HEALTH CARE UTILIZATION AMONG THOSE WITH DEPRESSIVE DISORDER

BY

KATHRYN D. MAZUREK

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Doctoral Committee:
Professor Reginald J. Alston, Chair
Professor James Ciesla, Northern Illinois University
Professor David Strauser
Lecturer Stephen Notaro
ABSTRACT

This is a secondary data analysis of the 2011 Behavior Risk Factor Surveillance Survey to examine predictors for health service utilization among those with depressive disorder using the Andersen Model of Health Care Utilization. The results provide some indication that predisposing, enabling, and need based factors as outlined by the Andersen model indicate that there are some groups of people who than others utilization health care services.
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CHAPTER 1
INTRODUCTION

Statement of the Problem

Throughout the United States, vulnerable populations such as low-income, the uninsured, and people in racial and ethnic minority groups, experience greater hardships accessing health care and receiving quality treatment (The Commonwealth Fund, 2011). Access to health care is important in improving the health of the nation and eliminating the disparities of those in vulnerable or disadvantaged groups. In fact, some of the most vulnerable people in the United States are those who experience mental illness. The disparities in health care utilization for this group can be compounded by socioeconomic status, age, race, ethnicity and geographic location. Given health policy changes and subsequent mental health funding cuts in many states across the country, there is concern that even the most common mental health disorders are not being diagnosed and treated adequately (National Alliance on Mental Illness, 2011). Therefore, the need for information regarding utilization of health services amongst those with mental illness is becoming a greater priority.

Depressive disorders (DD) are among the most common mental health disorders and can take many forms including unipolar depression or major depressive disorder (MDD), dysthymic disorder, and minor depression. Each of these disorders is characterized by different symptoms and is diagnosed by medical professionals using criteria set forth by the Diagnostic and Statistical Manual of Mental Disorders. Depressive disorders are seen extensively throughout the United States affecting both children and adults (World Health Organization, 2012). MDD is defined by “a
combination of symptoms that interfere with a person’s ability to work, sleep, study, eat, and enjoy once pleasurable activities” (National Institute of Mental Health, 2012). Dysthymic disorder is characterized by symptoms lasting two years or more, but these symptoms may not impair normal functioning and daily activities (National Institute of Mental Health, 2012). The symptoms of minor depression are not as severe as those of MDD and therefore do not meet the criteria for MDD even though the symptoms last two weeks or more (National Institute of Mental Health, 2012).

**Significance of the Study**

Although depression is common, it is a very serious disorder and is estimated to affect 350 million people worldwide (World Health Organization, 2012). The World Health Organization approximates that unipolar depression in 2004 was the third most important factor in disease burden throughout the world (World Health Organization, 2004). Additionally, unipolar depression is estimated to be the leading cause of disability in the world and is also the leading cause of disability in the United States (González et al, 2010). In fact, roughly 18.8 million American adults each year are affected by depression (Andrew et al, 2012). The economic burden of the disease is quite substantial and is estimated to be 30-44 billion dollars a year (Andrew et al, 2012). Additionally, less than 25 percent of those who are affected by depressive disorders have access to adequate and effective mental health treatment (World Health Organization, 2012). Although depressive disorders are seen in many children, adolescents, and adults, depressive disorders are often untreated or under-treated (National Alliance on Mental Illness, 2012). Of those people diagnosed with major depression, only 50 percent receive treatment and only 20 percent receive appropriate treatment according to the practice
guidelines set forth by American Psychiatric Association (APA) (Barlow, 2005).

Furthermore, depression is the leading cause of suicide in the United States and the world, claiming 850,000 lives per year (National Alliance on Mental Illness, 2012).

Throughout the United States many racial and ethnic disparities exist in access, quality, payment, and outcomes for those suffering from DD. Specifically, the differences between Whites, African Americans, and Latinos reporting DD and receiving care for DD are troubling. According to the Centers for Disease Control (CDC), non-Hispanic Blacks are more likely to report major depression than non-Hispanic Whites (CDC, 2012). Additionally, African Americans are “20% more likely to report having serious psychological distress than Non-Hispanic Whites” (CDC, 2012). Despite these numbers, racial and ethnic minorities have reduced rates of mental health treatment and accurate diagnoses than Whites (National Alliance on Mental Illness, 2012). For instance, Whites are “twice as likely to receive antidepressant prescription treatments than Non-Hispanic Blacks (Minority Health.gov, 2012) and minority Health reports that “Non-Hispanic Whites receive mental health treatment 2 times more often than” Latinos despite having similar rates of DD (Minority Health, 2012).

Despite the staggering numbers in disease burden, the prevalence of depression, and the consequences of inadequate treatment, research is needed regarding depressive disorders as it pertains to predictors of service use. This study will provide insight and groundwork to facilitate public health interventions in health care access for those with major depressive disorder.
**Purpose of the Study**

The purpose of this observational research is to advance the progress of the Healthy People (HP) 2020 by using the BRFSS and the appropriate statistical analysis of the differences in health care service utilization among those with depressive disorder (DD) living throughout the United States. The results will help explain health care utilization, extend the literature on service use in the U.S. and will advance the goals of Healthy People “to achieve health equity, eliminate disparities, and improve the health of all groups” (HP, 2020).

**Theoretical Framework**

Andersen’s Behavioral Model of Health Services Utilization will guide this research. The Behavior Model of Health Services Utilization has been widely used to study health care utilization since the 1960’s (Henton et al., 2002). Prior research using the Andersen Behavioral model includes research on services use for physical and mental health service utilization as well as research regarding vulnerable populations (Michael, 2008). According to the Andersen Model, behavior that influences health care services utilization is determined by demographics, economic factors, and perceived need for health care (Michael, 2008). Thus, in this study, the model focuses on three characteristics to determine utilization: predisposing, enabling, and need based characteristics.

Predisposing characteristics show that some individuals “have a great propensity to use services than do other individuals (Wolinsky, 1983). Predisposing characteristics precede illness and include demographics such as marital status, race and age. The predisposing factors that tends to be the strongest determinant of health service utilization
are age and gender (Michael, 2008; Rabiner, 1995; Solomon et al, 1983) and to a lesser degree marital status and education (Michael, 2008; Solomon et al, 1993).

Enabling characteristics tend to reflect economic resources (Michael, 2008). Enabling characteristics, as outlined by the model, include family resources like insurance status and income. Prior studies have indicated that enabling factors did explain a significant amount of the variance for health service utilization (Michael, 2008; Bass et al. 1992; Wolinksy et al 1991; Kempen & Suurmeijer, 1991).

Finally, need based factors are the reasons why a person may seek out health services (Michael, 2008). Need based characteristics include questions about global health perceptions (Wolinsky 1983) and are “measured by self-reports of symptoms, functional limitations, [and] perceived health levels” (Wolinsky, 1983). Examples of need based factors include self-reports on overall health status and perceived physical and mental health. Among all of the different groups of factors, need based factors are found to be the “strongest determinant health service utilization regardless of how service use was measured” (Michael, 2008).

**Research Question and Hypotheses**

The specific aim of this proposed research is to analyze cross-sectional data to examine correlates and predictors of health care utilization. The goal of this research is to improve the understanding of health care utilization for those diagnosed with depressive disorder. This research tests three central hypotheses that health care utilization varies based on predisposing, enabling, and need based factors for those with DD as defined by the following:

- Predisposing characteristics (age, gender, race/ethnicity, marital status, and educational attainment)
• Enabling characteristics (annual income, health insurance status)
• Need characteristics (perceived general health, mental health, and physical health)

The primary outcome measure is health care service use.

The research questions are as follows:

Research Question 1:

What is the relationship between predisposing characteristics (age, gender, race, marital status, and educational level) and health care utilization for persons with depressive disorders?

The null hypothesis is the following:

H₀: Predisposing characteristics do not influence health care utilization for persons with depressive disorders.

Research Question 2:

What is the relationship between predisposing characteristics (age, gender, race, marital status, and educational level) and enabling characteristics (annual income, health insurance status) and health care utilization for persons with depressive disorders?

The null hypothesis is the following:

H₀: Predisposing characteristics and enabling characteristics do not influence health care utilization for persons with depressive disorders.

Research Question 3:

What is the relationship between predisposing characteristics (age, gender, race, marital status, and educational level) and enabling characteristics (annual income, health insurance status) and need characteristics
(perceived general health, mental health, and physical health) health care utilization for persons with depressive disorders?

The null hypothesis is the following:

\[ H_0: \text{Predisposing characteristics, enabling, and need based characteristics do not influence health care utilization for persons with depressive disorders} \]

**Definition of Terms**

**Disparities**- Disparities defined by The World Health Organization as “differences in health which are not only unnecessary and avoidable but, in addition, are considered unfair and unjust” (WHO, 2012).

**Depressive Disorders**- “Depressed mood and/or loss of interest or pleasure in life activities for at least 2 weeks and at least five of the following symptoms that cause clinically significant impairment in social, work, or other important areas of functioning almost every day: 1) Depressed mood most of the day 2) Diminished interest or pleasure in all or most activities 3) Significant unintentional weight loss or gain 4) Insomnia or sleeping too much 5) Agitation or psychomotor retardation noticed by others 6) Fatigue or loss of energy 7) Feelings of worthlessness or excessive guilt 8) Diminished ability to think or concentrate, or indecisiveness 9) Recurrent thoughts of death” (NIH, 2012).

**Health Related Quality of Life**-- The concept of health-related quality of life (HRQOL) encompasses aspects of overall quality of life that affect mental or
physical health (CDC, 2012). On a personal level, this concept includes “health risks and conditions, functional status, social support, and socioeconomic status” (CDC, 2012). On the community level, the concept of HRQOL “includes resources, conditions, policies, and practices that influence a population’s health perceptions, and functional status” (CDC, 2012).

**Behavioral Risk Factor Surveillance System** - “The Behavioral Risk Factor Surveillance System (BRFSS) is the world’s largest, on-going telephone health survey system, tracking health conditions and risk behaviors in the United States” and data is collected monthly in all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam (CDC BRFSS, 2012).
CHAPTER 2
LITERATURE REVIEW

Introduction

Despite depression being a common disorder with 350 million people suffering worldwide, it is a serious condition that can have devastating effects on individuals (World Health Organization, 2012). In fact, depression is such a problem across the globe that the World Health Organization has called for a response to mental health illnesses that includes an action plan that recognizes the role that mental health plays in the overall health of an individual (World Health Organization, 2012). As mental health becomes an important part of health care discussion, and as steps are being taken to address the lack of resources and funding throughout the world, the United States experienced severe mental health budgets cuts in many states across the nation. Despite these cuts, it is estimated that depression will continue to be the leading cause of disability and suicide in the United States in the years and decades to come. Unfortunately, minority populations will continue to be more adversely affected by DD than their White counterparts (Centers for Disease Control, 2011).

Symptoms

Depressive disorders are illnesses that are identified by combination of symptoms that can interfere with the ability to function normally (National Institute of Health, 2013). DD have many adverse effects on people’s lives that include sleep disturbances, lack of pleasure when in engaging in once-pleasurable activities, problems and difficulties with family and friends (National Institute of Health, 2013), and the inability
to function properly at both work or at school (World Health Organization, 2012). In fact, DD are the leading cause of disability in the United States for those between the ages of 15-44 (National Institutes of Mental Health, 2013).

The disorders included in the classification for depressive disorders are major depressive disorder, dysthymia, and minor depressive disorder. In order to be diagnosed with DD, according to the Diagnostic and Statistical Manual for Mental Disorders-IV, at least five of the following symptoms have to be present during the same 2-week period and symptoms must continue for at least six months (NIMH, n.d). Minor depressive disorder is less than five (two to four symptoms) of the depression symptoms for 2 weeks or more (NIMH, n.d.).

- Depressed mood most of the day, nearly every day, as indicated either by subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful)
- Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated either by subjective account or observation made by others)
- Significant weight loss when not dieting or weight gain (e.g., a change of more than 5 percent of body weight in a month), or decrease or increase in appetite nearly every day
- Insomnia or hypersomnia nearly every day
- Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
- Fatigue or loss of energy nearly every day
- Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
- Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)
- Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or specific plan for committing suicide

(Center for Substance Abuse Treatment, 2008).
Dysthymia is considered a “milder form of depression” and is characterized by “a low, dark, or sad mood on most days for more days than not for at least 2 years (NIMH, n.d). Two or more of the following symptoms need to present according to the diagnostic criteria set forth by the DSM-IV.

- Feelings of hopelessness
- Too little or too much sleep
- Low energy or fatigue
- Low self-esteem
- Poor appetite or overeating
- Poor concentration

(NIMH, 2012).

While a small number of people may only have one episode of DD in their lifetime, DD is often a lifelong illness for the majority patients. In fact, most people will have multiple depressive episodes and will need treatment in order to recover from DD (National Institutes of Health, 2013). The average length of an episode of DD is six months with a high chance of continued depression that can last for several more years. In addition, the chance of reoccurrence for patients, even after recovery, is about thirty-six percent (Keller, 2013). Given the chronic nature of DD, professional recommendations include long-term treatment of medication and psychotherapy (Keller, 2013). Although many people that have DD never seek treatment, the majority of those with depression can benefit immensely from a combination of effective health services (National Institute of Health, 2013).
Social Determinants

Depression is caused by a complex interaction of a number of factors (National Institute of Health, 2013) and the literature is lacking in the depth and breadth needed to not only understand fully why some people have depressive disorders, but also the causes for the severity of those disorders. From what we do know, there are “many drivers of health inequities” (e.g. race/ethnicity) (World Health Organization, n.d.) in addition to many social determinants of health including the following: biology and genetics (e.g. sex), individual behavior (e.g. criminal behavior, drug use), social environment (e.g. discrimination, income), physical environment (e.g. urban vs. rural, residential segregation) and health services (e.g. access to quality health care, insurance status) (World Health Organization, n.d.).

Insurance Status

Insurance status is one of the main reasons why people do not have access to or receive quality care in the United States (National Alliance for Mental Illnesses, 2011a). Before the ACA, there were an estimated 46 million uninsured Americans and the result was that many patients did not have access to much needed care (National Alliance on Mental Illnesses, 2011a). The figure below gives a basic break down of health insurance coverage by race and ethnicity as 2008, the year the ACA was drafted.
Figure 1. Distribution of the Uninsured and Total U.S. Population by Race/Ethnicity in 2008

Source: ASPE tabulations of the 2005 Current Population Survey

Accurate statistics on health insurance status and coverage for people with mental health disorders are hard to source. Since private health insurance policies vary in their benefit composition, with some covering mental health services and others not, exact figures for private insurance coverage are not available. Similarly, public programs such as Medicaid cover mental health services at various levels and vary by state, a clear picture of mental health services coverage is not attainable. The following figure gives insurance coverage estimates made by SAMHSA, but the figures are not up to date. The
figure does, however, give an indication of the break-down of insurance coverage-by-coverage type

Many previous studies have found that having insurance increases health service utilization and may reduce the postponement of care seeking behavior in several populations (Babitsch et al, 2012). For example, in a paper published by Insaf et al, Latin American uninsured women were more likely to postpone seeing a physician than those who were insured. Other studies have found that the type of health insurance caused various levels of health service utilization among the insured. According to a study by Stockdale et al, vulnerable groups such as those with mental illness who had private insurance or managed care, were more likely to seek care compared to those with different types of insurance such as Medicare and Medicaid or no insurance at all. However, a different study by Broyles et al found that those who had Medicaid as well as a supplemental insurance were also more likely to seek health services than those who had Medicaid but did not have supplemental insurance.
Figure 2. 2005 Health Insurance Status for Individuals with a Serious Mental Health Condition


Not all mental health adults have any form of health insurance. In fact, a staggering number of adults with mental illness are uninsured. Approximately, “22 percent of adults with mental illness are uninsured” (National Council, 2010) and 30 percent of uninsured adults are below 100 percent of the federal poverty line (National Council, 2010). Research has shown that “individuals with mental illness die 25 years younger than the general population” (National Council, 2010). Patients who do not have insurance coverage and the financial resources to privately pay receive have very little
access or no access to care (National Alliance on Mental Illness, 2011a; Shi & Singh, 2012).

When a patient is able to receive care, they often turn to “state and county mental health hospitals and in community mental health clinics” (National Council, 2010). Community mental health clinics and organizations provide care to many patients who are uninsured and many of those patients are below the poverty level (National Council, 2010). Mental health services for those patients who are uninsured are provided in short-term, acute care hospitals and emergency departments. “Local governments are the providers of last resort” (Shi & Singh, 2012).

**State Funding Cuts**

Given the economic downturn and recession many states initially responded by reduction of state “office personnel [by] reducing staff hours and other administrative expenses” (National Alliance on Mental Health, 2011b). As the recession grew worse, states turned to deep spending cuts to mental health services (Shi & Singh, 2012). The budget cuts focused on the “elimination or downsizing of programs, services and professional workforce (such as psychiatrists, psychologists and social workers) as well as [focus] on reducing eligibility for services” (National Alliance on Mental Health, 2011b). These cuts, which included cuts to non-Medicaid state mental health spending have led to reduction in both inpatient and community based services for those with mental illness when the need for mental health services were in great demand. The economic crisis caused the need for mental health services to be greater than ever, however, the funding cuts throughout the United States totaled nearly 1.6 billion dollars.
Many individuals are going without the proper treatment including crisis services (U.S. Department of Health and Human Services, 2005). Additionally, many states have substantially cut non-Medicaid mental health funding and some of the services that have been eliminated or cut back include the following services:

- Acute (emergency) and long-term hospital treatment
- Crisis intervention teams and crisis stabilization programs
- Targeted, intensive case management services
- Assertive Community Treatment (ACT) programs
- Supportive housing
- Targeted case management and clinic services for children and adolescents
- Access to psychiatric medications

(National Alliance on Mental Health, 2011b).

These funding cuts are alarming because state general funding is the “safety net of last resort” for many individuals suffering from mental illness. By cutting services provided by the state general fund, the most vulnerable individuals in this population will not have any access to care. Although states have already cut essential services, deeper cuts are anticipated through the end of 2012 (National Alliance on Mental Health, 2011c).

**Spillover Effects from Funding Cuts across the Country**

There are many negative spillover effects from funding cuts. The cuts to services and medications shifted the caregiving and financial responsibility to “emergency rooms, community hospitals, law enforcement agencies, correctional facilities and homeless shelters” because individuals lack the needed mental health services and support (National Alliance on Mental Health, 2011b) and in fact, many experts suggest that the results are predictable. The risk of increased violence and the increased use of alcohol or
drugs is also a consideration. Less obvious tragedies from lack of mental health support are suicides, arrests, and school dropouts (National Alliance on Mental Health, 2011b).

Since the funding cuts, reports have shown an increase of individuals seeking mental health treatment in emergency departments and have taken a serious toll on both patient care and hospital resources (National Alliance on Mental Health, 2012a). Emergency rooms throughout the United States are overwhelmed (National Alliance on Mental Health, 2012a; Baker, J.O, Gutheil, T.G., 2011). “Six in ten emergency physicians surveyed report that the increase in psychiatric patients is routinely affecting access to emergency care for all patients, causing longer wait times, fueling patient frustration, limiting the availability of hospital staff and decreasing the number of available emergency department beds” (National Alliance on Mental Health, 2012a). Additionally, 67 percent of ER physicians believe that the recent increase in patients and decreasing funding for psychiatric beds has led to ER overcrowding and is a “severe problem in the U.S” (National Alliance on Mental Health, 2012a). The president of the American College of Emergency Physicians (ACEP) has warned that ER physicians and nurses have reached a breaking point where they fear they may not have the resources to respond effectively (National Alliance on Mental Health, 2012a). It is imperative that community mental health services treatment and support options need to be better financed and implemented to reduce the burden on other providers. In 2006, approximately “4.3 million people visited an emergency room due to a mental disorder” (National Council, 2012). Additionally, access to mental health treatment is important in reducing the high costs associated with emergency room visits (National Council, 2012). Psychiatric facilities are also seeing additional problems and adverse implications. The
number of available psychiatric beds and properly trained staff has caused the conditions to deteriorate in psychiatric facilities. The deteriorating conditions are causing stress not only for those patients in facilities that are severely understaffed, but for the workers who remain. Many of those providers feel as if they do not have the appropriate resources to provide care (Baker, J.O, Gutheil, T.G., 2011). Patients “become disengaged from community care because providers are not funded in a manner which permits them to provide the level and types of services needed to insure continuity of care” (University of Chicago, 2013).

Medical personnel are not the only workers who feel the spillover effects of mental health funding cuts. Increased burdens on law enforcement have created a situation where police officers as well as judges have “become front-line responders to people in crisis due to the lack of timely mental health services” (National Alliance on Mental Health, 2011c). Therefore, many police officers and law enforcement officials have become critics of mental health funding cuts (National Alliance on Mental Health, 2011c).

The demographic characteristics of those arrested and rearrested individuals with mental illness are “male (National Alliance on Mental Health, 2013d; Constantine et al, 2010) nonwhite (25), younger age, homeless (National Alliance on Mental Health, 2013d; Constantine et al, 2010; Veysey et al, (n.d.), and have a co-occurring substance use disorder diagnosis (National Alliance on Mental Health, 2013d). In addition, on any particular day, “between 2.3 and 3.9 percent of inmates in state prisons throughout the country are estimated to have schizophrenia or other psychotic disorder; between 13.1
percent and 18.6 percent have major depression, and between 2.1 percent and 4.3 percent have bipolar disorder (manic episode)” (Veysey et al, n.d.)

Unfortunately, few correctional facilities are able to provide comprehensive mental health services (Constantine et al, 2010) and the United States jails and prisons have become “de facto mental hospitals” (Constantine et al, 2010). Correctional facilities do not have the resources and were never intended to be appropriate care giving facilities. “Individuals with serious mental illnesses present significant financial and management problems for many local jurisdictions and tend to cost significantly more than inmates without these disorders” (Constantine et al, 2010).

Not to mention, those with mental illness often find the conditions of jails and prisons to be terrifying as these settings are not “conducive to effectively” treating individuals with mental illness. Staff are not appropriately trained to provide treatment for the mentally ill and they are not qualified to “recognize and respond” to inmates experiencing symptoms associated with their illness (Veysey et al., n.d.). Too often, correctional facilities respond to inmates that are having symptoms by physical restraining them or putting them in isolation-these measures tend to make symptoms worse (National Council, 2012).

In addition, correctional facilities often operate in crowded or overcrowded conditions without the availability, and resources, to provide comprehensive mental health services including appropriate medications (Justice Center, n.d.). Furthermore, individuals with mental illness tend to be incarcerated longer periods of time than inmates without “mental illness but who have committed the same offense” (National Alliance on Mental Health, 2013d).
Often mentally ill prisoners become “frequent flyers” because very few inmates receive the proper mental health treatment and then are released without adequate discharge plans and referrals (National Alliance on Mental Health, 2013d). Correctional facilities regularly do not have appropriate rehabilitative services for inmates with mental illness to help them transition back into the community (Justice Center, n.d.). Mentally ill individuals receive few, if any, mental health services and aftercare once they leave jails and prisons. Therefore, the recidivism rate is higher than it is for other released inmates (Veysey et al., n.d.). Often times inmates who leave correctional facilities are provided two week (in some instances less) supply of medication. In addition, many individuals leave custody having “limited access to subsidized housing, job prospects, educational opportunities, and health insurance” (Constantine et al., 2010). Moreover, many individuals with criminal records are unable to “access employer-based health insurance through work” and must turn to public provided services (National Council, 2012d). These individuals tend to have poor mental health outcomes once they are released from custody and it sets up a “revolving door phenomenon” of mentally ill individuals moving from homeless shelters and the criminal justice system (National Council, 2012d). The alarming trends of those with mental illness that have been incarceration can be “directly related to the inadequacies of community mental health systems and services” (Veysey et al., n.d.). The need for adoption of systems that address the needs of those individuals would decrease the numbers of the mentally ill that come through the criminal justice system (Veysey et al, n.d.).
Race and Ethnicity

The reported prevalence estimates for lifetime DD rates vary among those from different racial and ethnic backgrounds. The prevalence of DD is highest among African Americans (12.9 percent), followed by Latinos (11.7 percent), and Whites (8 percent) (CDC, 2010). In a study by Trivedi et al, the chronicity of MDD was higher for African Americans (27.7 percent) and Latinos (28.3 percent) than for Whites (19.6 percent) and African Americans and Latinos were more likely to rate their MDD as severe or very severe and disabling (Trivedi et al, 2005).

Given, that MDD is more chronic and more severe for African Americans as well as Latinos, the burden of depression is higher among African Americans and Latinos than Whites (National Institutes of Mental Health, 2007). Moreover, depression is a leading cause of disability among racial and ethnic groups (McKenna et al., 2005). Racial and ethnic minorities who have been born in the U.S. have a higher prevalence of depression as compared to those from foreign-born minority groups (González et. al, 2010). Additionally, researchers have found excessive recurrence and greater depression severity among those who are socioeconomically disadvantaged in the United States such as Mexican and African Americans (González et. al, 2010). Researchers have concluded that inequalities in depression “may relate to excesses in major depression disease burden (González et. al, 2010). There is some thought that the projected estimates for global disease burden may “undervalue the burden of major depression without considering inequalities in healthcare befalling ethnic minorities” (González et. al, 2010). It is important to examine, not only how inequalities in health care are affecting ethnic and racial minorities, but also how other social determinants interact with health service
utilization. The literature has shown that there are associations between race and ethnicity and health services utilization. This research is consistent with what has been found throughout the literature. Black non-Hispanic were less likely than their white counterparts to seek health care (Babitsch et al, 2012).

**Gender**

Biological differences, more specifically differences between men and women, and depressive disorder, have been well research and extensively documented in academic literature (Kessler, 2003). Depression is the leading cause of disease-related disability among women in the world today and there is “higher prevalence of depression among women than men” (Kessler, 2003). In fact, in an epidemiological paper that reviewed previous studies done on the topic, authors found that the prevalence of major depression for woman has “typically been between one and a half to three times that of men” and there is a large difference in reports of major depression for women with “lifetime prevalence estimates ranging between 6 percent and 17 percent” (Kessler, 2003). Other researchers have confirmed that depression is much more common among women than men, with female/male risk ratios at 2:1 and with women roughly 70 percent more likely than their male counterparts to experience depression during their lifetime (Klose & Jacobi, 2004).

The graph below shows “that the prevalence of depression for women is roughly twice that for men. The following chart shows year-over-year depression prevalence estimates for women and men between 2005 and 2008” (National Institute of Mental Health, 2013).
Even more alarming is the prevalence of depression that may be higher for those women from racial and ethnic minority groups (Friedman et al, 2003). In fact, African American women “have been characterized as experiencing double jeopardy, i.e., female in a society predicated on sexism and African American in a society predicated on racism” (King, 1988). African American women have been socialized to put their needs behind the needs of those around them. (King, 1988) and they often feel guilty when they
participate in activities that encourage personal development and enrichment (Lee, 2011). Feelings of guilt and conflicts between self-development and family needs often result in feelings of depression (Kessler, 2003). Research has suggested that depression rates among African American women have been two times that of depression rates of White women (Riolo et al, 2005). Furthermore, “discrimination, prejudices racism and a legacy of slavery continue to influence the social and economic standing of African American women, who are still, in the 21st century, at the bottom rung of the hierarchical ladder economically, socially, and politically” (Ohayon, 2007). African American women are not only at an increased risk for experiencing depression based on gender, but are at an increased risk due to racism as well as a host of other factors.

Latinas face many of the same risk factors as do African American women that put them at increased risk for experiencing depressive disorder. Research has shown that “racial/ethnic discrimination, low status, and high stress jobs, unemployment, poor health, larger family sizes, divorce or separation and single parenthood” increase the prevalence of depression among Latinas (NAMI, 2012). In a study by Alegria et al., the authors discuss that Hispanic women have a higher prevalence of depression (46 percent) than Hispanic men (19.6 percent) (Alegría, Mulvaney-Day, Torres, et al., 2007). In addition, Latinas are less “likely to receive mental health support than White women and African American women--17.3% of Latinas rarely receive mental health support, 11.7% of African American women rarely receive support, and 7.1% of White women rarely receive mental health support” (U.S. Department of Health and Human Services, 2007). Furthermore, women from different backgrounds report differences in poor mental health. For example, “13.8% of Latinas, 11.7% of African American women, and 7.1%
of White women report poor mental health” (U.S. Department of Health and Human Services, 2007). In a study by Mann and Garcia, the authors found that “Mexican women who put the needs of their children before their own” (Mann & Garcia, 2005) may have feelings of uselessness if they are not able to provide for the family (Heilemann et al., 2004). Researchers “found that family–culture conflict and marital discord were significant predictors of depression in low-income” Latinas and that family conflict was a risk factor for depression in Latinas (Aranda et al., 2001).

In terms of health service utilization, some women are more likely than men to postpone or not seek out health services due to cost (Babitsch et al, 2012). However, the literature also shows that women are more likely to see a physician than their male counterparts (Dhinga et al, 2010). Various previous studies have shown that marital status does have an association with health care utilization. In some reported research people who were divorced or never married were more likely to seek out services than those who are presently married whereas in other research, people who were more married were more likely to seek out routine care (Babitsch et al, 2012).

**Geographic Location**

**Urban**

An additional social determinant to consider is geographic location and its effects on mental health status. For many years, researchers have suggested that certain characteristics of the “urban environment may influence population mental health” (Galea et al., 2007). Galea et. al were interested in examining the relationship between mental health and living in an urban setting. The authors conducted a survey of urban New York City residents and determined that urban neighborhoods contributed to the
incidence of major depressive disorder (Galea et al., 2007). Furthermore, the authors found that “the odds of major depression were greater among persons living in poor neighborhoods, independent of individual characteristics” (Galea et al., 2007). Galea et al also found that among those people who had had depression that they were residents of poor urban neighborhoods and they “had more than two times the odds of incident depression during an 18-month period” as compared to those who lived in neighborhoods with higher socioeconomic status (Galea et al, 2007).

Many minorities living in urban areas may suffer from not only depression, but other serious health related ailments. Artinian et al, found that African-American women living in an urban setting are at higher risk for depression, hypertension and have more cardiovascular risk factors including greater stress. Women are not the only ones experiencing additional adverse health conditions, but men are experiencing them as well. Another group of researchers found that African American men living in an urban environment found many challenges in accessing health care and were often left without the ability to access health care (Kim et al, 2003). The researchers found that some of the men in their study may have turned to substance abuse as “a way of self-medicating for depression” (Kim et al, 2003).

**Rural**

Those who live in rural America “face persistent disparities in rates, severity, and outcomes of mental illness that have remained relatively unchanged over the past several decades” (Bryant et. al., 2012). The main issues for the disparate conditions are a three-pronged problem: accessibility, availability, and acceptability of mental health services (Bryant et al, 2012). In terms of accessibility, transportation to and from services has
been a challenge for many rural residents who do not have transportation to make it to appointments. “Transportation challenges are exacerbated by issues of poverty and geographic isolation, making it exceptionally challenging for many rural residents to participate in care (even if it is available)” (Bryant et al., 2012).

Availability is an additional reason that many mental health conditions are exacerbated by living in rural areas. Primary care providers in rural areas may not be the best to treat patients with mental health problems. Research has shown that “primary care providers who work in rural areas are [often] unprepared to diagnose or treat mental illnesses” (Smalley et al., 2012). The best care provided to those suffering from mental illness is by a mental health professional. Unfortunately, rural areas have a long history of a shortage of mental health professionals. “Virtually all of the rural counties in this country have a shortage of practicing psychiatrists, psychologists, and social workers” (NAMI, 2003). Furthermore, “of the 1,669 federally designated mental health professional shortage areas, more than 85% are rural” (NAMI, 2003). In addition, many rural communities lack the appropriate professionals to handle mental health problems and to further compound the problem, rural areas are limited by the “dearth of culturally competent or bilingual providers in these medically underserved areas” (NAMI, 2003).

Acceptability of receiving psychological services in rural areas is “negatively impacted by increased stigma and decreased anonymity in seeking psychological services” (Smalley et al., 2012). The impact of stigma in rural communities has been well documented and relates to cultural beliefs and a lack of is well recognized in rural areas, mainly related to traditional cultural beliefs and a lack of knowledge about mental health
illnesses (Smalley et al, 2012). Researchers have found that as the “level of stigma increases as the size of the community decreases” (Smalley et al, 2012). Because of the combination of these three factors, accessibility, availability, and acceptability, mental health patients often enter the health care system later, sicker with more serious symptoms and “as a result require more intensive treatment in an already access- and resource-restricted setting” (Smalley et. al, 2012).

**Socioeconomic Status**

Researchers have found that socioeconomic status (SES) is a contributing factor for DD. In a study on socioeconomic status and depression by race and ethnicity, Riolo et al analyzed a nationally representative sample from the National Health and Nutrition Examination Survey. The authors found that participants “living in poverty had nearly 1.5 times the prevalence of DD” (Riolo et al., 2005). In addition, lack of education was significantly associated with prevalence of DD (Riolo et al., 2005) and many mental health services are unaffordable for individuals with low socioeconomic status (Leong, 2011). Lack of health insurance directly affects the use of private providers for mental health. It is suspected that low SES patients may “not be able to spend time seeking or receiving services because they need to work one or multiple jobs and/or take care of family members” (Leong, 2011).

Gavin et al examined the social environment and socioeconomic status among those with DD among representative samples of Blacks, Latinos, Asians, and Whites in the United States (Gavin et al, 2010). The authors looked at several indicators of SES such as: “(1) annual household income (assessed in the year prior to the survey), (2) educational attainment, and, (3) employment status” (Gavin et al, 2010). Gavin et al
found that gender as well as racial and ethnic differences were related to DD. In fact, women, despite racial or ethnic category, reported a “higher prevalence of DD than men […] and the highest [prevalence] was among Whites (12.7 percent), followed by Latinas (9.9 percent), Blacks (7.6 percent), then Asians (5.0 percent)” (Gavin et al, 2010).

Measures of SES also revealed differences in race and gender. For example, “Black women and Latinas were equally likely to report household incomes < $17,000 (35.6 percent and 35.8 percent, respectively” (Gavin et al, 2010). Those reporting the highest levels of education (≥ 16 years) were Asian men. Latino men reported the highest rate of employment (74.5 percent), followed by Asian men (73.7 percent), White men (72.9 percent), and then Black men (70.9 percent)” (Gavin et al, 2010). Higher risk of DD was associated with either being unemployed or out of the labor force. The authors of this study found that those who reported unemployment across all racial, ethnical and gender groups had a higher odds for developing DD as compared to those who were employed (Gavin et al, 2010).

The National Institutes of Health statistics show that about 27.4 percent of African Americans and 26.6 percent of Hispanics are poor (National Poverty Center, 2012) and live below the poverty level, compared to 13 percent of the overall population and 10 percent of White Americans (National Institute of Health, 2001). Additionally, African Americans and Latinos are obviously at a socioeconomic disadvantage in terms of accessing both medical and mental health care. In 2006, one-third of working adult African Americans were uninsured in the preceding year” (National Alliance on Mental Illness, 2013b). Therefore, mental health service utilization occurs at much lower rates for African Americans than other racial and ethnic groups, (Angold et al. 2002).
Research has shown that “for persons with past-year depressive disorder 58.8 percent of African Americans, compared with 40.2 percent of non-Latino Whites, did not access any past-year mental health treatment (World Health Organization, 2013; Alegría, 2008).

The literature also shows that health service utilization is greatly influenced by income (Babitsch et al, 2012). Those individuals with less income tend to have fewer contacts with physicians (Blackwell et al, 2009). However, one study found that those with an income less than $50,000 were more likely to receive mental health care than those with higher incomes (Dhingra et al, 2010).

Latinos often face financial hardship and financially stressors. Harris et al. found that Mexicans are the “least likely to have a college education and census data reveal that Mexicans have lower proportions of high school diplomas, bachelor’s degrees, or graduate education than other Latinos” (Pew Hispanic Center, 2006). In addition, for those people who have less education, they also tend to receive fewer medical care services than their more educated counterparts (Adams, Dey, & Vickerie, 2007). In many of the studies, the lowest education groups did not seek out care (Babitsch et al, 2012). However, in other studies those in the lowest education group were more likely to seek treatment for mental health issues (Babitsch et al, 2012).

**Treatment/Service Use and Quality of Care**

Obviously, many racial and ethnic disparities exist between those who have access to and receive effective mental health care with minorities more greatly affected by high costs and fragmented services (National Alliance on Mental Illness 2013a). Throughout the United States both racial and ethnic minority are underserved in terms of their mental health care (Fongwa, 2008). In fact, research has shown that disparities in
treatment for mental health have increased since the 1990s. Many minorities have been left adversely “affected by limited English proficiency, remote geographic settings, stigma, fragmented services, cost, comorbidity of mental illness and chronic diseases, cultural understanding of health care services, and incarceration” (Fongwa, 2008). Furthermore, racial and ethnic minorities have lower rates of accurate and timely diagnosis (National Alliance on Mental Illness, 2013a).

Given the recent health policy changes and subsequent mental health funding cuts in many states across the country, there is concern that even the most common mental health disorders are not being diagnosed and treated adequately (National Alliance on Mental Health, 2011a). Between 2009-2011, many of the funding cuts have resulted in a significant decline in services provided that has adversely affected access for those in minority populations (National Alliance on Mental Health, 2003). The figure below gives treatment use over the past 12 months for those with MDD receiving both health care services and minimally adequate treatment for those with depression (National Institute on Mental Health, 2013).
In a study of the quality of care for depression, researchers found that African American men deal more often with difficult life situations (i.e. high rates of unemployment, underemployment, racial discrimination, poverty, and encounters with the criminal justice system) and that, in turn, may increase the risk of developing mental health problems (Herrman, 2005). Despite the increased risk, African Americans are not
as likely to be diagnosed accurately with mental health problems as compared to their White counterparts (National Alliance on Mental Health, 2012a).

In a study about the quality of care for Latinos with depression, it was found that only 24 percent of Latinos received appropriate mental health care compared to 34 percent of Whites (Young et al., 2001). Further differentiation can be made—“Mexicans in the United States are less likely than Cubans, Puerto Ricans, and other U.S. Latino populations to receive mental health services (from either general medical or psychiatric providers), to experience satisfaction with mental health services, and to perceive mental health services to be helpful” (Alegría, Mulvaney-Day, Woo, et al., 2007). Moreover, a large number of Mexican women with symptoms of depression do not seek treatment at all (Alegría, Mulvaney-Day, Woo, et al., 2007) Many times cost of care or lack of insurance is cited as a barrier to care and can in turn contribute to depressive symptoms (Heilemann et al., 2004; Mann & Garcia, 2005; Mendelson, 2002). Latinas tend to underutilize mental health clinics for their emotional problems because few mental health services provide accessible culturally appropriate and affordable services. Therefore, instead of using the appropriate mental health services, many use general medical clinics for mental health issues.

Additionally, researchers have found that African Americans are less likely to be satisfied “with the services they receive from mental health providers than their White counterparts (Armstrong, 2007). African American patients report poorer patient-physician communication than do White patients (Armstrong, 2007). Communication difficulties may contribute to lower rates of clinical detection of depression among African Americans because the diagnosis of depression heavily depends on subjective
communication between patient and mental health professional (Armstrong, 2007). Furthermore, research has shown that African Americans experience a number of negative encounters with mental health professionals including “inappropriately prescribed psychotropic medications and side effects, lack of respect or attentiveness on the part of providers and breaches in confidentiality” (Thompson, 2013). More alarming, is researchers have also found that many African Americans and Latinos have experienced racism and maltreatment when they come in contact health care system (National Alliance on Mental Health, n.d.). In fact, in a national study, “35 percent of African Americans stated that racism was a major problem in health care, compared with only 16 percent of Whites” (Blanton, n.d.).

These negative experiences have, in turn, resulted in negative patient expectations about mental health services such as expecting racism, ineffective care, harmful medication prescriptions, and untrustworthy providers (Thompson et al, 2013). Consequently, African Americans and Hispanics reported higher levels of physician distrust than did Whites (Thompson et al, 2013). In general, lower socioeconomic status (defined as lower income, lower education, and no health insurance) was associated with higher levels of distrust, with men generally reporting more distrust than women (Akincigil et al, 2011). Additionally, in a study of pregnant African America women, researchers found that negative expectations stemmed from unpleasant interactions with providers, especially with those providers who were rushed and did not take the time to get to know their patients (Thompson, 2013; Leis et al 2011). The negative expectations have been linked to no longer seeking mental health services or no longer continuing mental health services (Thompson, 2013). Moreover, because African Americans are
more likely than other racial and ethnic groups to have negative experiences with mental health services, it is not surprising that African Americans also are more distrustful of mental health services than other racial or ethnic group (Thompson, 2013).

Contributing to the problem, physician behaviors can lead to lower quality care for minority patients (National Alliance on Mental Health, n.d.). For example, “physicians are less likely to prescribe newer generation antidepressant or antipsychotic medications to African American consumers who need them” (National Alliance on Mental Health, n.d.). In fact, the race of the doctor or treatment provider may play a significant role in diagnosis and treatment of mental health issues. Physicians and other health care providers can pose a challenge to patients because many “African Americans do not access care due to prior experiences with “misdiagnoses, inadequate treatment, and provider lack of cultural understanding” (National Alliance on Mental Health, 2013a).

Research has shown that this may not be true when an African American is a patient of a doctor with the same race or a Latino is a patient of a Latino doctor (Ashton et al, 2003). However, only 3.8 percent primary care physicians are African American. (Boukus, 2009) and less than 3 percent are Latino (Surgeon General Report, 2001). Two percent of psychiatrists and 2 percent of psychologists in the United States are African American (National Alliance on Mental Health, 2013a). Therefore, it is not always possible for an African American or Latino patient to see a provider of the same race.
Finally in Model 3, all self-rated general health categories saw an increase in likelihood of not seeking care from a physician due to cost starting with very good and increased as the participants rated their health worse. For poor physical health days, respondents were more likely to no seek care due to cost if they had 1-14 poor physical health days as opposed to 15 or more poor physical health days. For those participants who had poor mental health days, they were more likely to not receive care at 15 or more poor mental health days. In previously published research authors found that those who rated their health as less than with less than excellent were more likely to seek health care than those with excellent health (Babitsch et al, 2012).

**Culture**

Cultural influences vary greatly for different racial and ethnic groups. Cultural beliefs stem from “emotional expressions and communication styles” as well as the customs and social interactions of a particular group of individuals (Leong & Kalibatseva, 2011). Both men and women differ in “perceptions of mental health illness” (American Sociological Association, 2007) and differences in “cultures may explain why people from different backgrounds seek services from different providers” (American Sociological Association, 2007). For example, many individuals seek mental health care only from their primary care physicians (American Sociological Association, 2007). Latinos with mental illness are less than 1 in 11 to “contact mental health care specialists, while fewer than 1 in 5 contact general health care providers” Leong & Kalibatseva, 2012). In fact, “racial and ethnic groups that tend to be oriented more toward collectivistic values” (Leong & Kalibatseva, 2011) have different approaches and thoughts about traditional treatment options for mental health illness. Mental health
issues that bring cultural differences to the forefront include approaches to psychotherapy. “In collectivistic cultures, group members are usually encouraged to prioritize collectivistic goals over self-directed aspirations, and bringing attention to individual needs is often construed as being selfish” (Leong & Kalibatseva, 2011).

Moreover, in collectivistic cultures disclosing personal problems or family dysfunctions to strangers (like psychotherapists) is highly discouraged. Psychotherapy often “requires open verbal communication about intimate issues with a person who is not a family member or part of a trusted in-group” and therefore, this is not appealing or conducive to individuals from a collectivist culture” (Leong & Kalibatseva, 2011).

Cultural differences also exist in treatment seeking and reporting distress for individuals with mental illness. Barriers such as “peoples’ ideas about the origin, attributes, and alleviation of mental illness are heavily based in culture” (Austin, 2006). Therefore, those individuals seeking treatment for mental illness may avail themselves to “clergy, religious community members, or primary care providers” (Austin, 2006).

African Americans often turn to those in their religious circles and social communities as well as family members for help with mental health issues instead of seeking treatment from health care professionals (National Alliance on Mental Health, 2013a). Many Latinos seek treatment from spiritual providers when they have problems associated with nonphysical ailments. Research has shown that Latinos underutilize mental health professionals for mental health symptoms because services are not culturally appropriate and because of language barriers (APA, n.d.). The lack of translators and bilingual professionals can interfere with appropriate evaluation, treatment, and emergency response” (APA, n.d.).
Stigma

In the United States, many people have been stigmatized because of their “race, culture, religion, physical and mental disabilities” (Brown, 2010). Being stigmatized refers “to a process of social rejection, devaluation, and discrimination” (Brown, 2010). The public is inundated with “negative depictions of those with mental illness that are found in advertising, films, and everyday conversation” (Brown, 2010). Additionally, mental health is stigmatized in different racial and ethnic groups. In many of these groups, mental illness is thought to be “overcome through willpower, heroic stoicism, and avoidance of morbid thoughts rather than by seeking external, professional psychological help” (NCDHHS, 2012). In fact, African Americans often depend on social communities such as family and religious organizations for mental health support instead of visiting health care professions (National Alliance on Mental Health, 2012a).

In a study on the relationship between seeking treatment, stigma, and treatment acceptability, the authors found that “that stigma could play a determinative role in whether this treatment will be accepted” (Givens et al, 2007). Many patients have difficulty discussing the topic of stigma and many providers think it is important to discuss stigma and discrimination as part of mental health treatment (Givens et al, 2007). However, African Americans in the study “reported lower acceptability of prescription medication, and this lower acceptability could not be explained by concerns about stigma” (Givens et al, 2007). The variations in ethnic differences in stigma call for further research into the particular aspects of stigma that may be salient to particular populations, as well as larger studies examining stigma across ethnic groups (Givens et al, 2007).
Latinas place a very large priority on the privacy that may contribute to treatment barriers (APA, n.d.). Latinos are often concerned about the stigma that comes with having mental health issues. Stigma is attached to being “viewed as ‘loca’, stigma is also attached to taking psychotropic medications (APA, n.d.), thus leading, in part, to not seek out the appropriate treatment for their depressive disorders.

**Andersen’s Model of Health Services Utilization**

In the United States, access to care and health care utilization are important considerations when addressing unmet need. One of the most used “health care utilization and access frameworks is the behavior model of health services use developed by medical sociologist Ronald Andersen later modified by Andersen and Newman” (Stewart, 2012). For many years, The Andersen Behavior Model of Health Care Utilization has provided a framework to address access and utilization of health services. The model was developed in the 1960s and suggests that an individual’s tendency to use health care services depends on predisposing, enabling, and need based factors (Andersen, 1995). These factors are used in order to understand differences in utilization rates as well as consumption of health care resources. The Andersen model has been adapted and is used as a framework for analysis in this study of specific factors affecting those with depressive disorders.

*Figure 5.*

Andersen’s Model of Health Services Utilization

**Predisposing Factors** ➔ **Enabling Factors** ➔ **Need Based**  ➔

Predisposing factors are based on how “some individuals have a propensity to use services more than other individuals, where propensity towards use can be predicted by
individual characteristics” (Andersen, 2010). Predisposing factors can include
demographic characteristics such as age and sex as well as social factors such as
education, occupation, ethnicity, and social relationships (Babitsch et al, 2012).
Therefore, individuals with certain factors are more likely or less likely to utilize health
services and these factors include age, race, ethnicity, gender, marital status, and
education (Andersen, 1995).

Enabling factors are conditions that allow an individual to use health services
based on individual resources such as “income, level of health insurance coverage, or
other source of third-party payment” (Andersen, 1995). Factors that deal with financing
serve as conditions that enable health services utilization. Individual enabling factors are
considered factors that involve income and wealth and other factors such as individual
health insurance status. (Babitsch et al, 2012).

Finally, need based characteristics include questions about perceived health such
as physical health, mental health, and overall functioning. These types of self-reported
questions about perceived health status have become an important component of health
surveillance and are generally considered valid indicators of health service utilization,
service needs and intervention outcomes (Centers for Disease Control and Prevention,
2000). Self-assessed health status is known to be a more powerful predictor of both
mortality and morbidity “than many objective measures of health” (Organista & Muñoz,
1996). The Andersen model allows individuals to differentiate perceived need for health
services (i.e. how people view and experience their own general health, functional state
and illness symptoms) (Babitsch et al, 2012).
In one study, Dhingra et al, 2010 examined mental health service utilization using the Andersen Behavioral Model. Dhingra et al used the Behavioral Risk Factor Surveillance System with data from 2007 to examine the predisposing, enabling and need based factors and the effect on mental health service utilization. The researchers found that need was significantly associated with mental health service utilization as were predisposing and need based characteristics. The authors suggest that mental health systems should consider that health service utilization is “socially patterned and not just an individual behavior” (Dhingra et al, 2010)

Ani et al examined the correlates of chronic and mental health in under-served minority population. The researchers conducted a series of interviews that were semi-structured and cross sectional of 287 African American and Latino residing in California. Authors found that predisposing, enabling, and need based factors explain the gap between self-diagnosis and a physician diagnosis. The authors suggest further examination of these factors and their effect on treatment seeking for those with chronic conditions.

In another study done by Broyles et al., researchers used the Andersen model to compare the medically vulnerable to their counterparts. Researchers used the Oklahoma Behavior Risk Factor Surveillance Survey. Their findings indicate that the medically vulnerable are less likely to have seen a physician in the past year. Even among those in vulnerable populations, those individuals without insurance had less doctor’s visits. Overall, the results show that inequalities exist in the distribution of care.

Furthermore, Andersen et al, examined the impact of “community-level variables over and above the effects of individual characteristics on healthcare access of low-
income [individuals] residing in large metropolitan statistical areas (MSAs)” (Andersen et al, 1997). The authors used the national Health Interview Survey from 1995-1996 and they found that access to health care services was better for those with health insurance as opposed to those individuals living in a community with federally funded health centers.
CHAPTER 3

METHODS

Introduction

A secondary data analysis was used to examine predictors for health service utilization among those with depressive disorder. Those individuals who participated in the 2011 BRFSS and reported that they had major depressive disorder were included in the analysis. The specific aim of this research is to analyze a cross-sectional data to examine correlates and predictors of health care utilization. The goal of this research is to improve the understanding of health care utilization for those diagnosed with depressive disorder.

Research Question and Hypotheses

This research tests three central hypotheses regarding health care utilization which vary based on predisposing, enabling, and need based factors for those with DD as defined by the following:

- Predisposing characteristics (age, gender, race/ethnicity, marital status, and educational attainment)
- Enabling characteristics (annual income, health insurance status)
- Need characteristics (perceived general health, mental health, and physical health)

The main hypotheses tested is that health service utilization varies as a function of predisposing, enabling, and need based factors. The primary outcome measure is health care service use.
The research questions are as follows:

Research Question 1:
What is the relationship between predisposing characteristics (age, gender, race, marital status, and educational level) and health care utilization for persons with depressive disorders?

The null hypothesis is the following:
H₀: Predisposing characteristics do not influence health care utilization for persons with depressive disorders.

Research Question 2:
What is the relationship between predisposing characteristics (age, gender, race, marital status, and educational level) and enabling characteristics (annual income, health insurance status) and health care utilization for persons with depressive disorders?

The null hypothesis is the following:
H₀: Predisposing characteristics and enabling characteristics do not influence health care utilization for persons with depressive disorders.

Research Question 3:
What is the relationship between predisposing characteristics (age, gender, race, marital status, and educational level) and enabling characteristics (annual income, health insurance status) and need characteristics (perceived general health, mental health, and physical health) health care utilization for persons with depressive disorders?
The null hypothesis is the following:

\[ H_0: \text{Predisposing characteristics, enabling, and need based characteristics do not influence health care utilization for persons with depressive disorders} \]

**Procedures**

To meet the above stated objectives and to test the above stated hypotheses, an observational secondary data analysis was used. The quantitative data from the 2011 National BRFSS was used to examine health care service use for those with self-reported major depressive disorder. The quantitative analysis will show if a statistical relationship exists between measured variables.

**Instrumentation**

The Behavior Risk Factor Surveillance System (BRFSS) is “a state-based system of health surveys that collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury” (CDC, 2011a). Population measures such as the BRFSS are essential in providing “accurate data on health-related behaviors” for many states (CDC, 2011a). The BRFSS interviews 350,000 adults every year from all 50 states including the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam and has been doing so since 1984 (CDC, 2011a). The Centers for Disease Control and Prevention (CDC) is responsible for monitoring and compiling data from the cross-sectional telephone survey that is a nationally-representative sample of non-institutionalized individuals (CDC, 2011b). States use BRFSS data to identify “emerging health problems, establish and track health objectives,
and develop and evaluate public health policies and programs” (CDC, 2011c). In addition, states may use the data to support legislative initiatives (CDC, 2011c). The BRFSS is a CDC sponsored health survey that asks participants about their health behaviors, health practices, and their access to care.

The BRFSS has been used in a wide variety of research by many different organizations that addresses the issues of health care access, health service utilization, and disease surveillance. In fact, the “questions are designed to measure broad influences on life, including more distal social and environmental factors such as housing, income, social support, and access to care” (CDC, 2011d). The BRFSS has been used for decades to examine emerging health problems (CDC, 2012). During the flu season of 2004-2005, the BRFSS was used to ascertain the flu vaccine shortage (CDC, 2012). Other researchers have used the BRFSS to examine differences in service utilization. For example, Kerker et al 2006, “[examined] the use of Pap tests and mammograms, as well as health care coverage and the use of primary care providers, among women who have sex with women” (Kerker et al, 2006). Additionally, The National Bureau for Economic Research used the BRFSS to look at the differences between doctor’s visits within the last year for those 65 and older and their research “suggests that insurance coverage does affect health care utilization” (NBER, 2008).

Sample

The sample for this study is from the BRFSS which is secured through a random digit dialing system known as The CATI system (CDC, 2013f). The sampling design for the BRFSS is a disproportionate stratified sample (DSS) design for the landline sample and the numbers are based on geographic regions (CDC, 2012). “Regional sampling is
used to target data collection to geographic subpopulations” (CDC, 2012). The telephone numbers are drawn from two strata that are based on telephone number density and they are included in a strata based on either high density or medium density. “Telephone numbers in the high density stratum are sampled at the highest rate and the rate at which each stratum is sampled is the sampling rate. The ratio for the sampling for landlines of high to medium density is 1:1” (CDC, 2012). Thus making sampling more “efficient than simple random sampling” (CDC, 2012). In 2011, cellular phones samples “were not stratified by substate geographies (CDC, 2012).

The cellular telephone sample contains cell numbers that are randomly generated from a sampling frame of confirmed cellular area code and prefix combinations” (CDC, 2012). Participants from cellular telephones are randomly selected. States typically conduct about 20 percent of interviews with cellular phones (CDC, 2012) and each state conducts the interviews with the core interview questions (CDC, 2012). Although, the numbers are randomly computer generated, the interviewers conducting the BRFSS survey must determine household and participant eligibility based on the following criteria: if “a housing unit that has a separate entrance, where occupants eat separately from other persons on the property, and is occupied by its members as their principal or secondary place of residence,” (CDC, 2013f). Additionally, “participants include all related adults, unrelated adults, roomers, and domestic workers who consider the household their home, even though they may not be home at the time of the call” (CDC, 2013f). It is in the BRFSS protocol not to include any family members that are currently not living at the residence (e.g. college student, military personnel) (CDC, 2013f). The BRFSS surveys are only given to adults 18 years and older. It is a goal of the BRFSS to
attain 4000 interviews each year in each state (CDC, 2012). In 2006, the CDC began testing a new weighting methodology---iterative proportional fitting or raking (CDC, 2012). Since the 1980s, CDC has used a statistical method called post stratification to weight. The following are the reasons why the CDC used the raking methodology:

• Computer capacity has increased.
• Cell phones are becoming a larger percentage of the total number of calls.
• Declining survey response rates makes weighting more important than ever.

CDC, 2012

There are several advantages to using raking which include a greater number of demographic variables than what could have been used with post stratification thus reducing potential bias while increasing the representativeness (CDC, 2012). Additionally, the new addition of telephone source (cellular telephones) could be included. The first year that raking was used was 2011.

Data Analysis

To account for the complex survey and sampling design used in the BRFF, the analysis was performed using SPSS version 22.0 with the Complex Samples add-on module. This research used hierarchical regression analysis to identify the extent to which factors contribute to the use of health care utilization. The method of analysis is hierarchical multiple regression in order to handle correlated data (Hosmer, Lemeshow, & Sturdivant, 2013). “Hierarchical regression is an appropriate tool for analysis when variance on a criterion variable is being explained by predictor variables that are correlated with each other” (Lewis, 2007). Furthermore, hierarchical regression analysis is a “sequential process involving the entry of predictor variables into the analysis in
steps” (Lewis, 2007). As with hierarchical regression, it is at the discretion of the researcher to choose the order of how the variables are entered into the model (Lewis, 2007). The choice of variables and the way the variables are entered into this study is based on the Andersen model.

As an initial step, descriptive statistics were generated for all variables. Consistent with the Andersen Behavioral model, the data analysis is hierarchical logistic regression models to test the hypothesis that predisposing, enabling, and need based factors for health service utilization vary based on cost. The models are used to estimate odds ratios for using health services for those with Depressive Disorder. The models progressively change to include predisposing, enabling, and need based factors. Model 1 includes only the predisposing variables (age, gender, race/ethnicity, marital status and education). Model 2 adds enabling factors (annual income and health insurance status) to factors included in Model 1. Finally, Model 3 adds perceived need based factors (general health, mental health, and physical health) to factors included in Model 1 and 2.

Figure 6.
Conceptual model of health care utilization (adapted from Andersen), with variables used to operationalize the model.

<table>
<thead>
<tr>
<th>Predisposing Factors</th>
<th>Enabling Factor</th>
<th>Need Based</th>
<th>Utilization</th>
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<tbody>
<tr>
<td>-Age</td>
<td>-Annual Income</td>
<td>-General Health</td>
<td>Cost</td>
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<tr>
<td>-Gender</td>
<td>-Health Insurance</td>
<td>-Mental Health</td>
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<td>-Race/Ethnicity</td>
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</table>
Measurement

All participants were asked for the BRFSS if they have ever been told that they have a depressive disorder (including depression, major depression, dysthymia, or minor depression). All participants were asked to respond with yes, no, don’t know/not sure or refused. Only participants who indicated that they have been told that they have depressive disorder were included in the analysis. The weighted N is 900,397. Five measures of the predisposing characteristics were used in the analysis as indicated by the Andersen model and they are age, gender, race/ethnicity, marital status, and education. Age was broken down into the following categories: 18-24, 25-34, 35-44, 45-54, 55-64, 65 and older. Sixty-five and older was the reference group given that these participants were most likely to have Medicare as health insurance. Participants were asked to identify which of the above category their age falls. Participants were also asked to indicate their gender. Gender was dichotomously coded with male being the reference category.

The BRFSS asks participants if they are White, Black or African American and Asian (among other races which were not included in the analysis) as well as if they are Hispanic or Latino. White non-Hispanic/Latino is the reference group. The BRFSS asks participants if they are married, divorced, widowed, separated, or never married. Married is the reference group. In terms of education, participants were asked what is the highest grade or year of school they completed and grades were broken down as the following: grades 1-8, grades 9-11, grade 12 or GED (high school graduate), some college or technical school, or college 4 years or more (college graduate). College graduate was reference group.
Enabling factors included annual income as well as health insurance status as indicated by the Andersen model. Annual income is considered annual household income from all sources. Respondents were asked into which of the following categories their income fell: less than $10,000; $10,000 to $14,999; $15,000 to less than $19,999; $20,000 to less than $24,999; $25,000 to less than $34,999; $35,000 to less than $49,999; $50,000 to less than $74,999; $75,000 or more. The reference group are those participants with household incomes over $75,000. In addition, participants were asked if they had any health insurance or health care coverage including prepaid plans, HMOS, and government plans such as Medicare or not. The reference group is those participants that indicated yes that they have health insurance coverage.

Need based factors include asking respondents about their perceived health including general, physical, and mental health as indicated by the Andersen Model. The first of the three questions about perceived health asked participants how they would rate their general health with the following choices: excellent, very good, good, fair, poor. Those who answered their general health was excellent were the reference group. The second question regarding perceived health asked participants to think about their physical health, which includes physical illness and injury, and they were asked to identify for how many days during the past 30 days their physical health was not good? The respondent’s answers were given in number of days from 1-30 or none. The reference group was none and the number of days were broken down in the analysis to between 1-14 and 15 or more. The final need based question asked participants to think about their mental health, which includes stress, depression, and problems with emotions and for how many days during the past 30 days was their mental health not good. Again,
the respondents answers were given in number of days from 1-30 or none. The reference
group was none and the number of days were broken down in the model from between 1-
14 and 15 or more.

One item was used to measure health services utilization. The item asked
participants if in the past 12 months if they needed to see a doctor but were unable to do
so due to cost. This was dichotomously coded into yes or no.

The following table shows all of the predisposing, enabling, and need based
c characteristics along with the questions from the BRFSS.
<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Type</th>
<th>BRFSS Variable Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td>Predisposing</td>
<td>AGE</td>
</tr>
<tr>
<td>BRFSS Question: What is your age?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Predisposing</td>
<td>SEX</td>
</tr>
<tr>
<td>BRFSS Question: Sex of respondent?</td>
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<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>Predisposing</td>
<td>HISPANC2 ORACE2</td>
</tr>
<tr>
<td>BRFSS Question: Which one of these groups would say best represents your race? Are you Hispanic or Latino?</td>
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<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td>Predisposing</td>
<td>MARITAL</td>
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<tr>
<td>BRFSS Question: Are you: married, divorced, widowed, etc....?</td>
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</tr>
<tr>
<td>Education Level</td>
<td>Predisposing</td>
<td>EDUCA</td>
</tr>
<tr>
<td>BRFSS Question: What is the highest grade or year of school you completed?</td>
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<td></td>
</tr>
<tr>
<td>Annual Income</td>
<td>Enabling</td>
<td>INCOME2</td>
</tr>
<tr>
<td>BRFSS Question: Is your annual household income from all sources: less than $10k, etc.?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Insurance</td>
<td>Enabling</td>
<td>HLTHPLN1</td>
</tr>
<tr>
<td>BRFSS Question: Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable Name</td>
<td>Type</td>
<td>BRFSS Variable Name</td>
</tr>
<tr>
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<td>-----------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>General Health</td>
<td>Perceived Need</td>
<td>GENHLTH</td>
</tr>
<tr>
<td>BRFSS Question: Would you say that in general your health is…?</td>
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<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td>Perceived Need</td>
<td>MENTHLTH</td>
</tr>
<tr>
<td>BRFSS Question: Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Health</td>
<td>Perceived Need</td>
<td>PHYSHLTH</td>
</tr>
<tr>
<td>BRFSS Question: Now thinking about your physical health, which include physical illness and injury, for how many days during the past 30 days was your physical health not good?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor/Cost</td>
<td>Dependent Utilization</td>
<td>MEDCOST</td>
</tr>
<tr>
<td>BRFSS Question: Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 4
RESULTS

Introduction

The purpose of this research was to advance the progress of the Healthy People (HP) 2020 by using the BRFSS and hierarchical regression analysis to examine the differences in utilization among those with depressive disorder (DD) living throughout the United States.

As outlined by the Andersen model, the predisposing characteristics are entered on the first step in the hierarchical regression model, enabling characteristics are entered on the second step of the model (in addition to the predisposing characteristics), and need based characteristics on the third step of the model (in addition to both predisposing and enabling characteristics). The aforementioned characteristics are used to examine causes and behaviors as they relate to health care utilization. The dependent variable used in this study is if patients do not seek health care from a physician in the preceding 12 months due to cost. The results of the hierarchical regression analysis provide odd ratios as well as confidences intervals for the determinants of health care utilization. Confidence intervals have become increasingly popular to include in research results given that the measure gives a better understanding of results than a yes/no significance test. “In essence, the confidence intervals serve as the significance test” (Howell, 2010). Thus, the results of this study will use confidence intervals.

Demographics

As shown in Table 2, 36% of the weighted study population (weighted N=900,397) were younger than 35 years old, 54.3% of the population were between the
ages of 35 and 64, and 19% were older than 65 years old. Over half (57%) were female, 60% were White non-Hispanic, 15% were Black non-Hispanic and 15% were Hispanic. About 34% of the participants were married at the time of the survey, while 15.7%, 6.2%, 7.1% and 31.8% were either divorced, separated, widowed, or never married, respectively. Approximately 19% of participants did not graduate from high school or receive a GED, 31% graduated high school or completed a GED, and 51% had attended college or technical school or were college graduates. Annual income reported by participants were approximately 52% made $25,000 a year or less, approximately 24% of participants made between $25,000 and $50,000, and 25% of participants made over $50,000 a year. Over 75% of respondents had some form of health insurance. Roughly 9.2% of the respondents reported that their self-rated general health was excellent, 20.3% reported that their general health was very good, 34.3% as good, and 22.6% of the participants rated their general health as fair and 13.6% rated their general health as poor. Approximately, 32.4% of the respondents reported no days of poor physical health and 24.6% reported no days of poor mental health days. About 39% of participants reported 1-14 days of poor physical health and 36% reported poor mental health days. Approximately 14% of respondents reported 15 or more poor physical health days in a month and 40% reported 15 or more poor mental health days in a month.
Table 2

Demographics

<table>
<thead>
<tr>
<th>Predisposing Factors</th>
<th>Percent</th>
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<td><strong>Age Group</strong></td>
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<td>18-24</td>
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<tr>
<td>25-34</td>
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<tr>
<td>35-44</td>
<td>19.7</td>
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<tr>
<td>45-54</td>
<td>17.3</td>
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<tr>
<td>55-64</td>
<td>17.6</td>
</tr>
<tr>
<td>65+</td>
<td>19.1</td>
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<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>42.7</td>
</tr>
<tr>
<td>Female</td>
<td>57.3</td>
</tr>
<tr>
<td><strong>Race</strong></td>
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</tr>
<tr>
<td>White Non-Hispanic</td>
<td>60.1</td>
</tr>
<tr>
<td>Black Non-Hispanic</td>
<td>15.0</td>
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<tr>
<td>Hispanic</td>
<td>14.9</td>
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<td><strong>Marital Status</strong></td>
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<td>Married</td>
<td>34.3</td>
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<tr>
<td>Divorced</td>
<td>15.7</td>
</tr>
<tr>
<td>Separated</td>
<td>6.2</td>
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<td>Widowed</td>
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<tr>
<td>Never Married</td>
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<td><strong>Education Level</strong></td>
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<tr>
<td>Grades 1-8</td>
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<td>Grades 9-11</td>
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<td>Grade 12 or GED</td>
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<tr>
<td>Some College or Technical School</td>
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<td>College 4 years or more</td>
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<td><strong>Enabling Factors</strong></td>
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<td>18.4</td>
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<td>$10,000-14,999</td>
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<td>$15,000-19,999</td>
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<td>$20,000-24,999</td>
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Table 2 (cont.)

<table>
<thead>
<tr>
<th>Need Based Factors</th>
<th>Percent</th>
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<td>Self-Rated General Health</td>
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<tr>
<td>Excellent</td>
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<tr>
<td>Very Good</td>
<td>20.3</td>
</tr>
<tr>
<td>Good</td>
<td>34.3</td>
</tr>
<tr>
<td>Fair</td>
<td>22.6</td>
</tr>
<tr>
<td>Poor</td>
<td>13.6</td>
</tr>
<tr>
<td>Poor Physical Health</td>
<td></td>
</tr>
<tr>
<td>No Days</td>
<td>32.4</td>
</tr>
<tr>
<td>1-14 Days</td>
<td>38.9</td>
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<tr>
<td>15 or More Days</td>
<td>28.7</td>
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<tr>
<td>Poor Mental Health Days</td>
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<td>No Days</td>
<td>24.6</td>
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<tr>
<td>1-14 Days</td>
<td>35.7</td>
</tr>
<tr>
<td>15 or More Days</td>
<td>39.7</td>
</tr>
</tbody>
</table>

Model 1

Results

All participants were asked in the BRFSS if they have ever been told that they have a depressive disorder (including depression, major depression, dysthymia, or minor depression). Only participants who indicated that they have been told that they have depressive disorder were included in the analysis. Five measures of the predisposing characteristics as indicated by the Andersen model were included in Model 1 and they are age, gender, race/ethnicity, marital status, and education. Age was broken down into the following categories: 18-24, 25-34, 35-44, 45-54, 55-64, 65 and older. The reference group is 65 and older. Participants were asked to identity into which category their age falls. Participants were asked to indicate their gender male or female. The BRFSS asks participants if they are White, Black or African American and Asian as well as if they are Hispanic or Latino. The reference group is White non-Hispanic. Participants were asked
if they are married, divorced, widowed, separated, or never married. Married participants are the reference group. In terms of education, participants were asked what is the highest grade or year of school you completed: Grades 1-8, grades 9-11, grade 12 or GED (high school graduate), some college or technical school, or college 4 years or more (college graduate). College educated is the reference group.

**Model 1 Age**

When only predisposing factors were included (model 1), people aged 35-44 were eight times (OR = 8.066, 95% CI: 3.288, 19.788) more likely to not see a doctor in the preceding 12 months because of cost. Those ages 45-54 were over four times more likely to not see a doctor because of cost (OR = 4.290, 95% CI: 1.763, 10.438). Those between the ages 55-64 were over three and a half more likely to not be able to see the doctor (OR = 3.405, 95% CI: 1.399-8.291) because of cost. Individuals between the ages of 25-34 were almost two and a half more likely to not be able to see the doctor (OR = 2.406, 95% CI: .937, 6.182) and 18-24 years were also more likely to not be able to see the doctor because of cost (OR = 1.894, 95% CI: .685, 5.239).

**Model 1 Gender**

Women were approximately one and a third times more likely to be unable to see the doctor (OR = 1.276, 95% CI: .864, 1.884) over the past year due to costs.

**Model 1 Race and Ethnicity**

Non-Hispanic Black individuals (OR = 1.514, 95% CI: .899, 2.551) as well as Hispanic individuals with major depressive disorder are one and a half times more likely to not see the doctor because of cost (OR = 1.561, 95% CI: .886, 2.750) in the past year. White non-Hispanic individuals are the reference group.
Model 1 Marital Status

Those who have never married, as well as those who are divorced, are two times as likely as those who are married to not seek care because of cost (OR = 2.008, 95% CI: 1.236, 3.260) (OR = 1.902, 95% CI: 1.163, 3.109). Individuals who are separated are one and three quarters as likely as those who are married not to see a doctor due to cost (OR = 1.847, 95% CI: .648, 5.269) and those who are widowed are roughly one and a half times as likely not to seek care because of cost (OR = 1.461, 95% CI: .622, 3.432) during the past 12 months.

Model 1 Educational Attainment

Participants with an educational attainment between the 9-11 grades were two and three quarters more likely to not see the doctor because of cost (OR = 2.855, 95% CI: 1.485, 5.487). Those who graduated from high school or have a GED were one and a half times more likely to not be able to see the doctor due to cost (OR = 1.583, 95% CI: .899, 2.788).

Summary of Model 1

When predisposing variables were entered into the model (model 1) persons aged 35-44 years, women, persons previously divorced or never married, Hispanic and Black non-Hispanic, and those with a high school education were more likely to not seek out health services with a physician due to cost as opposed to those who are 65 and older, male, currently married, White non-Hispanic, and college educated.
Table 3

Model 1 Predisposing Factors

<table>
<thead>
<tr>
<th>Predisposing Factors</th>
<th>%</th>
<th>Model 1 OR</th>
<th>Model 1 95% CI</th>
</tr>
</thead>
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<tr>
<td><strong>Age Group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>16.2</td>
<td>1.894*</td>
<td>.685 - 5.239</td>
</tr>
<tr>
<td>25-34</td>
<td>20.1</td>
<td>2.406*</td>
<td>.937 - 6.182</td>
</tr>
<tr>
<td>35-44</td>
<td>19.7</td>
<td>8.066*</td>
<td>3.288 - 19.788</td>
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<tr>
<td>45-54</td>
<td>17.3</td>
<td>4.290*</td>
<td>1.763 - 10.438</td>
</tr>
<tr>
<td>55-64</td>
<td>17.6</td>
<td>3.405*</td>
<td>1.399 - 8.291</td>
</tr>
<tr>
<td>65+</td>
<td>19.1</td>
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<td>Female</td>
<td>57.3</td>
<td>1.276*</td>
<td>.864 - 1.884</td>
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<td>White Non-Hispanic</td>
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<td>1.00</td>
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</tr>
<tr>
<td>Black Non-Hispanic</td>
<td>15.0</td>
<td>1.514*</td>
<td>.899 - 2.551</td>
</tr>
<tr>
<td>Hispanic</td>
<td>14.9</td>
<td>1.561*</td>
<td>.886 - 2.750</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Married</td>
<td>34.3</td>
<td>1.00</td>
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</tr>
<tr>
<td>Divorced</td>
<td>15.7</td>
<td>1.902*</td>
<td>1.163 - 3.109</td>
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<tr>
<td>Separated</td>
<td>6.2</td>
<td>1.847*</td>
<td>.648 - 5.269</td>
</tr>
<tr>
<td>Widowed</td>
<td>7.1</td>
<td>1.461*</td>
<td>.622 - 3.432</td>
</tr>
<tr>
<td>Never Married</td>
<td>31.8</td>
<td>2.008*</td>
<td>1.236 - 3.260</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Grades 1-8</td>
<td>3.7</td>
<td>.905</td>
<td>.205 - 3.282</td>
</tr>
<tr>
<td>Grades 9-11</td>
<td>15.2</td>
<td>2.855*</td>
<td>1.485 - 5.487</td>
</tr>
<tr>
<td>Grade 12 or GED</td>
<td>30.5</td>
<td>1.583*</td>
<td>.899 - 2.788</td>
</tr>
<tr>
<td>Some College or</td>
<td>36.2</td>
<td>1.171*</td>
<td>.700 - 1.957</td>
</tr>
<tr>
<td>Technical School</td>
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</tr>
<tr>
<td>College 4 years or more</td>
<td>14.5</td>
<td>1.00</td>
<td>----</td>
</tr>
</tbody>
</table>

*Weighted percentages. Model 1 included only the predisposing variables

* Significant
Model 2

Results

As outlined by the Andersen model, the predisposing characteristics are entered on the first step in the hierarchical regression model and enabling characteristics are entered in addition to the predisposing characteristics on the second step of the model. Enabling factors include annual income as well as health insurance status. Annual income is considered annual household income from all sources. Respondents were asked which of the following categories in which their income fell: less than $10,000; $10,000 to $14,999; $15,000 to less than $19,999; $20,000 to less than $24,999; $25,000 to less than $34,999; $35,000 to less than $49,999; $50,000 to less than $74,999; $75,000 or more. The reference group was those participants with household incomes over $75,000. In addition, participants were asked if they had any health insurance or health care coverage including prepaid plans, HMOS, and government plans such as Medicare or not. The reference group is those participants that indicated yes that they have health insurance coverage.

Model 2 Age

Both enabling factors are entered into the model at the same time as a bundle, therefore, both income and insurance coverage produced the findings. After enabling factors were added (model 2), people aged 35-44 were over ten times more likely to not see a doctor in the preceding 12 months because of cost (OR = 3.505, 95% CI: 3.505, 28.738). Those ages 55-64 were over four times more likely to not see a doctor because of cost (OR = 4.192, 95% CI: 1.562, 11.250) and those between the ages 45-54 were over three and a half times more likely to not be able to see the doctor (OR = 3.617 , 95% CI:
1.301, 10.057) followed by ages 18-24 and they were three times more likely to not be able to see the doctor (OR = 3.121, 95% CI: .958, 10.169) and 25-34 years were approximately one and a half times more likely to not be able to see the doctor because of cost (OR = 1.636, 95% CI: .563, 4.756).

**Model 2 Gender**

Women were approximately one and three quarters more likely to not see the doctor due to cost (OR = 1.764, 95% CI: 1.162, 2.676).

**Model 2 Race and Ethnicity**

Non-Hispanic Black individuals with major depressive disorder were roughly one and a half times more likely to not see the doctor because of cost (OR = 1.660, 95% CI: .949, 2.901). Hispanic individuals were about one and one third times more likely to not be able to see the doctor because of cost (OR = 1.312, 95% CI: .618, 2.787).

**Model 2 Marital Status**

Those who separated were one and one third times as likely as those who are married (OR = 1.293, 95% CI: .526, 3.183). All other effects from model 1 disappeared, therefore, those who were never married, not married or widowed were not more likely than the reference group to not see a physician because of cost.

**Model 2 Educational Attainment**

Those with an educational attainment between 9-11 grades were one and three quarters times more likely to not see the doctor because of cost (OR = 1.709, 95% CI: .831, 3.514). All other effects from model 1 disappeared; therefore, participants who graduated from high school or have a GED were not more likely than the reference group of those who obtained a 4 year college degree to not see a physician due to cost.
Model 2 Income

The reference group was a household income of $75,000 or more a year. Those with a household income of $15,000 to $19,000 were eight times more likely to not see a doctor because of cost (OR = 8.059, 95% CI: 3.394). Those individuals between $25,000 and $34,900 were six and three quarters more likely not to see a doctor due to cost (OR = 6.853, 95% CI: 2.624, 17.898). Furthermore, those with a household income of less than $10,000 were six and a half times more likely not to see a doctor due to cost (OR = 6.568, 95% CI: 2.833, 15.225) while those between $10,000-$14,900 were five and three quarters more likely not to see a doctor due to cost (OR = 5.686, 95% CI: 2.326, 13.901). Individuals who make 20,000 to 24,900 were four and three quarters more likely not to see a doctor due to cost (OR = 4.768, 95% CI: 1.966, 11.563) and those who make between $35,000-$49,900 were two and three quarters more likely not to see a doctor due to cost (OR = 2.816, 95% CI: 1.074, 7.383). People who had an income of $50,000-$74,900 were one and three quarters more likely not to see a doctor due to cost (OR = 1.802, 95% CI: .705, 4.607).

Model 2 Health Insurance

Those respondents without health insurance were approximately nine and a half times more likely not to see a doctor due to cost (OR = 9.473, 95% CI: 5.626, 15.951). The BRFSS does not delineate between public and private insurance. The reference group was those individuals with health insurance.
Summary of Model 2

Although it is important to examine interaction effects and comparisons between races, the Andersen model does not allow for this type of analysis. It is unclear how race intersects with marital status or how race intersect with insurance coverage. The variables are entered into the models as bundles; therefore, after enabling factors were added (model 2), persons with annual household incomes of between 15,000 and 19,999 as well as those individuals without health insurance, were not able to receive treatment due to cost as opposed to those who make more than $75,000 a year and those individuals who have health insurance.

Table 4

Model 2 Predisposing Factors and Enabling Factors

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<thead>
<tr>
<th>Predisposing Factors</th>
<th>Percentage</th>
<th>Model 2 OR</th>
<th>Model 2 95% CI</th>
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Table 4 (cont.)

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<th>Percentage</th>
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<th>Model 2 95% CI</th>
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<td>.831 – 3.514</td>
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<td>.514 – 1.884</td>
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<td>College 4 years or more</td>
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<td>Income</td>
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<td>Less than $10,000</td>
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<td>6.568*</td>
<td>2.833 – 15.225</td>
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<td>11.0</td>
<td>5.686*</td>
<td>2.326 – 13.901</td>
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<td>$15,000-19,999</td>
<td>11.6</td>
<td>8.059*</td>
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<td>6.853*</td>
<td>2.624 – 17.898</td>
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<td>1.074 – 7.383</td>
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<td>$50,000-74,999</td>
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<td>1.802*</td>
<td>.705 – 4.607</td>
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<td>$75,000 +</td>
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<tr>
<td>No</td>
<td>24.3</td>
<td>9.473*</td>
<td>5.626 – 15.951</td>
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</table>

*a Weighted percentages. Model 2 included the predisposing variables and enabling variables

* Significant

Model 3

As outlined by the Andersen model, all of the characteristics are entered into the model as bundles. In Model 3, the predisposing characteristics, enabling characteristics, and need based characteristics are added in together.

Need based factors include asking respondents about their perceived health including general, physical, and mental health? The first of the three questions about perceived asked participants how they would rate their general health with the following choices: excellent, very good, good, fair, poor. Those who answered their general health was excellent were the reference group. The second question asked participants to think
about their physical health, which includes physical illness and injury, for how many days during the past 30 days was their physical health not good? The respondents answers were given in number of days from 1-30 or none. The reference group was none and the number of days were broken down between 1-14 and 15 or more. The final need based question asked participants to think about their mental health, which includes stress, depression, and problems with emotions and for how many days during the past 30 days was their mental health not good. Again, the respondents’ answers were given in number of days from 1-30 or none. The reference group was none and the number of days were broken down in the model from between 1-14 and 15 or more.

Model 3 Age

When all variables were entered into the model, people aged 35-44 who rated their general health as poor (model 3) were approximately ten and a half times more likely to not see a doctor in the preceding 12 months because of cost (OR = 10.400, 95% CI: 3.515, 35.772). Those ages 55-64 were over three and a half times more likely to not see a doctor because of cost (OR = 3.683, 95% CI: 1.341, 10.118) and those between the ages 18-24 were approximately three and three quarters more likely to not see the doctor (OR = 3.639, 95% CI: 1.111, 11.919) and those 45-54 were over three and a half times more likely to not be able to see the doctor (OR = 3.267, 95% CI: 1.188, 8.985) followed by and 25-34 years were roughly two times more likely to not be able to see the doctor because of cost (OR = 2.068, 95% CI: .701, 6.097). Although differences in age across gender and race are important and necessary questions to answer, the Andersen model does not allow for these types of comparisons.
Model 3 Gender

Women were approximately one and a three quarters more likely to be unable to see the doctor (OR = 1.675, 95% CI: 1.110, 2.526)

Model 3 Race and Ethnicity

In comparison to Whites, Non-Hispanic Black individuals with major depressive disorder were roughly one and a three quarter times more likely to not see the doctor because of cost (OR = 1.748, 95% CI: .978, 3.122). Hispanic individuals were about one and one tenth times more likely to not be able to see the doctor because of cost (OR = 1.121, 95% CI: .514, 2.447).

Model 3 Marital Status

Those who separated were approximately one and a half times as likely as those who are married (OR = 1.403, 95% CI: .584, 3.370). Those who are divorced are one and one tenth more likely not to see the doctor because of cost (OR = 1.164, 95% CI: .619, 2.189).

Model 3 Educational Attainment

Those with an educational attainment between 9-11 grades were one and a half times more likely to not see the doctor because of cost (OR = 1.563, 95% CI: .740, 3.302).

Model 3 Income

Those with an income of $15,000 to $19,000 were six times more likely to not see a doctor because of cost (OR = 5.961, 95% CI: 2.381, 14.926). Those who make between $25,000 and $34,900 were approximately five and a half times more likely not see a
doctor due to cost (OR = 5.430, 95% CI: 2.084, 14.144) and those who made $10,000-$14,900 were four and a half times more likely not to see a doctor due to cost (OR = 4.509, 95% CI: 1.746, 11.646). Those who made $20,000-$24,900 were approximately four times more likely not to see a doctor due to cost (OR = 3.903, 95% CI: 1.492, 10.209). Those that made less than $10,000 were three and a half times more likely not to see a doctor due to cost (OR = 3.537, 95% CI: 1.430, 8.748) and $35,000-$49,900 were two times more likely not to see a doctor due to cost (OR = 2.043, 95% CI: .727, 5.742) and $50,000-$74,900 were roughly one and three quarters more likely not to see a doctor due to cost (OR = 1.890, 95% CI: .670, 5.336).

**Model 3 Health Insurance Status**

Those without health insurance were approximately thirteen and three quarters more likely not to see a doctor due to cost (OR = 13.253 , 95% CI: 7.772, 22.599).

**Model 3 Self-Rated Health**

Those with poor self-rated general health were three and a half times more likely to not see the doctor because of cost (OR = 3.588, 95% CI: 1.100, 11.696). Those with fair self-rated general health were roughly three times more likely not to see a doctor due to cost (OR = 2.974, 95% CI: .981, 9.013). The individuals with good self-rated general health approximately two and three quarters more likely to forgo seeing the doctor (OR = 2.885, 95% CI: .977, 8.513) while those who rated their health very good were one and one tenth more likely (OR = 1.111, 95% CI: .51, 3.519). Those with 1-14 days of poor physical health were two and a third times more likely to forgo seeing the doctor (OR = 2.345, 95% CI: 1.315, 4.182) while those with 15 or more days were one and three quarters more likely to go without seeing the doctor because of cost (OR = 1.709, 95%
Those with 15 or more poor mental health days were two and one tenth more likely to not see the doctor because of cost (OR = 2.140, 95% CI: 1.107, 4.137) while those with 1-14 days of poor mental health days were one and one third more likely to not see the doctor because of cost (OR = 1.310, 95% CI: .654, 2.624).

**Summary of Model 3**

When all variables were entered into the model, those who rated their general health as poor (model 3) as well as those who had 1-14 poor physical health days as well as those who had 15 or more poor mental health days in a month did not seek medical treatment due to medical cost as opposed to those who rated their health excellent, no poor physical health days, and no poor mental health days.

Table 5

**Model 3 Predisposing Factors, Enabling Factors, and Need Based Factors**

<table>
<thead>
<tr>
<th>Predisposing Factors</th>
<th>Percentage</th>
<th>Model 3 OR</th>
<th>Model 3 95% CI</th>
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<td>25-34</td>
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<td>.701 – 6.097</td>
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<td>35-44</td>
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<td>1.188 – 8.985</td>
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<td>1.675*</td>
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* Weighted percentages. Model 2 included the predisposing variables, enabling variables and need variables
* Significant
Summary

In all three of the models, the age group that appears to be most deterred by cost is 35-44 year olds. In addition, in all three models women are more likely than men to not seek out health services due to cost. The same is true in all three models for both Blacks and Latinos as they were less likely to see out treatment due to cost.

Marital status also appeared in all three models to have an effect on health services utilization. However, different types of marital status had different effects on health service utilization depending on the model. For example, in model 1, never being married more likely leads to not seek health services whereas in model 2 being separated was the only marital status that had an effect on health service utilization. Finally, in model 3 being separated and being divorced were more likely associated to not seek services due to cost.

Education level was similar to marital status. Although in all three models the effect of education did have an impact on utilization there was some variation in what level of education deterred those seeking health doctor services due to cost. In model 1, grades 9-11 and grade 12 and GED were more likely to not seek doctor’s services due to cost whereas in model 2 and 3 only grade 9-11 showed up as deterring those to seek care.

All levels of income had an effect on seeking doctor’s services in both models 2 and 3. In model 2, those with a household income of $15,000 to $19,000 were more likely than any other income level to be deterred by cost and the same was true of model
3. The participants without any type of health insurance were more likely not to seek a doctor’s care because of cost in both Model 2 and 3.

Finally in Model 3, all self-rated general health categories saw an increase in likelihood of not seeking care from a physician due to cost. For poor physical health days, respondents were more likely not to seek care due to cost if they had 1-14 poor physical health days as opposed to 15 or more poor physical health days. For those participants who had poor mental health days, they were more likely to not receive care at 15 or more poor mental health days.

**Conclusion**

The findings presented here give some information about health service utilization for those with depressive disorder. The results provide some indication that predisposing, enabling, and need based factors as outlined by the Andersen model agree with what has been previously reported in the literature. According to the literature, the predisposing factors that tend to be the strongest determinant of health service utilization are age and gender (Michael, 2008; Rabiner, 1995; Solomon et al, 1983) and to a lesser amount marital status and education (Michael, 2008; Solomon et al, 1993). Additionally, studies have shown that enabling factors do contribute to health service utilization. Much like other studies, our results have found that need based characteristics are the strongest determinant of health care utilization (Michael, 2008). Overall, all characteristics appear to play some role in the utilization of health services for those with depressive disorder.
CHAPTER 5
DISCUSSION

Introduction

Those with vulnerable populations tend to be disproportionately affected by lack of access to the health care system in the US. Access to health care is important in improving the health of the nation and eliminating the disparities of those in vulnerable or disadvantaged groups. For those with mental illness such as depressive disorder, access and quality care are important factors for their wellbeing. Although, many studies have used the Andersen model to examine health service utilizations, only a handful have used the BRFSS to determine health service utilization for those with depressive disorder. The primary purpose of this study is to advance the progress of the Healthy People (HP) 2020 and in doing so further extend the literature on service use in the United States. This study used a secondary data analysis of the 2011 BRFSS to identify if predisposing, enabling, and need based factors played a role in health service utilization for those individuals with major depressive disorders.

Age

As discussed earlier in the literature review, many studies have identified that predisposing factors have an impact on health service utilization; furthermore, the literature has shown that there is a relationship between age and utilization of health services, but reports vary as to if cost is, or is not, a deterrent to seeking health services (Babitsch et al, 2012). In all of the regression models in this study, we see that cost
typically does deter people from utilizing health services with a physician despite age.
The regression models show the age group that appears to be most deterred by cost is 35-44 year olds. It would seem that those between the ages of 35-44 are most deterred by cost because they have competing financial strains. This age group tends to have children, jobs, and perhaps a parent for which they are providing care.

Previous reported studies, show differences in health service utilization for older adults. In one study by Blackwell et al, researchers found that older adults had high odds of doctors’ appointments with primary care physicians, but not with specialists. In our study, we see that age is a factor in seeking out services with a physician, however, the Anderson model does not clearly allow for delineation of the direction of the relationship.

“Presentations of theory often place great emphasis on explaining causal relationships among constructs but devote little attention to the nature and direction of relationships between constructs and measures”(Edwards et al, 2000). A more robust measure than the Andersen model may help with direction, strength, nature of the relationship of age and health service utilization.

**Gender**

As with age, there is a similar pattern with gender as well. In all three of our models, women are more likely than men not to seek out health services due to cost. As we have seen throughout the literature, gender/sex associations are seen with utilization of health care services (Parslow et al, 2002; Andersen et al, 2002; Dhingra et al, 2010; Broyles et al, 1999). However, most literature shows that women are more likely to see a physician instead of men (Thode et al 2005; Parslow et al, 2002). However, in this study, for those women with major depressive disorder, it is more likely that women do not seek
health services due to cost as compared to their male counterparts. Given that health care services can be expensive, perhaps women are deterred from seeing a physician because they lack health insurance, do not have a high household income, or have other financial and logistic barriers to seeking care.

Again, the Andersen model does not give clear guidelines on the direction, strength, nature of these relationships. Perhaps better measures are needed to determine the strength and nature of the relationship between gender and health service utilization for those with depressive disorder to more closely examine why women would be deterred from seeking out health care services due to cost.

Race/Ethnicity

In terms of how race and ethnicity interact with health care utilization, the literature has consistently shown that there are associations between race and ethnicity and health services utilization (Andersen et al, 2002; Brown et al, 2004; Stockdate, et al 2007). In this research, all three models show that both Blacks and Latinos were less likely than their White counterparts to seek health care services with a physician due to cost. The National Institutes of Health statistics show that about 27.4 percent of African Americans and 26.6 percent of Hispanics are poor (National Poverty Center, 2012) and live below the poverty level (National Institute of Health, 2001) and one-third of working adult African Americans were uninsured in the preceding year” (National Alliance on Mental Illness, 2013b). Therefore, the socioeconomic disadvantages that these groups encounter likely reduces their health care utilization due to financial considerations and this may account for the differences in race and health care utilization that we see in this study.
Marital Status

Marital status also appeared in all three models to have an effect on health services utilization; however the different types of marital status do not have the same effect on health service utilization throughout all of the models. For example in model 1, never being married had an effect on seeking out health services whereas in model 2 being separated was the only marital status that had an effect on health service utilization. Finally in model 3, being separated and being divorced were more likely associated with those participants who did not seek services due to cost. Various studies have shown that marital status does have an association with health care utilization (Parslow et al, 2002; Insaf et al, 2010; Chen et al, 2008). However, as with our study the literature shows differing trends when it comes to marital status and health care utilization. Dhingra et al, found that people who were divorced or never married were more likely to seek out services than those who are presently married whereas in other research, people who were more married were more likely to seek out routine care (Dhingra et al 2010). It would seem that the Andersen model gives varying results because the Andersen model does not account for interactions between variables. The logical conclusion would be that being married would lead to more health service utilization due to higher household income and the greater chance of health insurance due to having a partner who would have health insurance. Our results are inconsistent and the literature does not provide clear guidance on this topic.
**Educational Attainment**

Throughout the literature education has been associated with the utilization of health care services (Blackwell et al, 2009; Chen et al, 2008; Hammmond et al, 2010). In many of the studies, the lowest education groups did not seek out care. However in other studies, those in the lowest education group were more likely to seek treatment for mental health issues (Dhingra et al, 2010).

Education level was similar to marital status. Although in all three models the effect of education did have an impact on utilization, there was some variation in what level of education deterred those seeking health doctor services due to cost. In model 1, grades 9-11 and grade 12 and GED were more likely to not seek doctor’s services due to cost whereas in model 2 and 3 only grade 9-11 were not as likely to seek care due to cost. These results are counterintuitive. It would seem that the lowest educational attainment groups would be the least likely to seek care due to cost. These groups may not have a high paying job and they may not have health insurance. It would seem that the model is providing results that do not fully explain the relationship between the variables.

**Income**

The literature shows various studies that report associations between income and health services utilization (Stackdale et al, 2007; Blackwell et al, 2009). Those with less income tend have fewer contacts with physicians. However, one study found that those with an income less than $50,000 were more likely to receive mental health care than those with higher incomes (Brown et al, 2004).

All levels of income had an effect on seeking doctor’s services in both models 2 and 3. In model 2, those with a household income of $15,000 to $19,000 were more
likely than any other income level to be deterred by cost and the same was true of model 3. The Andersen model does not appear to be robust enough to provide anything beyond loose associations about income and health care service utilization due to cost. It is fair to conclude that high health care costs can deter someone from seeking care regardless of income.

**Health Insurance**

Many studies found that not having any type of health insurance decreased the likelihood of seeking out health services, while other studies found that service utilization varied depending on the type of health insurance (Insaf et al, 2010; Andersen et al, 2002; Brown et al, 2004). For example, one study found that those who had a HMO were less likely than those with Medicare and Medicaid to seek out health services (Stockdale et al 2007). Another study found that those with Medicaid and supplemental insurance were more likely to see care than those without the supplemental insurance (Broyles et al, 1999).

The participants in this study without any type of health insurance were more likely not to seek a doctor’s care because of cost in both Model 2 and 3. It would make sense that high out of pocket expenses would prevent people from seeking care. It would be helpful to know what type of health insurance BRFSS participants have to gain a better understanding of the impact insurance has on health services utilization for those with depressive disorder.

**Self-Rated Health**

Finally in Model 3, all self-rated general health categories saw an increase in likelihood of not seeking care from a physician due to cost increased as the participants rated their health worse. For poor physical health days, respondents were more likely to
not seek care due to cost if they had 1-14 poor physical health days as opposed to 15 or more poor physical health days. For those participants who had poor mental health days, they were more likely to not receive care at 15 or more poor mental health days. In previously published research, authors found that those who rated their health as less than excellent were more likely to seek health care than those with excellent health (Parlow et al., 2002; Insaf et al., 2010, Blackwell et al., 2009). This research indicates that those participants who had poor physical health days most of the month were not as deterred to seek care due to cost whereas those with poor mental health most days of the month were deterred to seek care. When participants seek care due to specific ailments (i.e. physical or mental), utilization varies. As noted in the literature review, this could be for several reasons such as cultural, stigma based issues, and geography. More research using the BRFSS would be needed for those with depressive disorder to understand the reasons for the variation.

Mental Health Policy and Recommendations

The effects of the ACA on racial and gender disparities in mental health must be viewed against the backdrop of several health parity laws that have been in effect since the mid 1990’s. The emphasis of the ACA is on increasing the number of Americans with health insurance. That health insurance is one of the biggest determinants of health care access is obvious, but benefit parity laws need to continue to lay the groundwork assuring mental health services coverage for those with health insurance.

Parity Laws

The Patient Protection and Affordable Care Act (ACA, P.L. 111-148, as modified by P.L. 111-152, the Health Care and Education Reconciliation Act of 2010) includes many of the provisions augmenting existing federal mental health parity legislation.
(Sarata, 2011). Before 1996, mental health insurance covered fewer services than for physical ailments (Sarata, 2011). Mental health parity laws were a response to the need for services and coverage to be equal to the coverage for physical illness. The two major Federal laws were the: Mental Health Parity Act of 1996 (MHPA, P.L. 104-204), “which requires parity in annual and aggregate lifetime limits, and the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA, P.L. 110-343), which expands parity requirements to treatment limitations, financial requirements (e.g., co-payments), and in- and out-of-network covered benefits” (Sarata, 2011). The Parity laws do not require coverage for specific mental illness, but they require insurers to provide benefits to cover mental health and medical/surgical benefits in compliance with parity requirements. The ACA includes provisions that directly related to mental health parity: “they expand the reach of the applicability of the federal mental health parity requirements; and they create a mandated benefit for the coverage of certain mental health and substance abuse disorder services (to be determined through rulemaking) in a number of specific financing arrangements” (SAMHSA, 2011). The ACA expands the reach of federal mental health parity requirements to three main types of health plans: qualified health plans as established by the ACA; Medicaid non-managed care benchmark and benchmark-equivalent plans; and plans offered through the individual market” (Sarata, 2011). Despite the parity laws and the new provisions under the ACA, insurers are denying mental health care claims at higher rates than other types of medical care” (NAMI, 2013). It is recommended that all health insurers be required to make information available about covered benefits and provide the rate of payment for mental illness and all other illnesses.
Patient Protection and Affordable Care Act (ACA)

In 2010, President Obama signed into law the Patient Protection and Affordable Care Act (ACA), P.L. 111-148 which aims to make health insurance more affordable and seeks to provide access to health services (SAMHSA, 2011). It is estimated that when the ACA is fully implemented that 32 million Americans who are currently uninsured, with have access to coverage. Experts believe that the ACAs guarantee of “coverage for people with pre-existing conditions will address these barriers, lower costs, end discrimination, and dramatically improve health outcomes” (Mental Health America, 2012). The law seeks to protect consumers’ rights by “excluding people from coverage due to pre-existing conditions, placing annual or lifetime caps on coverage, banning rescission of coverage, and establishing basic minimum benefit packages” (SAMHSA, 2011).

The ACA and Mental Health

The ACA addresses many long-standing “access problems and system fragmentation that affects the well-being of people with mental health or addiction disorders” (Barry, 2011). The ACA has provisions that will require a benefits package that includes mental health treatment for mental illness, prescription drugs, rehabilitative, prevention and wellness services (SAMHSA, 2011). The ACA expands “access to prevention services, including annual wellness visits, and includes outreach and educational campaigns” (SAMHSA, 2011). In addition, grants will be available to implement, evaluate, and disseminate community prevention activities” (SAMHSA, 2011). Incentives will be provided to “coordinate primary care, mental health, and
addiction services” (SAMHSA, 2011). Moreover, through grants and Medicaid reimbursement, health homes will be created for not only those with mental illness, but for those individuals who suffer from chronic conditions and substance use disorders. Grants will also be available to school-based health centers that provide mental health services and these will provide opportunities to co-locate and coordinate primary and specialty care (SAMHSA, 2011).

Furthermore, the ACA will allow for enhanced community-based treatment options for those suffering from mental health illness. Demonstration grants as well as Medicaid state plan changes will expand treatment services for those who have “long-term care needs (e.g., dual-eligible, high-risk Medicare beneficiaries, 1915i changes, Money Follows the Person)” (SAMHSA, 2011). The ACA intends to increase effective mental health accommodations through workforce initiatives, loan repayment programs for mental health providers, and primary care resident training (SAMHSA, 2011). In addition, ACA includes mental health to be part of the essential benefits to be offered to uninsured beginning in 2014, the law “recognizes how integral behavioral [and mental] health is to overall health” (Mental Health America, 2012). The expansion of the Medicaid program will mandate that those who are newly eligible to receive mental health services at parity with other benefits covered by Medicaid (Mental Health America, 2012). Therefore, state participation in Medicaid expansion is significantly important to providing access and treatment. (Mental Health America, 2012). Other provisions under the ACA will provide for health insurance exchanges with will provide subsidies for low-income individuals (Barry, 2011).
Medicaid Expansion

Prior to the ACA, those suffering from mental illness had to be “categorically eligible” for Medicaid and therefore had to meet income requirements and had to be eligible due to disability status (as defined by the Social Security Administration) (National Council, 2012). Under the ACA, all individuals who meet “the new national income limit of 133 percent of the federal poverty level (FPL) ($29,326 annual income for a family of four in 2009) based on modified adjusted gross income (National Council, 2012). States that choose to expand their Medicaid programs must have put the expansion into effect by January 1, 2014; they could however choose to implement the Medicaid expansion before that time and receive current Federal Medicaid Assistance Percentage (FMAP) for the expansion population (National Council, 2012). Medicaid expansion will cover “childless adults up to 133 percent FPL ($14,404 annual income for a single person in 2009) and will not be offered in every state” (National Council, 2012).

The services to be offered under Medicaid expansion for childless adults are benchmark equivalent plans (National Council, 2012). “Standards for the benchmark plans are found in Section 1937 of the Deficit Reduction Act of 2005 and allow states to provide benchmark benefits based on or equivalents to the Federal Health Benefits Program package, State Employees Health Benefits Package, the HMO benefits package with the largest non-Medicaid enrollment in their state, or another package approved by the Secretary” (National Council, 2012). The ACA mandates that the Medicaid benefits now include prescription drug coverage and mental health benefits in accordance with mental health parity laws; however, it is optional for states to offer additional services that go above and beyond the benchmark (National Council, 2012). The Centers for
Medicare and Medicaid Services will issue a ruling on how benchmark plans need to comply with “regulations on benchmark plans to comply with the new requirement” (National Council, 2012).

Additionally, the Center for Budget and Policy Priorities reports “that poor childless adults who will make up a large portion of the newly eligible may be in the most need for mental health and substance abuse care, and it recommends therefore, that states extend the same Medicaid benefits to this population” compared to current enrollees. In fact, it is estimated that providing full benefits minimally affects cost (CMS, 2012). “Federal funding will be provided 100% financing, for all new eligible up to 133% FPL in 2014-2016, 95% in 2017, 94% in 2018, 93% in 2019 and 90% federal financing for 2020 and subsequent years” (National Council, 2012).

Reimbursement for mental health services that fall outside of the primary care setting will be determined by each state. Mental Health Parity and Addiction Equity Act regulations define provider reimbursement on Non-Quantitative Treatment Limitations requires that rates are comparable to other health care providers. States also have the option to cover individuals or families with incomes higher than 133 percent of the FPL, but if they do so, they receive 100 percent FMAP (National Council, 2012). States are not required to expand their Medicaid programs, but they are required to maintain eligibility levels (National Council, 2012). Unfortunately since of the implementation of the ACA and the Medicaid expansion, many states have not expanded their Medicaid programs. For the uninsured mentally ill, Medicaid expansion would greatly increase the access and to mental health services. It is recommended that states proceed with Medicaid expansion and proceed with strategies to enroll hard to reach individuals so the
“2.7 million people with mental illness who are currently uninsured” could have much needed access to mental health care and support (NAMI, 2013).

**Health Homes**

Many provisions authorized under the Affordable Care Act, (Sec. 2703 & Sec. 19459 (e) allow for the integration of services within Medicaid including provisions for states to create a person-centered health home. (Barry & Huskamp, 2011; SAMHSA, 2012). The “health home” is an option for individuals with multiple chronic conditions, including mental health illness. Medicaid will pay for treatment services that have not been previously reimbursable in the hopes of improved outcomes based on coordination of care (Barry & Huskamp, 2011, SAMHSA, 2012). “Care management, health promotion, post-inpatient transition care, referral to social support services, and information technology to link services together will be reimbursed at a 90 percent federal matching rate for the first 2 years after a health home is established” (Barry & Huskamp, 2011).

The ACA provided co-location grants to integrate services within community based behavior treatment settings (Barry & Huskamp, 2011). “The ACA authorized $50 million in fiscal year 2010 and additional funds through fiscal 2014 for the Substance Abuse and Mental Health Services Administration to provide funding for these grants” (Barry & Huskamp, 2011). Additionally, the law improved upon the Medicaid 1915(i) state-waiver option by expanding the ability of states to provide both home and community based treatment and services “(e.g., day treatment and psychosocial rehabilitation) to specific populations, including those with serious mental illnesses who
would be unable to live in the community without these services” (Center on Budget and Policy Priorities, 2008). Although several states have created health homes with emphasis on providing care for those with mental illness, many states have not expanded their Medicaid programs and have not implemented health homes. It is recommended that Medicaid expansion continues throughout the United States and health homes be created.

**Essential Health Benefits**

Essential health benefits provide a minimum standard for coverage in which plans must meet. The regulations is intended to provide consumers with appropriate coverage as well as make comparison between insurance plans when purchasing health insurance (Farley, 2011).

The ACA requires that at least the following 10 categories of benefits be included in EHB:

- Ambulatory patient services
- Emergency services
- Hospitalization
- Maternity and newborn care
- Mental health and substance use disorder services, including behavioral health treatment
- Prescription drugs
- Rehabilitative and habilitative services and devices
- Laboratory services
- Preventive and wellness services and chronic disease management, and
- Pediatric services, including oral and vision care (Farley, 2011).
The ACA specifically identifies mental health as an essential benefit, however, the “behavioral health services are covered” will depend in large part on which existing insurance plan each state selects as its “benchmark” plan – that is, the plan on which the EHB package in that state will be based. If the state selects a plan with slim coverage of behavioral and mental health services or a strict interpretation of what is considered “rehabilitative” services, it could affect individuals’ ability to access these services (Farley, 2011).

The 2008 Mental Health Parity and Addictions Equity Act does apply to individual insurance plans as well as group plans. “If the plan that a state selects as the benchmark plan does not currently comply with the parity law, modifications must be made to the benefits package to bring it into compliance with parity” (Farley, 2011). Given the flexibility afforded to the states to carry out the new insurance requirements, how mental health services, in particular, will fare will largely depend on how each state decides to proceed (Farley, 2011). It is recommended that all insurance cover mental health services in a similar manner to how they cover services for other conditions.

**Accountable Care Organizations**

An accountable care organization (ACO) is a “network of doctors and hospitals that shares responsibility for providing care to patients” (KFF, 2012). Under the ACA, the ACO would manage all of the health care needs individuals and a “minimum of 5,000 Medicare beneficiaries for at least three years (KFF, 2012). For those with private insurance, the ACO would better be able to align “financial incentives to support coordination. In theory, bundled-payment models can fund evidence-based mental health
and addiction services that are not typically paid for under private insurance, such as chronic care management” (Barry & Huskamp, 2011). Additionally, “risk adjustment and risk sharing will be critical in setting bundled-payment rates for ACOs, to temper any incentives to avoid patients with mental health or addiction disorders, who typically have higher-than-average health care costs” (Barry & Huskamp, 2011).

The ACA holds great promise for increasing access and reducing service fragmentation for people with mental health disorders but many challenges remain (Barry & Huskamp, 2011). Some groups who otherwise have health insurance coverage will not have access to mental health coverage. Additionally it is clear that the ACA will leave people in some groups without health insurance, such as undocumented immigrants. Also, it is feared that since the ACA will lower the number of uninsured people, states and the federal government will reduce direct (non-Medicaid) financing of mental health services, especially given cuts to discretionary spending that were negotiated as part of the Federal debt-ceiling initiative (Summer, 2012).

Precipitous budget cuts will threaten the safety-net providers such as state-based community mental health centers. It is incumbent upon the mental health services delivery community to provide evidence-based services, such as assertive community treatment and supported employment that are not typically reimbursed but can improve the well-being of people with more severe disorders.

The ACA mandates that the Secretary of the HHS collect data on access and treatment for people with disabilities, and to analyze the data to monitor trends in disparities—effective two years following enactment. (KFF, 2012). Full understanding of the presence and impact of disparities requires the collection and reporting of data on
race, ethnicity, sex, primary language, disability status, and for underserved rural and frontier populations. The full picture of the ACA’s effect at eliminating disparities in mental health services will be known in the months and years ahead.

**Limitations**

There are several limitations to this study. First, the BRFSS is a cross-sectional survey that relies on self-reports. Therefore, we are unable to determine cause and effect relationships. Additionally, the questions that are included in the BRFSS do not include characteristics specific to mental illness. For example, age of onset, prescription medications and dosage, comorbidities, specialized mental health treatment and if there is remission or reoccurrence of the illness are all important questions regarding mental illness. Also, the BRFSS does it include questions regarding type of health insurance. Despite this, the results show that those with depressive disorder often times have hard time seeking treatment for health care because of cost. In fact, those in more vulnerable groups are more likely to not seek out services and treatment due to cost.

In addition to limitations with the BRFSS, the Andersen model does not give clear guidelines on the direction, strength, nature of many of these relationships. The Anderson model does not provide enough specificity to give “theoretical” guidance on specific interaction effects. The level of analysis is “bundles” of variables—that is, the analysis can only show that certain types of variables (predisposing, enabling, need,) effect (or do not effect) health care utilization.

Since the early 1970’s when the Anderson model first appeared in the literature, researchers in the health services research, medical sociology, and health economic fields
have not refined the model to the point where there is consensus on how variables are operationalized, measured, how they relate and interrelate, the causal pathways, direction of relationships, the degree to which variables interact, and mediate or moderate one another. It is a general “laundry basket” conceptual model that has never been adequately addressed empirically nor has it been advanced to the level of a theory. For example, the Andersen model is not robust enough to directly measure the effects of race and variables such as education, household income, etc. that contribute to socioeconomic status. Therefore, I was not able to analyze the marital status of Blacks and Hispanics in comparison to Whites. I could not look at the interaction between variables and I could no answer for example if single Hispanic women with a high school education differ from other women in the group. I could not address any difference between Blacks, Whites, Hispanics outside of what was written in the preceding paragraphs and I could not address how different variables intersect. All critical results were reported in the previous paragraphs. Better measures are needed to determine the strength and nature of these relationships. Additionally, the Andersen model doesn’t allow for precision as evidenced by the large confidence intervals shown throughout models 2 and 3. As more variables are entered into the models, it appears that there is an interaction effect that makes other variables less prominent.

Despite these limitations, this study identified several factors that contribute to health services utilization for those with depressive disorder. Further research is recommended to study the mental health needs of vulnerable populations such as minority populations.
Conclusion

Overall, this research shows that predisposing, enabling, and need based characteristics tend to influence health services utilization in people with major depressive disorder. Lawmakers in the United States have started to take a more proactive approach to eliminate some of the disparities in health service utilization with parity laws and the ACA. However, while it is not possible to determine if the provisions in the ACA will reduce race, ethnic and gender disparities in mental health services, it is clear that attempts has been made to place mental health funding on even footing with funding for physical illnesses. Proponents of the ACA are hopeful that the new legislation will increase access, reduce barriers to care, and make mental health services available to our most vulnerable populations.
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Appendix A: Models 1-3

Table 6
Models 1-3 Predisposing Factors, Enabling Factors, and Need Based Factors

<table>
<thead>
<tr>
<th>Medical Cost Characteristic</th>
<th>%</th>
<th>Model 1 OR</th>
<th>Model 1 95% CI</th>
<th>Model 2 OR</th>
<th>Model 2 95% CI</th>
<th>Model 3 OR</th>
<th>Model 3 95% CI</th>
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Table 6 (cont.)

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<th>Medical Cost Characteristic</th>
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Table 6 (cont.)

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<th>Medical Cost Characteristic</th>
<th>%</th>
<th>Model 1 OR</th>
<th>Model 1 95% CI</th>
<th>Model 2 OR</th>
<th>Model 2 95% CI</th>
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<td>1-14 days</td>
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<td>1.107 – 4.137</td>
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Appendix B:  
BRFSS Questions

I will not ask for your last name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will be confidential. If you have any questions about the survey, please call (give appropriate state telephone number).

Section 1: Health Status

1.1 Would you say that in general your health is—?
(73)

Please read:
1 Excellent
2 Very good
3 Good
4 Fair
Or
5 Poor
Do not read:
7 Don’t know / Not sure
9 Refused

Section 2: Healthy Days — Health-Related Quality of Life

2.1 Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?
(74–75)

_ _ Number of days
8 8 None
7 7 Don’t know / Not sure
9 9 Refused
2.2 Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good? (76–77)

_ _ Number of days
8 8 None [If Q2.1 and Q2.2 = 88 (None), go to next section]
7 7 Don't know / Not sure
9 9 Refused

2.3 During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation? (78–79)

_ _ Number of days
8 8 None
7 7 Don't know / Not sure
9 9 Refused

Section 3: Health Care Access
3.1 Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare or Indian Health Services? (80)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.2 Do you have one person you think of as your personal doctor or health care provider? If “No,” ask: “Is there more than one, or is there no person who you think of as your personal doctor or health care provider?” (81)

1 Yes, only one
2 More than one
3 No
7 Don't know / Not sure
9 Refused
3.3 Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?
(82)

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.4 About how long has it been since you last visited a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.
(83)

1 Within past year (anytime less than 12 months ago)
2 Within past 2 years (1 year but less than 2 years ago)
3 Within past 5 years (2 years but less than 5 years ago)
4 5 or more years ago
7 Don’t know / Not sure
8 Never
9 Refused

6.10 (Ever told) you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?
(98)

1 Yes
2 No
7 Don’t know / Not sure
9 Refused

Section 8: Demographics
8.1 What is your age?
(108-109)

__ Code age in years
0 7 Don’t know / Not sure
0 9 Refused

8.2 Are you Hispanic or Latino?
(110)

1 Yes
2 No
7 Don’t know / Not sure
9 Refused

8.3 Which one or more of the following would you say is your race?
(111-116)

Please read:
1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native
Or
6 Other [specify]________________

Do not read:
8 No additional choices
7 Don’t know / Not sure
9 Refused

CATI note: If more than one response to Q8.3; continue. Otherwise, go to Q8.5.

8.4 Which one of these groups would you say best represents your race?
(117)

Please read:
1 White
2 Black or African American
3 Asian
4 Native Hawaiian or Other Pacific Islander
5 American Indian or Alaska Native
Or
6 Other [specify]________________

Do not read:
7 Don’t know / Not sure
9 Refused

8.5 Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit? Active duty does not include training for the Reserves or National Guard, but DOES include activation, for example, for the Persian Gulf War.
(118)

1 Yes
2 No
Do not read:
7 Don’t know / Not sure
9 Refused
8.6 Are you…?
(119)

Please read:
1 Married
2 Divorced
3 Widowed
4 Separated
5 Never married
Or
6 A member of an unmarried couple
Do not read:
9 Refused

8.7 How many children less than 18 years of age live in your household?
(120-121)

__ Number of children
8 8 None
9 9 Refused

8.8 What is the highest grade or year of school you completed?
(122)

Read only if necessary:
1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college or technical school)
6 College 4 years or more (College graduate)
Do not read:
9 Refused

8.9 Are you currently…?
(123)

Please read:
1 Employed for wages
2 Self-employed
3 Out of work for more than 1 year
4 Out of work for less than 1 year
5 A Homemaker
6 A Student
7 Retired
Or
8 Unable to work
Do not read:
9 Refused

8.10 Is your annual household income from all sources—
(124-125)

If respondent refuses at ANY income level, code „99“ (Refused)
Read only if necessary:
0 4 Less than $25,000 If “no,” ask 05; if “yes,” ask 03
($20,000 to less than $25,000)
0 3 Less than $20,000 If “no,” code 04; if “yes,” ask 02
($15,000 to less than $20,000)
0 2 Less than $15,000 If “no,” code 03; if “yes,” ask 01
($10,000 to less than $15,000)
0 1 Less than $10,000 If “no,” code 02
5 Less than $35,000 If “no,” ask 06
($25,000 to less than $35,000)
0 6 Less than $50,000 If “no,” ask 07
($35,000 to less than $50,000)
0 7 Less than $75,000 If “no,” code 08
($50,000 to less than $75,000)
0 8 $75,000 or more
Do not read:
7 7 Don't know / Not sure
9 9 Refused