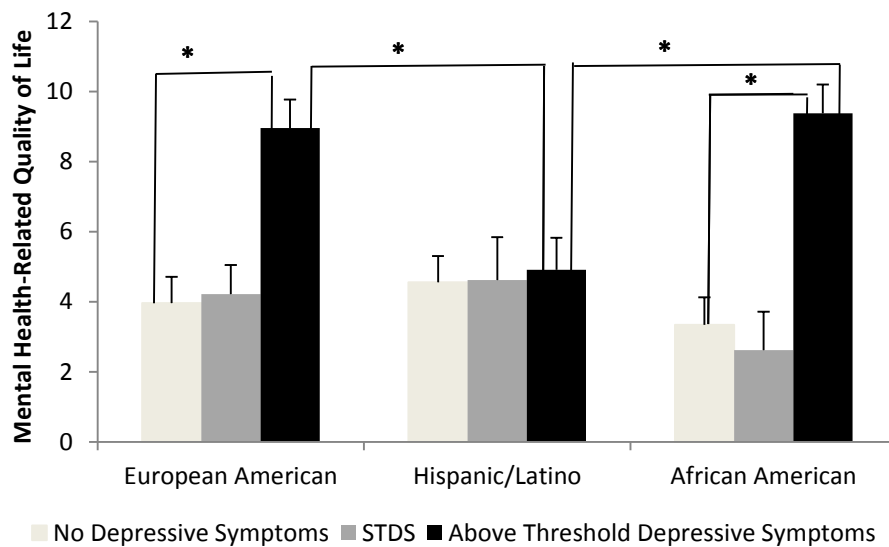


Figure 3-1 Interaction between Culture and Depressive Symptoms Groups on Mental Health-Related Quality of Life

As expected an interaction effect of culture and depressive symptom group on self-assessed health was found. Contrary to expectations, post hoc analyses (Figure 3-2) did not reveal significant differences in depressive symptom group among Hispanic/Latino older adult (no depressive symptoms $M = 3.16$, $SE = .41$; STDS $M = 3.97$, $SE = .42$; above threshold

depressive symptoms $M = 3.02$, $SE = .45$). As expected, European American older adults with no depressive symptoms ($M = 1.93$, $SE = .60$) reported better self-assessed health than European American older adults with above threshold depressive symptoms ($M = 4.06$, $SE = .60$). Differences were not found among European Americans with STDS ($M = 1.75$, $SE = .77$) and above threshold depressive symptoms. Contrary to expectations, differences were not found among European Americans with no depressive symptoms and STDS.

Among African Americans, contrary to expectations, no differences were found among the depressive symptoms groups (no depressive symptoms $M = 2.82$, $SE = .53$; STDS $M = 2.82$, $SE = .53$; above threshold depressive symptoms $M = 4.20$, $SE = .72$).

Contrary to expectation, no differences were reported among patients with no depressive symptoms. Among patients with STDS, as expected, European American older adults reported better self-assessed health than Hispanic/Latino older adults and no differences were reported between African American and Hispanic/Latino older adults. However, contrary to expectations, no differences were observed among European American and African American older adults with STDS and among all groups in the above threshold depressive symptoms groups.

Contrary to expectations, an interaction effect between culture and depressive symptom group on functional limitations, willingness to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor was not found. Hypothesis six was partially supported.

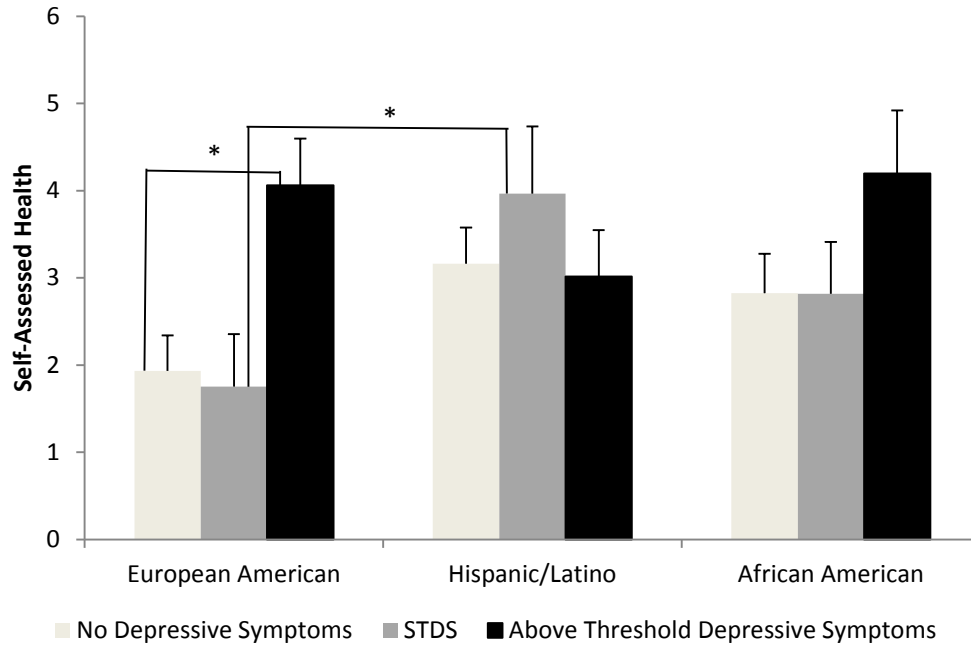


Figure 3-2 Interaction between Culture and Depressive Symptoms Groups on Self-Assessed Health

Exploratory analyses for Hypothesis six examined depressive symptoms as a continuous predictor that was moderated by culture to predict mental health-related quality of life, functional limitations, self-assessed health, and willingness to seek care from a doctor, psychologist or psychiatrist, or any other mental health professional. Table 3-6 displays the results from the last step of the analyses. The interaction effect was significant when predicting mental health-related quality of life, $R^2 = .40$, $F(10, 158) = 10.04$, $p < .001$. Post hoc test revealed that increased depressive symptoms significantly predicted poorer mental health-related quality of life among European Americans and African Americans, $B = .50$, $t(158) = 5.15$, $p < .001$; $B = .36$, $t(158) = 4.8$, $p < .001$, respectively. However depressive symptom severity did not predict mental health-related quality of life among Hispanics/Latinos, $B = .08$, $t(158) = .98$, $p = .331$. Figure 3-3 depicts the relationship.

Table 3-6 Results Assessing Exploratory Analyses for Hypothesis Six

Predictor Variable	Outcome Variable	B	<i>t</i>	Significance	<i>sr</i> ²
	Mental Health-Related Quality of Life				
Constant		5.14	7.94	<.001	
Age		-.02	-.70	.486	.04
Gender		.23	.38	.702	.02
Number of Comorbidities		.53	2.31	.022	.14
Education		-.20	-1.12	.267	.07
Difficulty Paying Bills		-.86	-2.79	.006	.18
Dummy code 1 Hispanic/Latino		-.53	-.69	.494	.04
Dummy code 2 African American		-.56	-.68	.500	.04
Depressive symptoms		.50	5.24	<.001	.23
Depressive Symptoms X Dummy code 1 Hispanic/Latino		-.42	-3.54	.001	.22
Depressive Symptoms X Dummy code 2 African American		-.14	-1.10	.272	.07
	Functional Limitations				
Constant		7.18	7.25	<.001	
Age		.02	.30	.766	.02
Gender		-.50	-.56	.577	.03

Table 3.6—Continued

Number of Comorbidities		1.03	3.07	.002	.20
Education		-.23	-.90	.370	.06
Difficulty Paying Bills		-.24	-.52	.605	.03
Dummy code 1 Hispanic/Latino		-.81	-.70	.487	.05
Dummy code 2 African American		.57	.452	.652	.03
Depressive symptoms		.70	.45	.652	.03
Depressive Symptoms X Dummy code 1 Hispanic/Latino		-.50	-2.79	.006	.18
Depressive Symptoms X Dummy code 2 African American		-.12	-.61	.542	.04
	Self-Assessed Health				
Constant		2.31	5.33	<.001	
Age		-.03	-1.47	.144	.12
Gender		-.01	-.30	.976	<.01
Number of Comorbidities		.05	.34	.733	.03
Education		-.07	-.64	.522	.05
Difficulty Paying Bills		-.02	-.10	.923	.01
Dummy code 1 Hispanic/Latino		1.19	2.37	.020	.20

Table 3.6—Continued

Dummy code 2 African American		.81	1.47	.145	.12
Depressive symptoms		.18	3.16	.002	.12
Depressive Symptoms X Dummy code 1 Hispanic/Latino		-.17	-2.51	.014	.21
Depressive Symptoms X Dummy code 2 African American		-.12	-1.65	.102	.14
	Care Seeking From a General Doctor				
Constant		3.39	15.92	<.001	
Age		.01	.75	.452	.06
Gender		-.22	-1.14	.258	.08
Number of Comorbidities		-.01	-.16	.870	.01
Education		.06	1.13	.261	.08
Difficulty Paying Bills		-.14	-1.38	.169	.10
Dummy code 1 Hispanic/Latino		.47	1.90	.060	.14
Dummy code 2 African American		.92	3.43	.001	.25
Depressive symptoms		-.02	-.50	.618	.04
Depressive Symptoms X Dummy code 1 Hispanic/Latino		<.01	<-.01	.997	<.01

Table 3.6—Continued

Depressive Symptoms X Dummy code 2 African American		-.01	-.33	.742	.02
	Care Seeking from a Psychologist or Psychiatrist				
Constant		3.82	17.34	<.001	
Age		<-.01	-.25	.806	.02
Gender		-.19	-.81	.418	.06
Number of Comorbidities		.05	.62	.540	.05
Education		.13	1.93	.055	.15
Difficulty Paying Bills		-.09	-.76	.448	.06
Dummy code 1 Hispanic/Latino		-.30	-1.05	.294	.08
Dummy code 2 African American		-.54	-1.65	.100	.13
Depressive symptoms		-.02	-.63	.533	.05
Depressive Symptoms X Dummy code 1 Hispanic/Latino		-.02	-.39	.698	.03
Depressive Symptoms X Dummy code 2 African American		.03	.68	.495	.05

Table 3.6—Continued

	Care Seeking from Any Other Mental Health Professional				
Constant		3.39	16.35	<.001	
Age		<.01	.12	.903	.01
Gender		-.12	-.55	.582	.05
Number of Comorbidities		-.07	-.85	.395	.07
Education		.07	1.10	.237	.08
Difficulty Paying Bills		-.23	-2.04	.043	.15
Dummy code 1 Hispanic/Latino		-.25	-.94	.350	.07
Dummy code 2 African American		-.40	-1.29	.198	.10
Depressive symptoms		-.04	-1.08	.283	.08
Depressive Symptoms X Dummy code 1 Hispanic/Latino		.03	.77	.443	.06
Depressive Symptoms X Dummy code 2 African American		.02	.31	.757	.02

Note. Dummy code 1 was coded 1, 0, and 0 for Hispanic/Latino, African American, and European American, respectively. Dummy code 2 was coded, 0, 1, and 0 for Hispanic/Latino, African American, and European American, respectively.

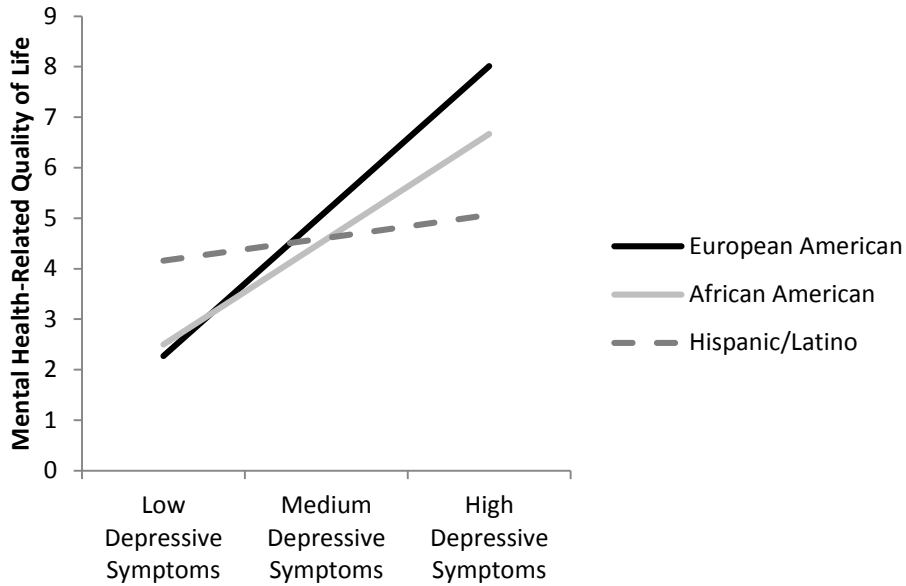


Figure 3-3 Mental Health-Related Quality of Life among European American, African American, and Hispanic/Latino Older Adults

The interaction effect was significant when predicting functional limitations, $R^2 = .33$, $F(10, 171) = 7.88$, $p < .001$. Post hoc test revealed that increased depressive symptoms significantly predicted increased functional limitations among European Americans and African Americans, $B = .70$, $t(171) = 4.65$, $p < .001$, $B = .58$, $t(171) = 4.62$, $p < .001$, respectively. However depressive symptom severity did not predict functional limitations among Hispanics/Latinos, $B = .20$, $t(171) = 1.24$, $p = .217$. Figure 3-6 depicts the relationship.

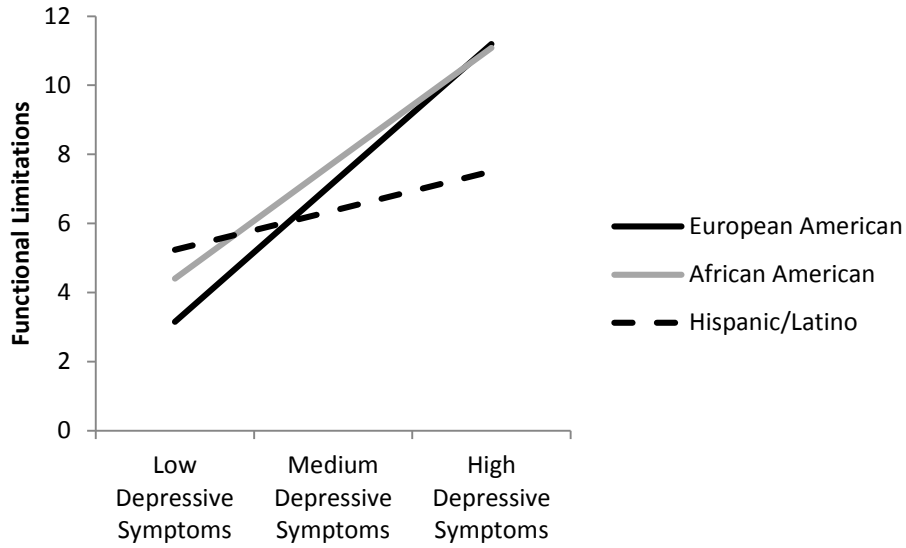


Figure 3-4 Functional Limitations among European American, Hispanic/Latino and African American Older Adults

The interaction effect was significant when predicting self-assessed health, $R^2 = .23$, $F(10, 121) = 3.36$, $p < .001$. Post hoc test revealed that increased depressive symptoms significantly predicted poorer self-assessed health among European Americans, $B = .18$, $t(121) = 3.16$, $p = .002$. However depressive symptom severity did not predict self-assessed health among Hispanics/Latinos and African Americans, $B = .01$, $t(121) = .237$, $p = .813$; $B = .06$, $t(121) = 1.32$, $p = .190$, respectively. Figure 3-7 depicts the relationship.

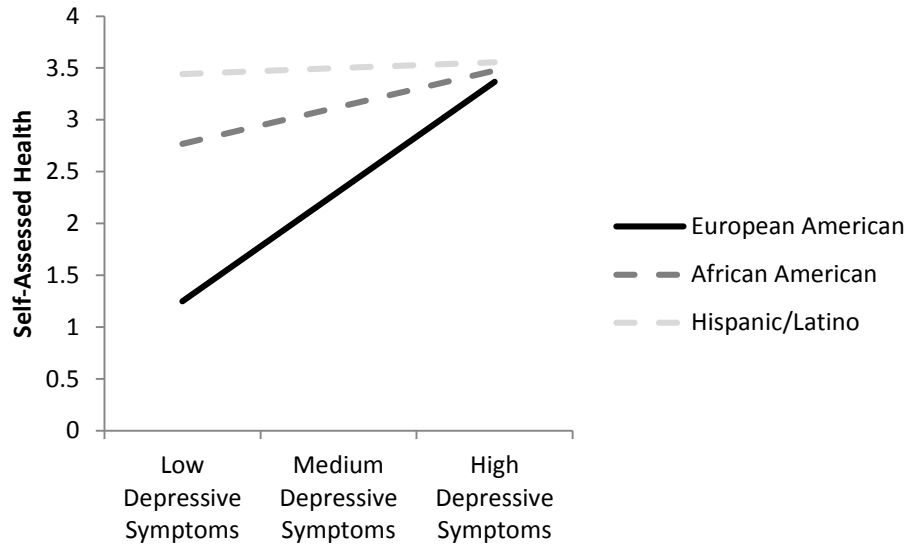


Figure 3-5 Self-Assessed Health among European American, African American, and Hispanic/Latino Older Adults

An interaction was found predicting care seeking from a doctor, $R^2 = .13$, $F(10, 171) = 2.33$, $p = .014$. However, contrary to expectations, post hoc analyses revealed that increased depressive symptoms did not predict care seeking among Hispanic/Latino, European American, and African American older adults, $B = -.02$, $t(171) = -.50$, $p = .618$; $B = -.03$, $t(171) = -1.11$, $p = .268$; $B = -.02$, $t(171) = -.67$, $p = .504$, respectively.

However, contrary to expectations, the interaction effect was not significant when predicting care seeking from a psychologist or psychiatrist, or any other mental health professional,; $R^2 = .08$, $F(10, 172) = 1.43$, $p = .172$; $R^2 = .06$, $F(10, 176) = -1.08$, $p = .283$, respectively. Therefore, exploratory analyses for Hypothesis six partially supported the hypothesis. Most results yielded similar results from the original analyses. However, increased depressive symptoms predicted increased functional limitations among European and African Americans, and therefore, yielded different results from the original analyses, which did not find an effect.

Hypothesis seven

Next, regression analyses were conducted in order to test Hypothesis seven, which hypothesized that lower levels of acculturation would predict poorer mental health-related quality of life, functional limitations, self-assessed health and failure to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor. All covariates were entered into the first step of the analysis. Acculturation was added into the second step of the model.

The last step of the model was not significant when predicting mental health-related quality of life, functional limitations, self-assessed health, and willingness to seek care from a general doctor, psychologist or psychiatrist, or any other mental healthcare professional, $R^2 = .18$, $F(6, 67) = 2.21$, $p = .054$; $R^2 = .12$, $F(6, 78) = 1.62$, $p = .153$; $R^2 = .09$, $F(6, 59) = .83$, $p = .55$; $R^2 = .06$, $F(6, 78) = .79$, $p = .58$; $R^2 = .04$, $F(6, 78) = .55$, $p = .770$; $R^2 = .11$, $F(6, 78) = 1.43$, $p = .217$, respectively. Contrary to expectation, acculturation did not predict mental health related quality of life, functional limitations, self-assessed health, and willingness to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor. Table 3-7 shows the final step of the regression analyses. Hypothesis seven was not supported.

Table 3-7 Regression Analyses Assessing Effects of Acculturation on Mental Health-Related Quality of Life, Functional Limitations, Self-Assessed Health, and Care Seeking from a Doctor, Psychologist or Psychiatrist, or Any Other Mental Health Professional

Predictor Variable	Outcome Variable	B	t	Significance	sr ²
	Mental Health-Related Quality of Life				
Constant		-1.80	-.25	.801	
Age		.04	.71	.480	.08
Gender		-.31	-.32	.751	.04
Number of Comorbidities		1.05	2.08	.042	.24

Table 3.7—Continued

Education		-.28	-.95	.348	.11
Difficulty Paying Bills		-1.12	-2.12	.038	.25
Acculturation		.95	1.02	.310	.12
	Functional Limitations				
Constant		-1.30	-.14	.891	
Age		.11	1.51	.136	.17
Gender		1.52	1.13	.261	.13
Number of Comorbidities		1.40	2.34	.022	.26
Education		-.12	-.32	.747	.04
Difficulty Paying Bills		.01	.01	.995	<.01
Acculturation		-.39	-.33	.746	.04
	Self-Assessed Health				
Constant		.85	.23	.823	
Age		-.02	-.55	.583	.07
Gender		-.08	-.15	.881	.02
Number of Comorbidities		-.40	-1.78	.082	.23
Education		-.09	-.61	.545	.08
Difficulty Paying Bills		.13	.46	.644	.06
Acculturation		.66	1.40	.167	.18
	Care Seeking from Doctor				
Constant		2.89	1.37	.175	
Age		.03	1.71	.091	.20
Gender		.06	.19	.851	.02

Table 3.7—Continued

Number of Comorbidities		-.07	-.55	.581	.06
Education		.06	.77	.581	.06
Difficulty Paying Bills		-.18	-1.07	.287	.12
Acculturation		-.05	-.19	.851	.02
	Care Seeking From Psychologist or Psychiatrist				
Constant		4.67	1.82	.073	
Age		.01	.55	.585	.06
Gender		-.32	-.88	.382	.10
Number of Comorbidities		-.06	-.38	.705	.04
Education		-.13	1.24	.218	.14
Difficulty Paying Bills		-.18	-.88	.383	.10
Acculturation		-.18	-.53	.597	.06
	Care Seeking From Any Other Mental Health Professional				
Constant		5.02	2.16	.034	
Age		.02	1.89	.280	.12
Gender		-.35	-1.05	.298	.12
Number of Comorbidities		-.20	-1.39	.169	.16
Acculturation		-.23	-.76	.450	.09

Hypothesis eight

Moderated regression analyses were conducted in order to test Hypothesis eight, which hypothesized that acculturation would moderate the relationship between symptom identity and

health, such that, Hispanic/Latino older adults, who reported high levels of acculturation, would report high symptom identity which would be more positively associated with willingness to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor, mental health-related quality of life, and self-assessed health and negatively related to functional limitations. The overall model was not significant when predicting mental health-related quality of life, functional limitations, self-assessed health, and willingness to seek care from a doctor, psychologist or psychiatrist or any other mental health professional, $R^2 = .17$, $F(8, 66) = 1.51$, $p = .175$; $R^2 = .13$, $F(8, 77) = 1.25$, $p = .284$; $R^2 = .12$, $F(8, 58) = 1.559$, $p = .557$; $R^2 = .07$, $F(8, 77) = 1.65$, $p = .733$; $R^2 = .09$, $F(8, 77) = 1.81$, $p = .596$; $R^2 = .17$, $F(8, 77) = 1.78$, $p = .096$, respectively. Contrary to expectations, acculturation did not moderate the relationship between symptom identity and mental-health related quality of life, functional limitations, self-assessed health, and willingness to seek care from a general doctor, a psychologist or psychiatrist, or any other professional counselor. Table 3-8 displays the last step of the analyses. Hypothesis eight was not supported.

Table 3-8 Last Step of the Multiple Moderated Regression Analyses Testing Hypothesis Eight

Predictor Variable	Outcome Variable	B	t	Significance	s^2
	Mental Health-Related Quality of Life				
Constant		4.83	6.88	<.001	
Age		.03	.59	.559	.07
Gender		.19	.18	.856	.02
Number of Comorbidities		1.05	2.00	.050	.24
Education		-.25	-.81	.424	.09
Difficulty Paying Bills		-1.03	-1.79	.078	.21
Acculturation		.96	1.02	.313	.12
Symptom identity		.01	.55	.583	.07

Table 3.8—Continued

Symptom identity X Acculturation		-.01	-.32	.748	.04
	Functional Limitations				
Constant		6.78	7.35	<.001	
Age		.10	1.43	.158	.16
Gender		-1.24	-.90	.372	.10
Number of Comorbidities		1.34	2.21	.030	.25
Education		-.21	-.55	.586	.06
Difficulty Paying Bills		-.21	-.27	.792	.03
Acculturation		-.38	-.31	.760	.03
Symptom identity		<-.01	-.23	.820	.03
Symptom identity X Acculturation		-.02	-.53	.600	.06
	Self-Assessed Health				
Constant		3.56	10.51	<.001	
Age		-.01	-.49	.629	.07
Gender		-.04	-.08	.939	.01
Number of Comorbidities		-.34	-1.52	.134	.20
Education		-.01	-.06	.953	.01
Difficulty Paying Bills		.31	1.08	.284	.14
Acculturation		.53	1.14	.259	.15
Symptom identity		<-.01	-.70	.487	.09
Symptom identity X Acculturation		.01	.65	.521	.09

Table 3.8—Continued

	Care Seeking From a Doctor				
Constant		3.78	18.21	<.001	
Age		.03	1.60	.115	.19
Gender		-.05	-.15	.884	.02
Number of Comorbidities		-.09	-.65	.521	.08
Education		.06	.64	.527	.07
Difficulty Paying Bills		-.20	-1.13	.263	.13
Acculturation		-.02	-.07	.942	.01
Symptom identity		<.01	.67	.506	.08
Symptom identity X Acculturation		<-.01	-.26	.797	.03
	Care Seeking From a Psychologist or Psychiatrist				
Constant		3.25	13.07	<.001	
Age		.01	.65	.517	.08
Gender		.361	.98	.332	.11
Number of Comorbidities		-.09	-.53	.595	.06
Education		.11	1.02	.313	.12
Difficulty Paying Bills		-.25	-1.22	.228	.14
Acculturation		-.13	-.39	.698	.05
Symptom identity		.01	1.55	.13	.18
Symptom identity X Acculturation		.01	.82	.416	.09

Table 3.8—Continued

	Care Seeking From Any Other Mental Health Professional				
Constant		2.92	13.25	<.001	
Age		.02	1.10	.276	.12
Gender		.32	.96	.340	.11
Number of Comorbidities		-.23	-1.59	.116	.18
Education		.09	.97	.336	.11
Difficulty Paying Bills		-.41	-2.19	.032	-.24
Acculturation		-.17	-.58	.561	.06
Symptom identity		.01	2.36	.021	.26
Symptom identity X Acculturation		.01	.55	.582	.06

Chapter 4

Discussion

The current study aimed to examine the effects of depressive symptoms, culture, symptom identity, and acculturation on mental health-related quality of life, functional limitations, self-assessed health, and willingness to seek care from a general doctor, psychologist or psychiatrist, or any other mental health professional. However, results did not support all of the hypotheses. Hypotheses one, two, and three were not supported. Symptom identity did not differ among depressive symptoms or cultural groups. An interaction effect was also not found. Hypothesis four was partially supported. Mental health-related quality of life, functional limitations, self-assessed health, and care seeking from a psychologist/psychiatrist or from any other mental health care professional did not differ among cultural groups. Contrary to expectations, African Americans were more willing to seek care for depression from a general doctor than European Americans. However, as expected, no differences were found between Hispanic/Latino and African American older adults. Hypothesis five was partially supported. As hypothesized, patients with no depressive symptoms reported better mental health-related quality of life, self-assessed health, and fewer functional limitations than patients with above threshold depressive symptoms. However, no differences were found in care seeking. Hypothesis six was partially supported. An interaction effect of culture and depressive symptoms was found on mental health-related quality of life and self-assessed health. Exploratory analyses also found an effect on functional limitations. However, no effects were found in care seeking. Finally, Hypotheses seven and eight were not supported. Acculturation did not predict health outcomes, nor did it moderate the relationship between symptom identity and health.

Hypotheses one, two, and three were not supported. Cultural or depressive symptom group differences on symptom identity, or an interaction between culture and group on symptom identity, were not found. Exploratory analyses for Hypotheses one and three also did not find an

effect. Depressive symptoms did not predict symptom identity. Additionally, the relationship was not moderated by culture. Results were not able to lend support to the CSM (Nerenz & Leventhal, 1983). According to the model, both culture and depressive symptom severity should have had an effect on symptom identity. However, in general, symptom identity scores were high for most individuals, causing a lack of variability between populations. Although the current study tried to correct the lack of variability by transforming the variable, effects were not found. Depression may be a better understood condition by patients than previously hypothesized. Although prior research suggested that symptom identity might be lower for Hispanic/Latino and African American older adults, no prior research examined symptom identity across cultures (Cabassa et al., 2007; Pincay & Guarnaccia, 2007). Therefore, beliefs about depression may not vary across cultures. However, future research should examine the other illness beliefs examined in the CSM (e.g. self-efficacy). Although the present study did not lend support to the CSM, the model posits that every condition can be viewed differently, warranting additional research on illness beliefs concerning depression. Moreover, despite the CSM hypothesizing that depressive symptoms would alter illness beliefs, research is scarce. Additional research is warranted on the effects of depressive symptoms on illness beliefs.

Hypothesis four, which hypothesized differences among cultures in mental health-related quality of life, functional limitations, self-assessed health, and willingness to seek care from a general doctor, psychologist or psychiatrist, or any other mental health professional, was partially supported. Results were contrary to what was hypothesized, as previous research found that European American older adults reported better health-related quality of life, self-assessed health, and functional limitations, and were more willing to seek care for depression than Hispanic/Latino and African American older adults, while Hispanic/Latino and African American older adults reported similar levels (Akincigil et al., 2012; Jackson-Triche et al., 2000; Jylhä, 2009; Liang et al., 2010; Mancuso et al., 2001). While most of the results were not significant, contrary to what was originally hypothesized, African American older adults were

more likely to seek care from a general doctor than the other two groups. This finding is contrary to previous research (Akincigil et al., 2012; Jackson-Triche et al., 2000; Jylhä, 2009; Liang et al., 2010; Mancuso et al., 2001). However, as hypothesized, no differences between African American and Hispanic/Latino older adults were found. One potential explanation may be that depressive symptoms are less stigmatized among African Americans than previously suggested. The current study did not assess stigmatization of depressive symptoms; therefore, future research should examine its effect on care seeking. Another potential explanation for the lack of group differences in the other health outcomes may be that patients were uninsured. Therefore, patients most likely do not seek care very often for medical ailments. This may result in similar levels of the health outcomes measured.

Hypothesis five was partially supported. This hypothesis was based upon the CSM, which hypothesizes that depressive symptomatology could negatively affect health outcomes. Negative effects on health for patients with STDS and above threshold depressive symptoms were hypothesized because research found similar negative effects on health for both patients with STDS and above threshold depressive symptoms. Additionally, it has been proposed that patients with depression spend a majority of the time in subthreshold states, making the distinction between STDS and above threshold depressive symptoms challenging (Chopra et al., 2005; Cuijpers & Smit, 2004; Fergusson, Horwood, Ridder, & Beautrais, 2005; Horowitz et al., 2005; Hybels et al., 2001; Juruena, 2012; Meeks et al., 2011). As expected, patients with no depressive symptoms reported better mental health-related quality of life and self-assessed health and fewer functional limitations than patients with above threshold depressive symptoms. However, the no depressive symptoms group did not differ from the STDS group. Finally, no differences were found for willingness to seek care from a doctor, psychologist or psychiatrist, or any other mental health professional. Results from exploratory analyses also found similar findings. Patients with increased depressive symptoms reported poorer mental health-related quality of life and self-assessed health and increased functional limitations. One potential

explanation explaining why patients with no depressive symptoms and STDS did not differ in mental health-related quality of life and functional limitations may be that patients with STDS are not experiencing enough symptoms of depression to warrant poorer mental health-related quality of life and increased functional limitations. Also, while it was hypothesized that no differences between STDS and above threshold depressive symptoms would exist, research is mixed, with other studies finding differences among the two groups (Solomon, Ruscio, Seeley, & Lewinsohn, 2006).

Hypothesis six, which examined the interaction effect of culture and depressive symptom group on mental health-related quality of life, functional limitations, self-assessed health, and willingness to seek care from a doctor, psychologist or psychiatrist, or any other mental health professional, was partially supported. The hypothesis was based on previous research which found main effects of culture and depressive symptomatology on health (Akincigil et al., 2012; Chopra et al., 2005; Cuijpers & Smit, 2004; Horowitz et al., 2005; Hybels et al., 2001; Jackson-Triche et al., 2000; Jylhä, 2009; Liang et al., 2010; Mancuso et al., 2001; Meeks et al., 2011). Although an interaction effect was found for mental health related quality of life, and self-assessed health, results only partially supported the hypothesis. When compared across depressive symptom group, no differences were found across culture for the no depressive symptom and STDS groups. However, in the above threshold depressive symptoms group, Hispanic/Latino older adults reported better mental health-related quality of life than the other two groups. Exploratory analyses revealed that increased depressive symptoms predicted poorer mental health-related quality of life for European American and African American older adults; however, no differences were found among Hispanic/Latino older adults. One potential explanation may be that Hispanics/Latinos often report high levels of social support. When patients report no depressive symptoms or STDS, social support may not play such an important role in mental health-related quality of life than when patients report above threshold depressive symptoms. In this case, social support may play an extra buffering role for

Hispanic/Latino older adults (Romero, Riggs, & Ruggero, 2015; Tienda & Mitchell, 2006).

Although initial analyses failed to find an interaction effect on functional limitations, exploratory analyses found that increased depressive symptoms predicted increased functional limitations among European Americans only. One potential explanation may be that European American older adults may be more affected by increased depressive symptoms.

Patients in the no depressive symptoms and STDS groups reported similar levels of self-assessed health across culture. European American older adults reported better self-assessed health than the other two groups in the above threshold depressive symptoms group. However, exploratory analyses revealed that increased depressive symptoms predicted poorer self-assessed health among European Americans only. One potential explanation may be that African American and Hispanic/Latino older adults may rate their overall health poorly. Therefore, increased depressive symptoms do not have the same effect on Hispanics/Latinos and African Americans that they do on European Americans.

Additional analyses for Hypothesis six, examining willingness to seek care from a doctor, psychologist or psychiatrist, or any other mental healthcare professional, did not differ among cultural or depressive symptoms groups. One potential explanation may be that the patient population sought care very rarely and would not be likely to seek care for any ailment. Therefore, due to a lack of care, they may report similar outcomes.

Hypothesis seven, which hypothesized that acculturation would predict mental health-related quality of life, functional limitations, self-assessed health, and care seeking from a general doctor, psychologist or psychiatrist, or any other mental health professional, was not supported. Previous research indicated that Hispanics/Latinos and African Americans are less likely to seek care for depression (Cooper et al., 2003). According to barrier theory, cultural values and attitudes among minorities, such as viewing mental illness as an emotional problem and not considering psychiatrists as regular sources of help for emotional problems, predisposes minorities to underutilize mental health services (Rogler et al., 1989). Minority

individuals with higher levels of acculturation, therefore, should have been more likely to seek care since individuals with higher levels of acculturation report higher levels of individualism, similar to European Americans. However, results did not support this relationship. One potential explanation may be that the current study only examined willingness to seek care and did not measure actual care seeking for depression. Future research should examine actual care seeking, measure attitudes toward mental health services, and compare them across culture.

Hypothesis eight, which hypothesized that acculturation would moderate the relationship between symptom identity and mental health-related quality of life, self-assessed health, functional limitations, and care seeking from a doctor, psychologist or psychiatrist, or any other mental health profession, was not supported, despite previous research noting otherwise (Johnson et al., 2010; A. M. Roncancio et al., 2011). Lack of access to care may be a better predictor than acculturation, as the sample consisted of uninsured older adults. This population has an overall poor access to care that can lead to poorer health. Therefore, future research should also examine patients with adequate insurance.

Taken together, these findings suggest that European American older adults are not very different from Hispanic/Latino and African American older adults. Differences were primarily attributable to a lack of access to care. However, it is important to caution that this study was limited by several factors. First, data was collected with the use of one-on-one interviews. Perhaps patients would have answered questions differently if left alone in the room to answer the questionnaires. However, this procedure helped to reduce attrition rates. The study sample consisted of unequal sample sizes. To correct this limitation, bootstrapping was performed for all of the analyses. Future studies should recruit a more diverse sample size, incorporating patients who are insured. Despite this limitation, the current study was able to observe main and interaction effects. Also, the study did not measure several constructs such as stigmatization of mental health care services, acculturation levels of African American older

adults, and care seeking for mental health care services. Future studies should explore such constructs.

It is important to note that the current study furthered existing research. Past research examined separately the effects of culture, depressive symptoms group, acculturation, and illness beliefs on health outcomes such as care seeking. The current study was able to compare all three cultural and depressive symptom severity groups together, and, therefore, was able to provide results that help to better differentiate the impact of both culture and depressive symptoms on health outcomes such as care seeking. Although additional research is warranted, results showed few differences among groups, especially when predicting care seeking. This leads to the conclusion that perhaps other factors such as availability of care or perceived control may have a more prominent impact on this relationship, regardless of cultural background.

References

- Abdullah, T., & Brown, T. L. (2011). Mental illness stigma and ethnocultural beliefs, values, and norms: an integrative review. *Clinical Psychology Review, 31*(6), 934–48. doi:10.1016/j.cpr.2011.05.003
- Akincigil, A., Olfson, M., Siegel, M., Zurlo, K. A, Walkup, J. T., & Crystal, S. (2012). Racial and ethnic disparities in depression care in community-dwelling elderly in the United States. *American Journal of Public Health, 102*(2), 319–28. doi:10.2105/AJPH.2011.300349
- Alvidrez, J. (1999). Ethnic variations in mental health attitudes and service use among low-income African American, Latina, and European American young women. *Community Mental Health Journal, 35*(6), 515–530.
- Andrés-Hyman, R., & Ortiz, J. (2006). Culture and clinical practice: Recommendations for working with Puerto Ricans and other Latinas (os) in the United States. *Professional ...* Retrieved from <http://psycnet.apa.org/journals/pro/37/6/694/>
- Angel, J. L., Prickett, K. C., & Angel, R. J. (2014). Retirement Security for Black, Non-Hispanic White, and Mexican-Origin Women: The Changing Roles of Marriage and Work. *Journal of Women, Politics & Policy, 35*(3), 222–241. doi:10.1080/1554477X.2014.921541
- Atlantis, E., Goldney, R., Eckert, K., Taylor, A., & Phillips, P. (2012). Trends in health-related quality of life and health service use associated with comorbid diabetes and

- major depression in South Australia, 1998-2008. *Social Psychiatry & Psychiatric Epidemiology*, 47(6), 871–877. Retrieved from 10.1007/s00127-011-0394-4
- Bauer, A., Chen, C., & Alegría, M. (2012). Prevalence of physical symptoms and their association with race/ethnicity and acculturation in the United States. *General Hospital Psychiatry*, 34(4), 323–331.
- Becker, S. M. (2004). Detection of somatization and depression in primary care in Saudi Arabia. *Social Psychiatry and Psychiatric Epidemiology*, 39(12), 962–6.
doi:10.1007/s00127-004-0835-4
- Bell, R. A., Smith, S. L., Arcury, T. A., Snively, B. M., Stafford, J. M., & Quandt, S. A. (2005). Prevalence and Correlates of Depressive Symptoms Among Rural Older African Americans, Native Americans, and Whites With Diabetes. *Diabetes Care*, 28(4), 823–829.
- Bermúdez-Parsai, M., Mullins Geiger, J. L., Marsiglia, F. F., & Coonrod, D. V. (2012). Acculturation and health care utilization among Mexican heritage women in the United States. *Maternal and Child Health Journal*, 16(6), 1173–9.
doi:10.1007/s10995-011-0841-6
- Blazer, D., & Moody-Ayers, S. (2002). Depression in diabetes and obesity: racial/ethnic/gender issues in older adults. *Journal of Psychosomatic Research*, 53(4), 913–916.

- Borowsky, S. J., Rubenstein, L. V, Meredith, L. S., Camp, P., Jackson-Triche, M., & Wells, K. B. (2000). Who is at risk of nondetection of mental health problems in primary care? *Journal of General Internal Medicine*, *15*(6), 381–8.
- Bridges, A. J., de Arellano, M. a., Rheingold, A. a., Danielson, C. K., & Silcott, L. (2010). Trauma exposure, mental health, and service utilization rates among immigrant and United States-born Hispanic youth: Results from the Hispanic family study. *Psychological Trauma: Theory, Research, Practice, and Policy*, *2*(1), 40–48.
doi:10.1037/a0019021
- Brown, C., Dunbar-Jacob, J., Palenchar, D. R., Kelleher, K. J., Bruehlman, R. D., Sereika, S., & Thase, M. E. (2001). Primary care patients' personal illness models for depression: a preliminary investigation. *Family Practice*, *18*(3), 314–320.
doi:10.1093/fampra/18.3.314
- Cabassa, L. J., Lester, R., & Zayas, L. H. (2007). "It's like being in a labyrinth:" Hispanic immigrants' perceptions of depression and attitudes toward treatments. *Journal of Immigrant and Minority Health / Center for Minority Public Health*, *9*(1), 1–16.
doi:10.1007/s10903-006-9010-1
- Cachelin, F. M., Veisel, C., Barzegarnazari, E., & Striegel-Moore, R. H. (2000). Disordered eating, acculturation, and treatment-seeking in a community sample of Hispanic, Asian, Black, and White women. *Psychology of Women Quarterly*, *24*, 244–253.
- Cella, D., Riley, W., Stone, A., Rothrock, N., Reeve, B., Yount, S., ... Hays, R. (2010). The Patient-Reported Outcomes Measurement Information System (PROMIS)

developed and tested its first wave of adult self-reported health outcome item banks: 2005-2008. *Journal of Clinical Epidemiology*, 63(11), 1179–94.
doi:10.1016/j.jclinepi.2010.04.011

Center for Disease Control and Prevention. (2013). Building our understanding: Culture Insights Communicating with Hispanic/Latinos. Retrieved December 07, 2014, from http://www.cdc.gov/nccdphp/dch/programs/healthycommunitiesprogram/tools/pdf/hispanic_latinos_insight.pdf

Chopra, M. P., Zubritsky, C., Knott, K., Have, T. T., Hadley, T., Coyne, J. C., & Oslin, D. W. (2005). Importance of subsyndromal symptoms of depression in elderly patients. *The American Journal of Geriatric Psychiatry*, 13(7), 597–606.

Cooper, L. A., Gonzales, J. J., Gallo, J. J., Rost, K. M., Meredith, L. S., Rubenstein, L. V, ... Ford, D. E. (2003). The acceptability of treatment for depression among African-American, Hispanic, and white primary care patients. *Medical Care*, 41(4), 479–489.

Cuellar, I., Arnold, B., & Maldonado, R. (1995). Acculturation rating scale for Mexican Americans-II: A revision of the original ARSMA scale. *Hispanic Journal of Behavioral Sciences*, 17(3), 275–304.

Cuijpers, P., & Smit, F. (2004). Review article Subthreshold depression as a risk indicator for major depressive disorder : a systematic review of prospective studies. *Acta Psychiatrica Scandinavica*, 109, 325–331.

Drayer, R. A., Mulsant, B. H., Lenze, E. J., Rollman, B. L., Dew, M. A., Kelleher, K., ... Schulberg, H. C. (2005). Somatic symptoms of depression in elderly patients with

medical comorbidities. *International Journal of Geriatric Psychiatry*, 20(10), 973–982.

Dunlop, D., Song, J., Lyons, J. S., Manheim, L. M., & Chang, R. W. (2003). Racial/ethnic differences in rates of depression among preretirement adults. *American Journal of Public Health*, 93(11), 1945–1952.

Efron, B., & Tibshirani, R. (1994). *An introduction to the bootstrap*. CRC Press.

Fergusson, D. M., Horwood, L. J., Ridder, E. M., & Beautrais, A. L. (2005). Subthreshold depression in adolescence and mental health outcomes in adulthood. *Archives of General Psychiatry*, 62(1), 66–72. doi:10.1001/archpsyc.62.1.66

Freedman, V., & Martin, L. (1999). The role of education in explaining and forecasting trends in functional limitations among older Americans*. *Demography*. Retrieved from <http://link.springer.com/article/10.2307/2648084>

Freid, V., Bernstein, A., & Bush, M. (2012). Multiple chronic conditions among adults aged 45 and over: trends over the past 10 years. *Women*, 45, 64.

Gallo, J., Rabins, P., & Lyketsos, C. (1997). Depression without sadness: functional outcomes of nondysphoric depression in later life. *Journal of the American Geriatrics Society*, 45(5), 570–578.

Georg Hsu, L. K., Wan, Y. M., Chang, H., Sumergrad, P., Tsang, B. Y. P., & Chen, H. (2008). Stigma of depression is more severe in Chinese Americans than Caucasian Americans. *Psychiatry: Interpersonal and Biological Processes*, 71(3), 210–218.

- Golden, S. H. (2007). A Review of the Evidence for a Neuroendocrine Link Between Stress, Depression and Diabetes Mellitus. *Current Diabetes Reviews*, 3(4), 252–259.
- Hale, E., Treharne, G., & Kitas, G. (2007). The Common-Sense Model of self-regulation of health and illness: how can we use it to understand and respond to our patients' needs? *Rheumatology*, 46(6), 904–906.
- Hallas, C. N., Wray, J., Andreou, P., & Banner, N. R. (2011). Depression and perceptions about heart failure predict quality of life in patients with advanced heart failure. *Heart & Lung: The Journal of Critical Care*, 40(2), 111–21.
doi:10.1016/j.hrtlng.2009.12.008
- Hays, R. D., Bjorner, J. B., Revicki, D. A., Spritzer, K. L., & Cella, D. (2009). Development of physical and mental health summary scores from the patient-reported outcomes measurement information system (PROMIS) global items. *Quality of Life Research*, 18, 873–880. doi:10.1007/s11136-009-9496-9
- Hermens, M. L. M., van Hout, H. P. J., Terluin, B., van der Windt, D. A. W. M., Beekman, A. T. F., van Dyck, R., & de Haan, M. (2004). The prognosis of minor depression in the general population: a systematic review. *General Hospital Psychiatry*, 26, 453–462.
- Himelhoch, S., Weller, W. E., Wu, A. W., Anderson, G. F., & Cooper, L. A. (2004). Chronic Medical Illness, Depression, and Use of Acute Medical Services Among Medicare Beneficiaries. *Medical Care*, 42(6), 512–521. Retrieved from 10.1097/01.mlr.0000127998.89246.ef

- Hooper, M. W., Baker, E. a, de Ybarra, D. R., McNutt, M., & Ahluwalia, J. S. (2012). Acculturation predicts 7-day smoking cessation among treatment-seeking African-Americans in a group intervention. *Annals of Behavioral Medicine : A Publication of the Society of Behavioral Medicine*, 43(1), 74–83. doi:10.1007/s12160-011-9304-y
- Horowitz, A., Reinhardt, J. P., & Kennedy, G. J. (2005). Major and Subthreshold Depression Among Older Adults Seeking Vision Rehabilitation Services. *The American Journal of Geriatric Psychiatry*, 13(3), 180–187. Retrieved from 10.1176/appi.ajgp.13.3.180
- Horton, K. D., & Loukas, A. (2013). Discrimination, religious coping, and tobacco use among White, African American, and Mexican American vocational school students. *Journal of Religion and Health*, 52(1), 169–83. doi:10.1007/s10943-011-9462-z
- Hybels, C. F., Blazer, D. G., & Pieper, C. F. (2001). Toward a threshold for subthreshold depression An analysis of correlates of depression by severity of symptoms using data from an elderly community sample. *The Gerontologist*, 41(3), 357–365.
- IBM Statistics for Windows, Version 21.0. (2012). Armonk, NY: IBM Corp.
- Jackson-Triche, M. E., Sullivan, J. G., Wells, K. B., Rogers, W., Camp, P., & Mazel, R. (2000). Depression and health-related quality of life in ethnic minorities seeking care in general medical settings. *Journal of Affective Disorders*, 58(2), 89–97. Retrieved from 10.1016/S0165-0327(99)00069-5

- Jacobson, A. M., de Groot, M., & Samson, J. A. (1997). The effects of psychiatric disorders and symptoms on quality of life in patients with Type I and Type II diabetes mellitus. *Quality of Life Research*, 6(1), 0.
- Johnson, K. L., Carroll, J. F., Fulda, K. G., Cardarelli, K., & Cardarelli, R. (2010). Acculturation and self-reported health among Hispanics using a socio-behavioral model: the North Texas Healthy Heart Study. *BMC Public Health*, 10(1), 53. doi:10.1186/1471-2458-10-53
- Juruena, M. F. (2012). Understanding subthreshold depression. *Shanghai Archives of Psychiatry*, 24(5), 292–3. doi:10.3969/j.issn.1002-0829.2012.05.009
- Jylhä, M. (2009). What is self-rated health and why does it predict mortality? Towards a unified conceptual model. *Social Science & Medicine (1982)*, 69(3), 307–16. doi:10.1016/j.socscimed.2009.05.013
- Kessler, R. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Archives of General Psychiatry*, 51(1), 8–9.
- Kroenke, K., & Spitzer, R. (2002). The PHQ-9: a new depression diagnostic and severity measure. *Psychiatric Annals*, 32(9), 1–7. Retrieved from <http://www.lphi.org/LPHIadmin/uploads/.PHQ-9-Review-Kroenke-63754.PDF>
- Kroenke, K., Spitzer, R. L., Williams, J. B. W., Linzer, M., Hahn, S. R., Iii, F. V., ... Einstein, A. (1994). Physical symptoms in primary care. *Archives of Family Medicine*, 3, 774–775.

- Kroenke, K., Strine, T., Spitzer, R., Williams, J. B., Berry, J. T., & Mokhad, A. H. (2009). The PHQ-8 as a measure of current depression in the general population. *Journal of Affective Disorders, 114*, 163–173.
- Kroenke, K., & Williams, J. B. W. (2014). Validation and Utility of a Self-report Version of PRIME-MD. *JAMA : The Journal of the American Medical Association, 282*(18), 1737–1744.
- Lee, I.-M., Shiroma, E. J., Lobelo, F., Puska, P., Blair, S. N., & Katzmarzyk, P. T. (2012). Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet, 380*(9838), 219–29. doi:10.1016/S0140-6736(12)61031-9
- Liang, J., Quiñones, A. R., Bennett, J. M., Ye, W., Xu, X., Shaw, B. A., & Ofstedal, M. B. (2010). Evolving self-rated health in middle and old age: how does it differ across Black, Hispanic, and White Americans? *Journal of Aging and Health, 22*(1), 3–26. doi:10.1177/0898264309348877
- Liu, Y., Maier, M., Hao, Y., Chen, Y., Qin, Y., & Huo, R. (2013). Factors related to quality of life for patients with type 2 diabetes with or without depressive symptoms—Results from a community-based study in china. *Journal of Clinical Nursing, 22*(1/2), 80–88. Retrieved from 10.1111/jocn.12010
- Lyness, J., Yu, Q., & Tang, W. (2009). Risks for depression onset in primary care elderly patients: potential targets for preventive interventions. *American Journal of Psychiatry, 166*(12), 1375–1383.

- Mancuso, C. A., Rincon, M., McCulloch, C. E., & Charlson, M. E. (2001). Self-efficacy, depressive symptoms, and patients' expectations predict outcomes in asthma. *Medical Care*, *39*(12), 1326–1338. Retrieved from 10.1097/00005650-200112000-00008
- Manea, L., Gilbody, S., & McMillan, D. (2012). Enhancing the clinical utility of depression screening. *CMAJ: Canadian Medical Association Journal = Journal de l'Association Medicale Canadienne*, *184*(3), 281–2. doi:10.1503/cmaj.112004
- Markowitz, S., Friedman, M. A., & Arent, S. M. (2008). Understanding the Relation Between Obesity and Depression: Causal Mechanisms and Implications for Treatment. *Clinical Psychology: Science & Practice*, *15*(1), 1–20. Retrieved from 10.1111/j.1468-2850.2008.00106.x
- Mazulla, S. L. (2011). Collectivist Cultures. In (S. Goldstein & J. A. Naglieri, Eds.) *Encyclopedia of Child Behavior and Development*. Boston, MA: Springer US. doi:10.1007/978-0-387-79061-9
- Meeks, T. W., Vahia, I. V., Lavretsky, H., Kulkarni, G., & Jeste, D. V. (2011). A tune in “a minor” can “b major”: a review of epidemiology, illness course, and public health implications of subthreshold depression in older adults. *Journal of Affective Disorders*, *129*(1-3), 126–42. doi:10.1016/j.jad.2010.09.015
- Moss-Morris, R., Weinman, J., Petrie, K., Horne, R., Cameron, L., & Buick, D. (2002). The revised illness perception questionnaire (IPQ-R). *Psychology and Health*, *17*(1), 1–16.

- Nandi, A., Beard, J. R., & Galea, S. (2009). Epidemiologic heterogeneity of common mood and anxiety disorders over the lifecourse in the general population: a systematic review. *BMC Psychiatry*, 9, 31. doi:10.1186/1471-244X-9-31
- Nerenz, D., & Leventhal, H. (1983). Self-regulation theory in chronic illness. *Coping with Chronic Disease: Research and Applications*, 13–37.
- Nicolaidis, C., Timmons, V., Thomas, M. J., Waters, S., Wahab, S., Mejia, A., & Mitchell, S. R. (2010). “You don’t go tell White people nothing”: African American women’s perspectives on the influence of violence and race on depression and depression care. *American Journal of Public Health*, 100(8), 1470–6. doi:10.2105/AJPH.2009.161950
- Paschalides, C., & Wearden, A. (2004). The associations of anxiety, depression and personal illness representations with glycaemic control and health-related quality of life in patients with type 2 diabetes. *Journal of ...* Retrieved from http://ac.els-cdn.com.ezproxy.uta.edu/S0022399904004507/1-s2.0-S0022399904004507-main.pdf?_tid=3bb52f5e-b145-11e3-8a89-00000aab0f6b&acdnat=1395439846_8873490012da0f8df238576eef00d2a1
- Penninx, B. W., Geerlings, S. W., Deeg, D. J., van Eijk, J. T., van Tilburg, W., & Beekman, A. T. (1999). Minor and major depression and the risk of death in older persons. *Archives of General Psychiatry*, 56(10), 889–895. Retrieved from <http://archpsyc.jamanetwork.com/article.aspx?articleid=205384>

- Petrie, K. J., Broadbent, E., & Kydd, R. (2008). Illness perceptions in mental health: Issues and potential applications. *Journal of Mental Health, 17*(6), 559–564.
doi:10.1080/09638230802523047
- Pincay, I., & Guarnaccia, P. (2007). “It’s like going through an earthquake”:
Anthropological perspectives on depression among Latino immigrants. *Journal of Immigrant and Minority Health, 9*(1), 17–28. Retrieved from
<http://link.springer.com/article/10.1007/s10903-006-9011-0>
- Rao, D., Feinglass, J., & Corrigan, P. (2007). Racial and ethnic disparities in mental illness stigma. *The Journal of Nervous and Mental Disease, 195*(12), 1020–1023.
Retrieved from
http://journals.lww.com/jonmd/Abstract/2007/12000/Racial_and_Ethnic_Disparities_in_Mental_Illness.9.aspx
- Renn, B. N., Feliciano, L., & Segal, D. L. (2011). The bidirectional relationship of depression and diabetes: A systematic review. *Clinical Psychology Review, 31*(8), 1239–1246. Retrieved from 10.1016/j.cpr.2011.08.001
- Rogler, L., Malgady, R., & Rodriguez, O. (1989). *Hispanics and mental health: A framework for research* (pp. 73–97). RE Krieger Publishing Company.
- Romero, D. H., Riggs, S. A., & Ruggero, C. (2015). Coping, Family Social Support, and Psychological Symptoms Among Student Veterans. *Journal of Counseling Psychology. doi:10.1037/cou0000061*

- Roncancio, A. M., Ward, K. K., & Berenson, A. B. (2011). Hispanic women's health care provider control expectations: the influence of fatalism and acculturation. *Journal of Health Care for the Poor and Underserved, 22*(2), 482–90.
doi:10.1353/hpu.2011.0038
- Ross, C., & Willigen, M. Van. (1997). Education and the subjective quality of life. *Journal of Health and Social Behavior*. Retrieved from <http://www.jstor.org/stable/2955371>
- Sadule-Rios, N., Tappen, R., Williams, C. L., & Rosselli, M. (2014). Archives of Psychiatric Nursing Older Hispanics ' Explanatory Model of Depression. *Archives of Psychiatric Nursing, 28*, 242–249. doi:10.1016/j.apnu.2014.03.006
- Scharloo, M., Jong, B. de, & Robert, J. (2005). Quality of life and illness perceptions in patients with recently diagnosed head and neck cancer. *Head & ...* Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/hed.20251/full>
- Sclar, D., & Robison, L. (1999). Ethnicity and the prescribing of antidepressant pharmacotherapy: 1992-1995. *Harvard Review of Psychiatry, 7*(1), 29–36.
- Simon, G. E., Katon, W. J., Lin, E. H. B., Ludman, E., VonKorff, M., Ciechanowski, P., & Young, B. A. (2005). Diabetes complications and depression as predictors of health service costs. *General Hospital Psychiatry, 27*(5), 344–351.
- Simon, G. E., von Korff, M., Piccinelli, M., Fullerton, C., & Ormel, J. (1999). An international study of the relation between somatic symptoms and depression. *The New England Journal of Medicine, 341*(18), 1329–1335.

- Smedley, B., Stith, A., & Nelson, A. (2009). *Unequal treatment: confronting racial and ethnic disparities in health care (with CD)* (Eds.). National Academies Press.
- Retrieved from
[http://books.google.com/books?hl=en&lr=&id=__uouFvf9z4C&oi=fnd&pg=PR1&dq=Unequal+treatment:+confronting+racial+and+ethnic+disparities+in+health+care+\(with+CD\).&ots=0_3CutqMuG&sig=kmhRf7dDEuBod8q9yAa_sjMa82M](http://books.google.com/books?hl=en&lr=&id=__uouFvf9z4C&oi=fnd&pg=PR1&dq=Unequal+treatment:+confronting+racial+and+ethnic+disparities+in+health+care+(with+CD).&ots=0_3CutqMuG&sig=kmhRf7dDEuBod8q9yAa_sjMa82M)
- Snap Surveys. (2011). Snap Surveys. Portsmouth.
- Solomon, A., Ruscio, J., Seeley, J. R., & Lewinsohn, P. M. (2006). A taxometric investigation of unipolar depression in a large community sample. *Psychological Medicine*, 36(7), 973–85. doi:10.1017/S0033291706007689
- Sorkin, D. H., Ngo-Metzger, Q., Billimek, J., Ausgust, K. J., Greenfield, S., & Kaplan, S. H. (2011). Underdiagnosed and Undertreated Depression Among Racially/Ethnically Diverse Patients With Type 2 Diabetes. *Diabetes Care*, 34(3), 598–600.
- Stenholm, S., Westerlund, H., Head, J., Hyde, M., Kawachi, I., Pentti, J., ... Vahtera, J. (2014). Comorbidity and Functional Trajectories From Midlife to Old Age: The Health and Retirement Study. *The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*. doi:10.1093/gerona/glu113
- Tang, T. (2007). Income and quality of life: Does the love of money make a difference? *Journal of Business Ethics*. Retrieved from
<http://link.springer.com/article/10.1007/s10551-006-9176-4>

- Tienda, A. M., & Mitchell, F. (2006). *Hispanics and the Future of America*. (M. Tienda & F. Mitchell, Eds.). Washington, DC: National Academies Press.
- Trief, P. M., Izquierdo, R., Eimicke, J. P., Teresi, J. A, Goland, R., Palmas, W., & Weinstock, R. S. (2013). Adherence to diabetes self care for white, African-American and Hispanic American telemedicine participants: 5 year results from the IDEATel project. *Ethnicity & Health, 18*(1), 83–96.
doi:10.1080/13557858.2012.700915
- U.S. Census Bureau. (2010a). *American FactFinder fact sheet*. Retrieved from <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
- U.S. Census Bureau. (2010b). *Selected population profile in the United States*. Retrieved from http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=A CS_13_1YR_S0201&prodType=table
- Van Hook, M. P. (1999). Women's help-seeking patterns for depression. *Social Work in Health Care, 29*(1), 15–34.
- Vogel, D. L., Wester, S. R., & Larson, L. M. (2007). Avoidance of Counseling: Psychological Factors That Inhibit Seeking Help. *Journal of Counseling & Development, 85*(4), 410–422. doi:10.1002/j.1556-6678.2007.tb00609.x
- Ward, E., & Heidrich, S. (2009). African American women's beliefs, coping behaviors, and barriers to seeking mental health services. *Qualitative Health Research, 19*(11), 1589–1601.

Williams, M. T., Chapman, L. K., Wong, J., & Turkheimer, E. (2013a). The role of ethnic identity in symptoms of anxiety and depression in African Americans. *Psychiatry Research*, 199(1), 31–36. doi:10.1016/j.psychres.2012.03.049.

Williams, M. T., Chapman, L. K., Wong, J., & Turkheimer, E. (2013b). The role of ethnic identity in symptoms of anxiety and depression in African Americans. *Psychiatry Research*, 199(1), 31–36. doi:10.1016/j.psychres.2012.03.049.

Wittkamp, K. a, Naeije, L., Schene, A. H., Huyser, J., & van Weert, H. C. (2007). Diagnostic accuracy of the mood module of the Patient Health Questionnaire: a systematic review. *General Hospital Psychiatry*, 29(5), 388–95. doi:10.1016/j.genhosppsy.2007.06.004

Wittkamp, K., van Ravesteijn, H., Baas, K., van de Hoogen, H., Schene, A., Bindels, P., ... van Weert, H. (2009). The accuracy of Patient Health Questionnaire-9 in detecting depression and measuring depression severity in high-risk groups in primary care. *General Hospital Psychiatry*, 31(5), 451–9. doi:10.1016/j.genhosppsy.2009.06.001

Young, S., Klap, R., Sherbourne, C. D., & Wells, K. B. (2001). The quality of care for depressive and anxiety disorders in the United States. *Archives of General Psychiatry*, 58(1), 55–61.

Biographical Information

Gabriela Orsak received her Bachelor of Arts in Psychology from West Virginia University in May 2010 and her Master of Science in Psychology from the University of Texas at Arlington in May 2013. She is currently seeking her Doctorate in Psychology at the University of Texas at Arlington. Her research interests include examining the psychological factors that affect non-adherence and quality of life in chronic disease populations.

Gabriela has previously worked on research examining older adult populations with a variety of chronic disease ailments such as diabetes, hypertension, and breast and prostate cancer. She has also worked on research examining the effects of depression and illness beliefs on adherence in congestive heart failure patients. Future plans include continuing her research in the field of Health Psychology.