HEALTH STATUS AND ACCESS DISPARITIES AMONG THE UNINSURED WORKING-AGE POPULATION IN A SAFETY-NET HEALTHCARE NETWORK IN TARRANT COUNTY, TEXAS

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Queen, Courtney M. Health status and access disparities among the uninsured working-age population in a safety-net healthcare network in Tarrant County, Texas. Doctor of Philosophy (Sociology), December 2009, 148 pp., 21 tables, references, 107 titles.

The objective of this research was to determine if healthcare access disparities exist across race and gender in a publically funded safety-net healthcare system in Texas. Data were examined from a representative random sample of 1468 adults aged 18-64 who were patients in this safety-net system in July and August of 2000 and were analyzed using binary logistic regression and chi-square measures of significance. Major Findings: On measures of health status – overall health rating \( (p = .051) \), limited employment \( (p = .000) \), energy level \( (p = .001) \), and worry \( (p = .012) \) – Anglos reported the worst health; Mexican Americans, the best health; with African Americans intermediate. Mexican Americans were more likely to have never had health insurance, and to also have had insurance in the past year; Anglos were least likely to have ever had insurance \( (p = .015) \) or to have had insurance in the past year \( (p = .000) \). On use of EDs \( (p = .028) \), problems getting prescription medicines \( (p = .029) \), and foregoing other necessities of life to pay for healthcare, Mexican Americans were least disadvantaged with African Americans reporting greatest use of EDs among both men and women, and Anglos the most problems with prescription medicines and foregoing care, especially among women. Logistic regression revealed that health status was the strongest predictor of problems accessing healthcare in all groups; the poorer health status of safety-net patients, the more problems they had accessing care. Patterns of poor
reported health status and greater problems accessing care among Anglos relative to other groups is discussed in terms of social drift and relative deprivation.
ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION AND
PLAN OF THE STUDY

Safety-net healthcare is a commonly used term used to describe “the Nation’s system of providing health care to low-income and vulnerable population” (Umar, n.p., 2003). The Health Care Safety Net (HCSN) system is the network of medical institutions that provide healthcare to vulnerable patients including those who may be uninsured, underinsured, covered by Medicaid, or some other type of financial assistance program such as an in-house plan. Safety-net healthcare providers offer services regardless of a patient’s ability to pay (Sered & Fernandopulle, 2005; Texas Institute for Health Policy Research, 2002).

In Texas, safety-net healthcare provides healthcare to the vulnerable and medically uninsured. Public metropolitan hospitals provide an abundance of services including emergency care, psychiatric services, behavioral medicine such as treatment for alcoholism, and HIV/AIDS treatment. Many times, these hospitals are “leased, owned, or operated by a political subdivision of the state, continuing a tradition of providing a free or reduced-cost care established by the early charity hospitals more than 200 years ago” (Texas Institute for Health Policy Research, n.p., 2002).

The John Peter Smith Health Network (JPS) (n.d.) is the publically-funded hospital for Tarrant County, Texas. This hospital network provides health and medical services to residents of the county and offers a health insurance program, JPS Connections, for residents of the county with incomes up to 200% of the federal poverty
line (FPL). According to JPS data, the hospital network had 462,064 outpatient visits in 2001 and 615,429 in 2005. The emergency department had 51,862 visits in 2001 and 67,122 in 2005. This is an increase of 33% and 29%, respectively. Because JPS provides the safety-net for Tarrant County, as the number of uninsured residents increases so does the amount of uncompensated cost for the hospital. In 2005, 87,722 people who received care accounted for $274 million of uncompensated cost at JPS. This is a 57% increase from 2001, when the amount of uncompensated healthcare was just over $174 million (JPS, n.d.). The Texas Health Institute reports that, in 2006, all “Texas hospitals provided $11.6 billion in care for those who couldn’t pay—mostly the uninsured” (Texas Health Institute, n.p., 2008).

This study examines the possible race/ethnic health disparities at a tax-supported, publically-funded safety-net hospital network in Tarrant County, Texas. This study is concerned with health status and access disparities among a working-age population. The theoretical framework for this research is the behavioral model for vulnerable populations (BMVP), which has been used extensively to study access to healthcare.

Health Disparities

Central to the topic of healthcare is the existence of inequitable circumstances that ultimately creates unequal conditions with regard to health behaviors, health access, and health outcomes. “Health disparities” seek to capture the totality of inequalities with regard to health and healthcare. The word “disparity,” by definition is “the condition or fact of being unequal, as in age, rank, or degree” (Carter-Pokras & Baquet, 2002; AHRQ, 2004). The concept “health disparity” and the study of health
disparities include two major components: health status and healthcare. Healthcare disparities relate to factors such as proximity to health care sites, transportation, availability of financial means, having health insurance, being able to take time off from work to seek healthcare and being able to navigate a complex health care system (GAO, 2003). The Institute of Medicine (IOM) defines “health disparities” as differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States. Similarly, LaVeist (2005) defines “health status disparities as differences among racial/ethnic groups in health status” (p. 108).

While dictionary definitions of a word are useful, in the context of the study of health disparities, the concept “health disparities” has come to represent something more than disparity. The term “health disparities” includes additional social and political meanings, and has come to represent injustice, and is many times used interchangeably with synonyms such as: “inequality, unlikeness, disproportion, and difference [italics in original] (AHRQ, n.p., 2004; Kelley, Moy, Stryer, Burstin, & Clancy, 2005). Carter-Pokras and Baquet (2002) view health disparity as an outcome measure that is a result of difference in environment, access to and utilization of care; difference in quality of care, health status, or health outcome.

Health disparities scholarship highlights the fact that some people “have” and some people “have-not.” It is important to note that health disparities and healthcare disparities are common language among social scientists and health services researchers who use both terms interchangeably. For the purposes of this study, “health
“disparities” represents unequal access to medical care and also the dissimilarity between certain racial/ethnic groups with regard to health status.

Disparities in Texas and Tarrant County

Health disparities are highly prevalent in Texas as a whole and in Tarrant County more specifically. The uninsured rate for Texas is one of the highest in the United States (CDC, n.d.; CPPP, 2008). According to the Center for Public Policy Priorities (CPPP), about 5.7 million people in Texas do not have health insurance. In 2006, the national average for uninsurance was around 16% while the average for Texas was almost one in four (24.5%). In addition to these figures, the CPPP (2008) has identified at least three million Texans not included in these figures that are covered by Medicaid or Children’s Health Insurance Program (CHIP).

Most startling is that almost one in three (29.8%) Texans without health insurance are working-age, or between the ages of 19-60. Texas has high rates of employment (CPPP, 2008), yet, in 2003, only 52.4% of employed Texans have medical coverage provided by their employer (Texas Comptroller, 2005). According to the Texas Comptroller’s Office, firms that employ more than 100 workers, but less than 500 workers, only have a coverage rate of 19% (2005).

As with much of the United States, health disparities in Texas vary by social class and race/ethnicity. More than half (57%) of the uninsured in Texas are 200% below the federal poverty line (FPL), and just over 2/3 (68%) of Texas children living in poverty are also uninsured (CPPP, 2008). The Texas Comptroller’s office reports that from 2001 to 2003 an average of 59% of the uninsured population in Texas have incomes below 200% of the FPL. This data also reveals that 80% of uninsured Texans
had incomes below 300% of the FPL. It is worthwhile to note that, in 2004, 200% of poverty was $18,620 for one person and $31,340 for a family of three; 300% was $27,930 for one person and $47,010 for a family of three (2005).

Furthermore, there are significant variations in the numbers of uninsured by race/ethnicity. For instance, while almost 13% of white, non-Hispanic Texans are uninsured, 26.8% of blacks / African Americans are uninsured, and almost 40% of people of Hispanic origin do not have insurance. With regard to social class, 25.3% of African Americans in Texas and 25.1% of Hispanics live in poverty, while only, 7.9% of white, non-Hispanics live in poverty in Texas (CPPP, 2008).

The demographic profile and uninsurance rates for Tarrant County is similar to Texas as a whole. There are nearly 1.5 million people in Tarrant County (HHS, n.d.; Texas Comptroller, 2005). Most (71.23%) are non-Hispanic white, while 12.8% are black or African American, and 9.33% are Hispanic or Latino. Of this population, almost half (48.81%) of whites are working-age (ages 15-60), but only 8.5% of African Americans are working-age, while 12.73% of Hispanics are working-age. The income per capita in Tarrant County is $22,548 and almost one-third (27.42%) of the population in the county living below the FPL (HHS, n.d.). Both the Health and Human services report (n.d.) and the Texas Comptroller’s office reports that 23.6% of the population of the Ft. Worth-Arlington area (part of Tarrant County), does not have health insurance (2005).

Plan of the Study

This study begins with a brief overview of the problem of health disparities, followed by a description of terms and a background of the study. It discusses safety-
net healthcare in Tarrant County, Texas and provides a demographic profile. A review of the literature is followed by the methodology for this study. Lastly, a discussion of the research findings and several theoretical perspectives including social drift hypothesis and relative deprivation conclude this study.

**Objectives**

A major objective of this research is to discuss equitable access to healthcare in a publically-funded safety-net health network by race and ethnicity controlling for income. The theoretical framework for this research is the behavioral model for vulnerable populations (BMVP). This model yields information about equitable access to healthcare through behavior domains that act as a function of access. Andersen (1960) envisions the BMVP as a sufficient measure of equity and hypothesizes that the use of health services should be evenly distributed by the demographic, or predisposing, domain. He states that equitable access occurs when the predisposing traditional domain and need domain account for most of the variance in utilization. However, based on previous research, access is inequitable when the variance in health behavior occurs in the predisposing vulnerable domains of race and/or ethnicity, or access to resources such as health insurance. These domains should not determine who gets access to healthcare, especially in a publically-funded healthcare facility (Andersen, 1995).
CHAPTER 2

BACKGROUND AND SIGNIFICANCE, THEORETICAL FRAMEWORK, OVERVIEW OF PREVIOUS STUDIES, AND RESEARCH QUESTIONS

Background and Significance

Health disparities within safety-net healthcare for the vulnerable and medically underserved contribute to both the background and the significance of this study. Vulnerability as a concept typically represents a population whose status and subsequent experiences place them in a diminished capacity to mitigate the circumstances of accessing healthcare in the United States (Aday, 1993; Mechanic & Tanner, 2007; Shi & Stevens, 2004; Shi & Stevens, 2005; Schroeder & Gefenas, 2009). These diminished capacities include lack of education, poverty status, emotional or physical health, a familial or friend network for social support, and community resources (Mechanic & Tanner, 2007).

Shi and Stevens (2004) studied vulnerability and unmet healthcare needs. They describe the different methods for conceptualizing vulnerability including by disease (Aday, 1993; Shi & Stevens, 2004; Shi & Stevens, 2005), psychologically (Aday, 1993; Shi & Stevens, 2005), by age (Aday, 1993; Mechanic & Tanner, 2007; Shi & Stevens, 2004), by demographic status (Aday, 1993; Shi & Stevens, 2004; Shi & Stevens, 2005), by interpersonal relationships (family, social networks) (Aday, 1993; Mechanic & Tanner, 2007), or by neighborhood (Aday, 1993; Mechanic & Tanner, 2007; Shi & Stevens, 2005). Shi and Stevens (2004) refer to the advantages of vulnerability as a
concept including the opportunity to refer to a group of people that have multiple risk factors.

Citing the relationship between race/ethnicity and SES, Shi and Stevens (2004) recognize the difficulties of disentangling the independent predictors of risk. Examples of this type of entanglement include minority status and homelessness, or low SES and having an extra disease burden such as HIV/AIDS, or living in a violent neighborhood with poor educational opportunities.

More recent studies have used the concept of vulnerability to represent the consequences of long-term vulnerability including the effects of psychosocial exposures on health (Furumoto-Dawson, Gehlert, Sohmer, Olopade, & Sacks, 2007; (Raphel, Stevens, & Pedersen, 2006). Psychosocial exposures include negative feelings as they are related to discrimination, inequalities, and experiences of marginalization. This type of vulnerability that includes multiple risk factors over a prolonged period of time poses an increased risk for combating the adverse circumstances of family (Raphel, Stevens, & Pedersen, 2006), neighborhoods, access to education, goods and services, and healthcare, as well as plays a major role in mate selection. As stated by Furumoto-Dawson, Gehlert, Sohmer, Olopade, and Sacks (2007), negative health outcomes as a result of multiple risk factors include the example of African American men who grew up disadvantaged and remained disadvantaged into adulthood are more likely than others to experience hypertension. In addition, the experience of having elevated stress hormone levels for prolonged periods of time also contributes to a greater risk of cardiovascular diseases, diabetes, and cancers (Furumoto-Dawson, Gehlert, Sohmer, Olopade, & Sacks, 2007). Ultimately, prolonged or chronic exposures to risk factors for
vulnerabilities increase the likelihood of disease and also poor mental and emotional health (Raphel, Stevens, & Pedersen, 2006).

This study examines the multiple risk factors of poverty, race/ethnicity, gender, and age. Because of the taxing circumstances, and mitigating conditions of vulnerability, people are not able to access the healthcare system as needed. This results in more severe pain and suffering, potentially debilitating, as well as more severe conditions requiring more urgent care. As a result, the care required becomes more urgent and more costly. This population lacks the resources necessary to mitigate the conditions or to resolve them. This circumstance is especially harmful for both individual and community health and also health services administration.

Theoretical Model:

Behavioral Model for Vulnerable Populations (BMVP)

The theoretical framework for this research is the behavioral model for vulnerable populations (BMVP). The model suggests that health behavior is a function of a predisposition by people to use health services due to a particular demographic profile, factors that enable or impede use, and one’s perception of need for care (Aday, 1993; Aday & Andersen, 1981; Gelberg, Andersen, and Leake, 2000; Shi & Stevens, 2005). Table 1 describes the behavioral model for vulnerable populations as the theoretical framework for this study.

Originally developed in the 1960s by Ronald Andersen as the behavioral model (BM) to explain why people use health services, the BM has evolved over the years to include characteristics that account for vulnerability such as race and ethnicity, income, health beliefs and community and neighborhoods (Aday, 1993, Gelberg, Andersen, and

9
Leake, 2000; Glick & Thompson, 1997). LuAnn Aday (1993) refined the BM and called it the behavioral model for vulnerable populations (BMVP) in attempt to account for the distinctive characteristics of vulnerable populations. She distinguished between the traditional domains (from the original BM) and vulnerable domains (added to the newer BMVP), and expanded the model to not only include individual characteristics, but also ecological and environmental contexts (Shi & Stevens, 2005). Adapting the model to address vulnerability was critical for the study of vulnerable populations because of the fundamental issues surrounding chronic and pervasive inequalities that occur largely as a result of curable social forces.

The BMVP is most commonly applied to health behaviors, but can also be applied in other contexts including disaster research, still predicting access behaviors. Gelberg, Andersen, and Leake (2000) applied the model to determine the health predictors of a homeless population, while Krahm, Farrell, Gabriel, and Deck (2006) used the BMVP to research access to substance abuse treatment for people with disabilities. In 2005, Owusu, Eve, Cready, Koelln, Trevino, Urrutia-Rojas and Baumer (2005) applied the model to cervical cancer screening in a safety-net healthcare network.
Table 1

The Behavioral Model for Vulnerable Populations

<table>
<thead>
<tr>
<th>Predisposing</th>
<th>Enabling</th>
<th>Need</th>
<th>Health Behavior</th>
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</thead>
<tbody>
<tr>
<td><strong>Traditional domains</strong></td>
<td><strong>Personal/family resources</strong></td>
<td><strong>Perceived need</strong></td>
<td><strong>Use of health services</strong></td>
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<tr>
<td>Demographics</td>
<td>Employment</td>
<td>Self-assessed health</td>
<td>ED use</td>
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<tr>
<td>Gender</td>
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<td>Age</td>
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<td>Marital Status</td>
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<td></td>
<td>Insurance Status</td>
<td>Limited in employment</td>
<td>Access to prescription meds</td>
</tr>
<tr>
<td></td>
<td>Usual source of care</td>
<td>Feelings of worry and anxiety</td>
<td>Forewent healthcare because of competing needs with other necessities</td>
</tr>
<tr>
<td><strong>Vulnerable domains</strong></td>
<td><strong>Barriers</strong></td>
<td><strong>Feels healthy and full of energy</strong></td>
<td><strong>Problems accessing healthcare</strong></td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>Transportation</td>
<td></td>
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<td>Paperwork</td>
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Adapted from Gelberg, Andersen, & Leake, 2000.

**Predisposing Domain**

The predisposing factors of the BMVP represent the sociodemographic characteristics of the individuals (Aday, 1993; Glick & Thompson, 1997; Shi & Stevens, 2005). The predisposing domain of the BMVP includes characteristics that are both
traditional and vulnerable. Traditional variables include demographic variables, and the vulnerable domain includes characteristics that may enable or impede access to health services such as race/ethnicity, education, citizenship status, or language acquisition. Family size, neighborhood characteristics, living conditions, and beliefs can also fall into this category (Gelberg, Andersen, & Leake, 2000).

**Enabling Factors**

The enabling domain represents the resources available to access the healthcare system (Aday, 1993; Glick & Thompson, 1997; Shi & Stevens, 2005). Examples of enabling characteristics include employment, health insurance, having familial or personal resources that allow, or enable, one to obtain access to health services. Andersen states that the more enabling resources available to someone, the more likely they are to acquire the necessary and desired healthcare (Andersen, 1995). Other measures that are considered as enabling are urban/rural characteristics, “volume (physician-population ratio, hospital-bed-population ration), distribution, financing, price, entry, structure, and process of care” (Gelberg, Andersen, & Leake, 1276, 2000).

**Health Need**

The health need domain is important in the conceptual model because it represents perception of the type of health services one may require (Andersen & Aday, 1978; Glick & Thompson, 1997). The traditional domain represents both the subjective and objective health status of the general population. Lastly, “need” represents the experiences of an individual, the type of need, the severity of the need, and what resources will be required to alleviate that need. It can represent not only objective
health status, but also subjective health status that can be a reflection of personal judgment, which is important for assessing health-seeking behaviors (Andersen, 1995).

In conclusion, the behavioral model for vulnerable populations (BMVP) allows researchers to determine needed health resources, the distribution and equity of access, and the barriers experienced by individuals and communities as a result of the combination of characteristics that make them susceptible to these challenges. This model allows for the presence of multiple risk factors (Shi & Stevens, 2005) of poverty status and race/ethnicity, for instance. In addition, the BMVP is useful for developing a risk profile for particular health access behaviors based on a particular combination of demographic factors, enabling or impediments to care such as insurance or a usual source of care, and self-perceived health status. This combination of risk variables can help predict health behavior such as not accessing the healthcare system, having problems accessing the healthcare system, or even emergency department use. Lastly, applying this model can help to determine health status (Gelberg, Andersen, & Leake, 2000), while being an appropriate means to measure and report health disparities. The U.S. Centers for Disease Control (2005) suggests necessary considerations for measuring health disparities including the complex measures to separate and distinguish between the causes of inequities in healthcare (Carter-Pokras & Baquet, 2002).

Limitations of Previous Studies

Previous research concerning health disparities usually attempts to capture the U.S. as a whole. This often results in only a few races or ethnicities represented within a wide range of incomes and fail to recognize the power and similarity of social class. This
approach assumes that all people within a particular race/ethnicity are similar. The literature is limited regarding studies that control for socioeconomic status (SES) or attempt to identify the health behaviors of vulnerable populations. This study builds on the limitations of previous studies by examining a population of patients seen in JPS health network in July and August of 2000. Income was not a criterion for selection and all participants were assumed to be poor. This is a reliable methodology since it is useful to measure disparity within social class and across race/ethnicity.

This study seeks to fill the gaps of previous studies by determining if disparities exist within this equal-access healthcare entity as they do in the population at large. Kiefe & Hyman (1996) confirms these presuppositions, concluding that few studies exist that are concerned with equal opportunity in a public, safety-net hospital, especially with regard to race and ethnicity. They conclude that, “[w]hile there is evidence that public hospitals improve access to care for the urban poor, little has been previously published about the barriers to access for public hospital users. This lack of information applies particularly to the ambulatory setting” (p. 63).

Lastly, this study contributes to the existing literature by examining both race and ethnicity. In the original study, all race and ethnic groups were included and distinguished. Much of the literature concerning health disparities only measures race, or considers ethnicity together as a part of race. This study not only considers vulnerable populations in a smaller geographic region and concentrates on a publicly-funded, safety-net health network, it specifically distinguishes Mexican Americans, instead of considering them as grouped together with Latino/as and/or Hispanics in a broad category of “other”.
Research Questions

Health disparities are the basis for this study. The two research questions are:

1. Do race/ethnic disparities exist among uninsured patients in a publically-funded, equal access, safety-net healthcare network?

2. What is the strongest predictor of problems accessing healthcare in a publically-funded, equal access, safety-net healthcare network?
CHAPTER 3

LITERATURE REVIEW

AND HYPOTHESES

Conceptual Organization of the Literature Review

Theoretical and empirical studies differ concerning the relationship between social class, race/ethnicity, and health. It is widely known that the relationship exists, however it is largely debated whether social class or race/ethnicity is a greater predictor of health status and access to healthcare. Empirically, there is evidence to support both hypotheses, and theoretically, there is explanation to support both hypotheses; and, in both directions—as predictor and as an outcome (Krieger, 2000; LaViest, 2005; Williams, 1999; Williams & Collins, 2001).

This review of the literature is organized according to the behavioral model for vulnerable populations (BMVP). The conceptual model suggests that health behavior is a function of the demographic predisposition of people to use healthcare. In addition, use of healthcare is mitigated by enabling variables and also barriers to access. The BMVP was also developed based on people’s objective and subjective need for healthcare (Gelberg, Andersen, & Leake, 2000) and can help to predict health behaviors and also necessary resources (Glick & Thompson, 1997).

This review provides a critical examination of the relationship of oppression and discrimination to health disparities. It includes original research relevant to health disparities, and it provides a review of data sources contributing to the study of health disparities. Lastly, this review of the research provides a synthesis of theories relevant
to the relationships of socioeconomic status (SES), race/ethnicity, and gender with health outcomes.

Predisposing Variables:

The Structural Determinants of Health Disparities

Although not easy to disentangle, the relationship between class and race is frequently confounded by racism, classism, discrimination, residential segregation, employment opportunities, and health behaviors such as dietary habits. On average, measures of socioeconomic status are often the best predictor of health status. This holds true because many of the significant predictors of race are also true for gender (Cummings & Jackson, 2008; Krieger, 2000; LaVeist, 2005; Williams, 1999; Williams & Collins, 1999). Cummings and Jackson (2008) found that the biggest difference is not between races or gender, but between status levels for all groups. They observed that the effects of race are greatest as SES increases. Racial/ethnic disparities for self-rated health are less at lower income levels. This is consistent with other measures of health disparities as well. As SES increases, racial and ethnic disparities increase. Likewise, the race/ethnicity disparity narrows as income decreases (Schulz, Israel, Williams, Parker, Becker, & James, 2000; Williams, 1999). Though the disparity gap narrows with SES, it does not disappear entirely (Schulz, Israel, Williams, Parker, Becker, & James, 2000), suggesting that access to resources greatly mitigates circumstances for races and ethnicities differently in the United States.

Social Class and Poverty

The relationship of social class and poverty to health is extremely complex. In the United States this class system is largely organized according to economics. While
socioeconomic status (SES) reflects an individual’s position in that class system (Gorman & Sivaganesan, 2007) it also produces circumstances of limited or expanded opportunity. This system of organization allows for some people to acquire resources from different positions of advantage relative to others. Accordingly, access to financial resources, education, and even healthcare are determined by one’s position within this system of social stratification (Baum, Garofalo, & Yali, 1999; Gorman & Sivaganesan, 2007).

Baum, Garofalo, and Yali (1999) outline the factors that associate socioeconomic status with health. Those factors include not only education and wealth, but also relative deprivation, neighborhood effects, limited personal tools for coping, and reduced opportunities for making healthy decisions about food and nutrition. In addition, and consistent with the social drift hypothesis, vulnerable populations also experience limited opportunities for class mobility based on opportunity for partner selection. For example, due to circumstances of reduced educational opportunities and underemployment, the probability of finding potential mates is largely confined to those with similar opportunities (Baum, Garofalo, & Yali, 1999).

Race and Ethnicity

Despite improvements in healthcare and quality of healthcare, differences still exist along racial/ethnic lines. Unfortunately, due to the social stratification system in the United States, the relationship between social class and race/ethnicity is highly confounded (Farmer & Ferraro, 2005; LaVeist, 2005; Navarro, 1999; Williams, 1999). As stated by Farmer and Ferraro (2005), it is clear that black Americans experience worse health than white Americans; however, the influence of race, ethnicity, and SES
is unclear. The American Medical Association reports lower quality of health services and high rates of morbidity and mortality for racial/ethnic minorities. The report also explicitly states that differences exist between races, even controlling for gender, age and socio-economic status (AMA, n.d.). However, Krieger (2000) suggests that “racial/ethnic economic disparities often-but not always—explain” U.S. racial/ethnic inequalities in health” (p. 40).

Kawachi, Daniels, and Robinson (2005) hypothesize that the relationship between race and class is commonly misrepresented due to the disproportionate number of African Americans living in poverty. African Americans live in poverty at nearly 2.5 times the rate compared to white Americans (Kawachi, Daniels, & Robinson, 2005). Efforts to determine the SES-race/ethnicity-health link are plentiful, however the literature is inconsistent (Farmer & Ferraro, 2005). Racism has been identified as a possible factor for the gap in understanding the relationship between social class-race/ethnicity-health. Adegbembo, Tomar, and Logan (2006), Krieger (2000), and Williams (1999) all agree that racial/ethnic minorities and whites would have equitable access to healthcare if it were not for racism. Baum, Garofalo, and Yali (1999) also contribute to this position, attributing much of the lost explanation of the social class-race/ethnicity-health link to experiences of unfair treatment, prejudice, and discrimination (1999).

Schulz, Israel, Williams, Parker, Becker, and James (2000) hypothesize that the residual is explained by negative emotions as a result of the classism, racism, and discrimination experience by individuals living in these situations. Negative emotions are typically identified by poor self-rated health, reported feelings of depression and/or
anxiety, and feelings of hopelessness. Gallo and Matthews (1998) and Mirowsky and Ross (2003) consider social distress as an overarching term for these negative feelings that occur either as a result of, or because of, employment difficulties, economic hardship, or other sources of stress as related to poverty such as housing.

Negative emotions as a result of vulnerability, social distress, or discrimination are reflected in self-rated health (Krieger, 2000; Williams, 1999; Williams & Collins, 1999). It is not unlikely that mental and emotional manifestations of these stresses exist. Inequity, unequal circumstances, life chances, and the indirect effects of these conditions adversely affect self-rated health. Schulz, Israel, Williams, Parker, Becker, and James (2000) studied the differences in self-reported health between African American women and white women by neighborhood. Their findings reveal that African American women, regardless of where they lived, reported significantly poorer health status than white women (Shultz, Israel, Williams, Parker, Becker, & James, 2000).

Boardman (2004) agrees and suggests that negative emotions are actually health pessimism as it relates to institutional maltreatment.

This type of unfair treatment, prejudice, and discrimination become institutionalized and legitimated through ideologies that support discrimination against particular socially-defined groups of people. These beliefs have negative effects on health (Williams, 1999) and most likely involve related issues of racism and discrimination (Mechanic & Tanner, 2007). Patterns of inequalities that are reinforced by dominant groups are passed on and learned by subsequent generations through socialization. Beliefs of subordinate groups are also socialized, many times resulting in groups forming negative views about themselves (Williams, 1999).
Discrimination occurs both directly and indirectly (Boardman, 2004; Krieger, 2000), and is represented in each behavioral domain of the BMVP. Legally sanctioned discrimination comes in many forms including past residential segregation and current social deprivation. Both of these examples come as a result of policies that influence behavior as institutional policies of the present and the past have contributed to the creation of differences (Williams, 1999). While direct measures of health status and access to healthcare include having health insurance and perception of need, indirect measures of health behavior tend to include racism and discrimination. Both of these indirect measures are represented in the predisposing, vulnerable domain which is characterized by race/ethnicity, gender, place of residence, and type of employment.

Both Williams (1999) and Krieger (2000) found that discrimination manifests itself in ways that influence health, even if through the internalization of oppression or the social distress is a result of poor SES and the increased risk to environmental and social exposures. The research is consistent with regards to health disparities and social class. The AHRQ (2004), Baum, Garofalo, and Yali (1999), the Commonwealth Fund (n.d.), Kawachi, Daniels, and Robinson (2005), LaVeist (2005), and Vladeck (2007) all provide supporting research of the health disparity narrowing, sometimes disappearing, when controlling for socioeconomic status.

Nancy Krieger (2000) proposed a framework through which discrimination influences health status and access to healthcare. She delineates the multiple pathways by which discrimination can affect health. She cites economic and social deprivation that can occur either at work, in the home, within the neighborhood, and/or other relevant areas. She cites the increased exposure to toxic substance and hazardous
conditions including physical, chemical, and biological agents; socially inflicted trauma including mental, physical, or sexual trauma, ranging from verbal to violent; and the targeted marketing of legal and illegal psychoactive substances (alcohol, smoking, other drugs, and foods); and, lastly the lack of availability of viable health care (Krieger, 2000).

Williams (1999) contributes to the understanding of discrimination by citing the differences in perception of race, by race/ethnicity. His research found that, on average, white people reported views of other racial groups more negatively than they reported themselves, with blacks being viewed more negatively than any other group. He reported that the most common belief held by whites was that most blacks are lazy (45%), prone to violence (51%), and are unintelligent (29%); and that blacks prefer to live off welfare (56%) (Williams, 1999).

Similar to the studies concerning negative emotions, Adegbembo, Tomar, and Logan (2006) studied the relationship of race/ethnicity and healthcare trust. They hypothesized that blacks’ distrust is a result of poor care, clinical encounters, and perception of racism. The findings revealed that perceptions of racism accounted for the differences in healthcare trust between white people and black people (Adegbembo, Tomar, & Logan, 2006). Stepanikova and Cook (2007) also tested the relationship between racial/ethnic background and perception of unfair treatment during the medical encounter. Findings from a telephone survey of 4,556 adults reveal that people living in poverty and those who lack health insurance reported feeling discriminated against regardless of race/ethnicity. Findings indicate that people who did not have health insurance were 2.39 times more likely to experience racial/ethnic bias, compared to
people with health insurance (Stepanikova & Cook, 2007). Stepanikova and Cook report that white people who live in poverty experience almost four times higher odds of perceived racial and ethnic bias, as compared to white people who do not live in poverty (2007). These odds are shared with English-speaking Hispanics. However, Spanish-speaking Hispanics and African Americans experienced higher odds (eight times) of perceiving racial bias compared to whites not living in poverty (Stepanikova & Cook, 2007).

Baum, Garofalo, and Yali (1999) studied the effect of neighborhood on all-cause mortality. The study of neighborhoods is interesting because neighborhoods typically embody environmental circumstances that either foster or hinder life chances such as access to education and/or environments conducive to nourishment, growth, and opportunity. Contextual factors such as neighborhoods help to create or mitigate vulnerability. Unfortunately, for the African American community, and as a consequence of previous social policies, residential environment determines access to both public and private goods and services, including healthcare (Baum, Garofalo, and Yali, 1999). By example, the consequences of legally-sanctioned housing segregation are especially recognizable among impoverished communities, with a disproportionate amount of African Americans living in these neighborhoods (Williams, 1999). Characteristic of these communities, unfortunately, limit access to otherwise desirable resources such as quality education, employment opportunities, access to an economically and socially diverse community of neighbors and peers (social network), and transportation (Schulz, Israel, Williams, Parker, Becker, & James, 2000). Mechanic and Tanner (2007) mention the vulnerability made possible by increased opportunity for neglect as a part of living in
areas that commonly experience heavy traffic, and more noise, pollution, and crime. Other characteristics of poor neighborhoods are the higher than average density of liquor outlets and access to illegal drugs. In addition, prevalent in these neighborhoods is the high incidence of behavioral and emotional disorders including depression or anxiety, and deviant behavior. This includes higher incidence of infant mortality, substance abuse, school dropout, unemployment, HIV and other STDs, tuberculosis, suicide, mental illness, and crime. Poor and minority children growing up in these environments are especially vulnerable to disease and illness (Mechanic & Tanner, 2007). In addition, Williams (1999) found that the cost of goods and services were, on average, higher in predominately African American communities, compared to predominately white communities. These contextual factors of neighborhood and community are structured by past policies and ultimately structure and contribute to poor health outcomes for the residents of those communities. This results in the unequal distribution of social distress and circumstances that many times results in poor health outcomes for individuals. The findings of Baum, Garofalo, and Yali (1999) indicate an association between health and community characteristics, even after adjusting for SES and SES-related factors such as race, sex, and health status.

**Gender**

In the United States, about half of the population is female. About 70% of women are white, about 13% of women are African American, and about 11% are Latina (U.S. Census, 2004). Of women, 35% live at 200% and below of the federal poverty level (Kaiser, 2000). Women, and especially minority women, face conditions of poor employment opportunities, low-incomes, and family responsibilities. Moreover, the
number of households headed by women is increasing. Lillie-Blanton, Martinez, Taylor, and Robinson (1999) attribute the increasing number of families headed by women to changes in economic conditions, the decline in median wage, employment opportunities, residential segregation, and declining marriage opportunities. Almost one in five Hispanic American families is headed by women, while one in three African American families are headed by women; only 9% of Anglo American families are female-headed households. However, for families falling below the federal poverty line, those headed by mothers comprise almost 75% of African American households, and almost 50% of Hispanic households. Half of minority families headed by women live in poverty (Lillie-Blanton, Martinez, Taylor, & Robinson, 1999).

This data concerning the status of women is especially worrisome considering the high incidence of unmet physical and emotional needs, and the number of single mothers living in poverty. Sherbourne, Dwight-Johnson and Klap (2001) studied the reasons cited for women having an unmet need for mental and emotional healthcare. The authors found that over 90% of their sample reported a visit to a physician in the past year. They found that the most frequently reported barrier to healthcare is cost. Especially among the uninsured, over half (54%) of the respondents reported services as too expensive. In addition to the financial burden, while 35% of the women cited that they would not seek treatment because they thought that they could handle the problem themselves. Other reasons cited were embarrassment, time, and apathy (Sherbourne, Dwight-Johnson, & Klap, 1999).

Almost half (42%) of the women in the study who reported mental or emotional health problems did not see a physician in the last year (Sherbourne, Dwight-Johnson &
Klap, 2001). Jones et al. (2001) found that emergency department (ED) utilization is high among individuals with generalized anxiety disorder. This is largely due, however, to access to EDs in general, which is higher among the low-income population and also those individuals not having a usual source for care.

Unfortunately, women and especially minority women report poorer self-rated health, and more feelings of depression and anxiety, compared to men. Women also experience a higher incidence of social distress characterized by socially-induced stress including poverty, lower incomes and single parenthood. This could account for the high numbers of female-headed households, the number of single mothers, and the feminization of poverty implying that there is an increasing number of women living in poverty and being the primary caregiver of children (Schulz et al., 2000). Schulz et al. (2000) recognize the contribution of social structure and the cumulative effects of vulnerable characteristics contributing to the perpetuation of poor subjective and objective health status. In their study of 2,766 women, they found that women were more likely to report a chronic condition (38% vs. 30%), to use a prescription medicine on a daily basis (56% vs. 42%) and to be diagnosed with depression or anxiety (23% vs. 11%). This concern is especially great when considering the number of women living in poverty that are solely responsible for emotional as well as financial support of a family.

As a person’s relationship to the healthcare system is largely determined by one’s position in the American social stratification system, the relationship of women to the healthcare system is also determined by access factors such as employment and health insurance, health status, and also factors indirectly associated with gender such
as access to social and financial resources including transportation. If left unattended, poor self-rated health and negative feelings possibly resulting from social distress and/or discrimination could result in maladaptive behaviors (Gallo and Matthews, 1998).

Enabling Variables:

Barriers to Healthcare

Barriers to healthcare are embedded within the structural fabric of the American stratification system. Health insurance is typically provided by employers as a condition of full-time employment. While many individuals not only lack employment, which provides full-time compensation and benefits, but also lack the opportunities to obtain viable employment through other structural barriers in society such as access to economic resources, necessary education, viable transportation, or living conditions that are conducive to acquiring such necessary resources to obtain the type of employment that will qualify them for health insurance.

Lack of insurance is a proxy for other, also significant, predictors of access to healthcare such as employment, income, education, and race/ethnicity. Therefore, not having employment or being under-employed in industries not providing benefits, not having health insurance, and not having a usual source of care are commonly identified barriers to healthcare (IOM, 2003). Each of these predictors is also a manifestation of the structured inequalities of the U.S. healthcare systems.

Employment Opportunities for the Poor

Employment confounds the relationship between socioeconomic status and health. This is because health insurance in the United States is primarily employer-provided. Typically, American employers provide health insurance and benefits to
qualifying (generally full-time) employees. The confounding relationship is due to the social distribution of jobs and employment. The type of company that typically offers health insurance to employees also typically posts larger revenues and has more employees. The types of jobs that do not typically offer health benefits as a condition of employment are those typically providing lower wages, in smaller firms, and in concentrated industries (Reschovsky, Strunk, & Ginsburg, 2006). Unfortunately, the social distribution of employment in the United States only allows for the already poor and uneducated or undereducated to gain employment in these types of positions.

Unemployment rates for racial and ethnic minorities are higher than for whites. Williams (1999) reports that African Americans have consistently experienced almost twice the unemployment rate of whites since 1950. White-Means and Hersch (2005) examined the issue of eliminating the race/ethnic disparities in employment as an avenue toward eliminating the disparities as a result of race/ethnicity with regard to health and access disparities. They cite that racial and ethnic minorities are stratified into places of employment that are less likely to provide coverage (White-Means & Hersch, 2005). For example, Hispanics and Mexican Americans employment rates are not the issue. Rather, it is the type of employment. Research conducted by Shah and Carrasquillo (2006) reported that Latinos are more likely to work in agriculture or service, which are two industries that typically employ low-wage labor. While eight in ten African Americans are members of working families, high rates of uninsurance are due to the circumstance of working in employment sectors that do not provide coverage (IOM, 2003; Kaiser, 2000).
The Institute of Medicine reports that Hispanic Americans experience the greatest barriers to healthcare (IOM, 2003). Hispanic-Americans are most likely to participate in laboring professions, compared to Anglo or African Americans. At the same time, Hispanic-Americans are nearly one-third more likely to work for an employer who does not offer health insurance (IOM, 2003). While most (87%) Hispanic Americans are members of working families, only 43% of Hispanic Americans receive coverage as a condition of employment (Kaiser, 2000).

Insurance Status of the Poor

One of the most common and most cited predictors of access to healthcare in the United States is health insurance. As previously mentioned, health insurance is typically available according to employment type. Of the working-age population, 59% of Americans (AHRQ, 2008; CDC, n.d., Meharry, n.d.) and 52.4% of Texans in 2003 (Texas Comptroller, 2005) rely on employer-provided health benefits. Of Americans 11% rely on public funding sources such as Medicaid. An additional 11% of working-age Americans rely on other public insurance or have purchased private coverage (Meharry, n.d.). In 2002, 42 million Americans were uninsured. This number accounts for almost 15% of the total population. By 2006, the number of uninsured reached 47 million. This is almost 16% of the population. Some studies indicate that the figure could be as many as 52 million people if the count included individuals who have fallen out of coverage then re-enter within two years (Meharry, n.d.).

Health insurance is the enabling factor that facilitates accessing the healthcare system in the United States. One of the consequences of the large number of uninsured is the growing amount of uncompensated healthcare costs. These costs are a burden to
local taxpayers and to the healthcare economy, which then affects the costs of providing
health coverage for employers (Thompson, & Lee, 2007). Not having health insurance
adversely influences health access behaviors, as many people will choose to delay
treatment or forego care due to the cost. Therefore, lack of health insurance poses a
significant barrier to accessing the healthcare system. Research conducted by
Thompson and Lee supports this assertion. They report that those who are uninsured
are more likely than those who are insured to forego or delay treatment (Thompson &
Lee, 2007).

A disproportionate number of minorities live in poverty and work in low-wage
employment; therefore, racial/ethnic minorities are disproportionately represented
among the uninsured (American College of Physicians, 2004; IOM, 2003). Compared to
Anglo Americans, Hispanic Americans and African Americans are more likely to be
uninsured, with Hispanic Americans being most likely to be uninsured (American
College of Physicians, 2004; Ross & Mirowsky, 2000; Shah & Carrasquillo, 2006).

Hispanics represent only 13.3% of the U.S. population (U.S. Census, 2004). However, they account for about one-third of the uninsured population (American
College of Physicians, 2004; Shah & Carrasquillo, 2006; U.S. Census, 2004). According
to the Institute of Medicine, African Americans are almost twice as likely as whites to
lack health insurance (IOM, 2003). African Americans are also more likely to participate
in publically-funded programs such as Medicaid, compared to whites. The number and
percentage of uninsured Hispanics increased from 14 million people, or 32.3%, to 15.3
million people, or 34.1%, from 2005 to 2006. Meanwhile, the number of uninsured, as
well as the rate without health insurance, remained statistically unchanged in 2006 for
non-Hispanic whites at 21.2 million, or 10.8%. For blacks, the number and percentage grew from 7 million in 2005 to 7.6 million and from 19% to 20.5% (IOM, 2003).

Ross and Mirowsky (2000) tested the relationship between medical insurance, SES, and health. Findings indicate that Americans without insurance receive less medical care than people with insurance. In addition, Americans without insurance also have lower utilization rates for both physician visits and hospital services (Ross & Mirowsky, 2000). The Robert Wood Johnson (2001) study concerning the coverage gap reports that about 40% of adults reported not being able to get care or having a healthcare provider. In addition, those with publically-funded insurance have worse health than people who lack insurance entirely. Overall, people with private insurance (employer-provided) have lower mortality and are in better health. This finding is more similar to those with no insurance, as opposed to those who have publically-funded health insurance, even after controlling for income and education (Ross & Mirowsky, 2000). This finding is consistent with the nature of the relationship between socioeconomic status, poverty, and race/ethnicity and healthcare.

Vladeck (2007) explicitly states that poverty is the greatest cause of vulnerability. McCally et al. (1998) attribute global inequality to poverty. However, Farmer and Ferraro (2005) and Navarro (1999) still contend that the issue surrounding health disparities is race and class. In fact, after adding the effects of gender, the conditions of race/ethnicity become grimmer. As previously stated, living in poverty as a racial or ethnic minority female creates a special set of circumstances of below median wage employment, employment without benefits, on average; and, demographic and housing patterns that make life with limited social and financial capital difficult. Lastly, the incidence and
prevalence of mental and emotional health problems is great among the poor. Poor self-rated health among women in this demographic is disproportionately low. This further exacerbates the social distress experienced among this population.

Health Need:

Self-perception of Health

Consistent with the previous literature, the social distribution of self-rated health varies across social categories, especially with regard to social class and race. For instance, Boardman (2004) and Cummings and Jackson (2008) conclude that without controlling for social class, or SES, African Americans are, on average, more likely to have poorer self-rated health than Anglo Americans. In fact, a longitudinal study by Farmer and Ferraro (2005) found that black Americans endured poorer self-rated health than white Americans over a twenty year period. In addition, they found black Americans’ health declined at a faster rate relative to white adults. Cummings and Jackson (2008) reported similar findings to Farmer and Ferraro (2005), but controlled for SES. They reported that African Americans’ perception of overall health decreases at a greater rate than Anglos (2008).

Previous studies reveal that the race/ethnic disparity narrows once falling below the poverty line (AHRQ, 2004; Baum, Garofalo, and Yali, 1999; Commonwealth Fund, n.d.; Kawachi, Daniels, and Robinson, 2005; LaVeist, 2005; and Vladeck, 2007). Farmer and Ferraro controlled for education and found that the white-black disparity disappeared entirely (2005). Gorman and Sivaganesan found that as education and income increases so do an individual’s self perception of health (2007). They also found
that those lacking insurance or being out of work report lower self-rated health (Gorman and Sivaganesan, 2007).

Franks, Gold, and Fiscella (2003) used data from the Household Survey component of the National Medical Expenditure Survey (NMES) and found that people at the poverty level report poorer self-rated health. They also conducted the only study that included Latinos. They found that, overall, Latinos reported intermediate between whites and blacks with regard to self-rated health indicators. Results include lower self-reported health for women and lower health status for blacks when compared to whites (Franks, Gold, & Fiscella, 2003). Cummings and Jackson (2008) found that black women reported the worst health overall. These findings are consistent with Gorman and Sivaganesan (2003) regarding measures of socioeconomic status: low education and low income are associated with low self-reported health. Franks, Gold, and Fiscella (2003) also found education to be statistically significant. Farmer and Ferraro found education to be significant for self-rated health but only for white adults (2005). Lastly, their studies reveal that women are more likely to suffer from depression, anxiety, and social distress than men. They hypothesize that this is largely due to conditions related to employment, poverty, and single motherhood (Ranji, Wyn, Salganicoff, & Yu, 2007). Both Gorman and Sivanganesan (2007) and Ranji, Wyn, Salganicoff, and Yu (2007) found a positive association with economic difficulties. This conclusion proves problematic for those who need medication. Gallo and Matthews (1998) cite findings from their study that identify significant relationships between low SES and mental health. They report that low SES as positively associated with high rates of both depressive and anxiety disorders.
Poverty, Social Distress, and Emotional Health

People with fewer resources have less capacity to manage the stresses of daily life. These include not only financial resources, but also social and symbolic resources such as education. Sherbourne, Dwight-Johnson and Klap (2001) and Gallo and Matthews (1998) studied the effects of SES on distress. They conceptualized distress as negative emotions and cognitions that include depression, anxiety, hopelessness and hostility (Gallo & Matthews, 1998). They used several common indicators of stress at the poverty level such as employment status, education, and social support (e.g., marital status). Sherbourne, Dwight-Johnson and Klap (2001) reveal that women who are unemployed are more distressed compared to women who are working (22% vs. 17%), while women with less than a high school education are more distressed than women with a college education (30% vs. 12%). Similarly, one-third (32%) of women in poverty are distressed compared to 14% of those who live above the poverty level. By race, black and Hispanic women are more likely (26-27%) than white women (17%) to be distressed, while young women are more likely to be distressed (21%), compared to women over the age of 65 at 15% who experienced social distress. Social support was also an indicator of social distress among women. Women with social support are less likely to report distress than those without social support (17% vs. 50%). Finally, having poor health (62%) or being disabled (38%) was a significant predictor of social distress (Sherbourne, Dwight-Johnson & Klap, 2001).

In conclusion, significant predictors of self-rated health are all related to SES (Gorman & Sivaganesan, 2007). Self-rated health is also found to be a significant predictor of access to healthcare such as physician care and emergency department
use, access to prescription medications, and necessary healthcare resources. Health need represents the perceived requirements of potential patients desiring a certain amount of resources to treat both subjective and objective health conditions (Boardman, 2004; Farmer & Ferraro, 2005; Franks, Gold, & Fiscella, 2003; Gorman & Sivaganesan, 2007).

Health status is a dual measure that is found to represent significant relationships in both directions: as an independent variable and as a dependent variable. “Overall, how would you rate your health?” is a valid and reliable predictor of current actual health status (Boardman, 2004), health need and mortality (Franks, Gold, & Fiscella, 2003). Self-rated health is a measure of perception and can go beyond disease and represent quality of life (Cummings & Jackson, 2008). It is a measure that is often used in national surveys and is inexpensive, as it does not require objective measurement or diagnosis of a disease. Self-assessed health is also a predictor of mortality (Gorman & Sivaganesan, 2007), along with other health measures such as access to care (Farmer & Ferraro, 2005). The significance of this measure is that it represents current health status, health need, and necessary resources.

Health Behavior:

Access to Healthcare

The consequences of not seeking necessary treatment or delaying treatment are major. With the changing economy, and increasing healthcare expenses and competing needs for medical care such as housing costs, food, or clothing, the inability to pay for medical costs is increasing (Cunningham, Miller, & Cassil, 2008). Unmet needs, a measure of access to healthcare, are an indicator that a problem accessing the system
exists. Since measuring access to healthcare is partially a system-level measure for determining system effectiveness, the variable representing unmet needs reveals the reasons why people are not accessing the healthcare system (Shi, & Stevens, 2005).

The following sections examine literature and research regarding common outcome indicators of access to healthcare including: problems accessing healthcare, emergency department use, and access to prescription medications.

Problems Accessing Healthcare

One of the most prevalent problems associated with barriers to healthcare is that the people having the greatest need experience the most problems accessing health care. A commonly applied definition of “access to healthcare” is “the ability to get medical care when needed” (Meharry, n.p., n.d.). Forrest and Starfield report that almost two-thirds (63.6%) of their sample encountered anywhere from one to five access barriers (1998). Compared with the White non-Hispanic subgroup, Hispanic and Black non-Hispanic respondents faced significantly more access barriers. Of the people reporting barriers to healthcare, most were uninsured, below the poverty line, and in poor or fair health. Forrest and Starfield (1998) cite that those who live in poverty face 37% more barriers to healthcare than those who do not live in poverty.

Cunningham and Felland (2008) report a decline in accessing healthcare for Americans. The most common reasons cited for the decline in access to healthcare is anxiety related to the cost of care. Evidence from The Health Tracking Household Survey (2007) reveals that 59 million Americans reported not getting or delaying needed medical care in 2007. This is an increase from just one in seven or 36 million people, in 2003 (Cunningham & Felland, 2008). This figure includes both insured and uninsured.
Those with health insurance also report cost as a barrier to care, including co-payments and subsequent prescription medications. In addition, indirect costs of having insurance are commonly reported barriers, which include market variation in availability of doctors in particular neighborhoods, the shortage of general practitioners, and available hours. These circumstances are exacerbated for people without insurance and the poor. Difficulties getting time off from work and transportation problems are a few of the problems also associated with accessing the healthcare system (Cunningham & Felland, 2008).

Hunt et al. (2006) hypothesize that people who access the health care system do so more frequently regardless of the point of access. They contend that people who do not have a usual source of care also do not frequent the emergency department (Hunt, et al., 2006; Sun, Burstin, & Brennan, 2003). This hypothesis and their subsequent findings are contrary to assumptions and current literature citing that high ED use reflects poor access to other access points in the healthcare system including primary care and having a usual source of care (Lowe et al., 2005; Sarver, Cydulka, & Baker, 2002).

Another report by the HSC (2004) based on the same data found that more than one-third of American families reported out-of-pocket expenses greater than $2,000 a year. The report indicates that half of families with medical bills are low income, or 200% of the federal poverty level of $36,800 for a family of four in 2003. Of families reporting problems paying for healthcare expenses, 63.1% also reported problems paying for basic necessities. May and Cunningham (2004) consider basic necessities as payments for housing, transportation or food. Of those reporting difficulties paying for
healthcare expenses, 94% reported being contacted by a bill collector as a result of unpaid medical expenses.

According to the Kaiser Family Foundation study (n.d.), 12% of respondents reported problems paying for basic necessities such as food, heat, or housing. The Kaiser study also reported that at least one member of the family in 42% of those surveyed experienced at least one of five consequences due to cost: “put off or postponed getting needed care (29%); skipped a recommended medical test or treatment (24%); not filled a prescription (23%); cut pills in half or skipped doses of medicine (19%); or had problems getting mental health care (8%)” (Kaiser, n.p., n.d.).

Particularly for women, access to healthcare is largely affected by employment and health insurance. Compared to men, women experience a greater incidence and prevalence of mental illness, and also more expensive conditions and treatment due, in part, to reproductive health. It is unknown if this is due to overuse by women, underuse by men, underreporting by men, gender bias in the diagnostic criteria, or a result of the maldistribution of women below the poverty line, which is strongly tied to access to healthcare (Rieker & Bird, 2000).

According to HSC, unmet medical care needs due to cost barriers were greatest for people with fair to poor health (11.7%) in 2003, and 17% in 2007. Uninsured people in fair to poor health experienced the greatest access problems and unmet need with 25% reported going without care. The HSC reported in 2003 that those without health insurance were 3.4 times as likely to report going without health care; though, by 2007 but only 2.8 times as likely. The authors attribute this finding to increased health care
costs and increased costs associated with health insurance-related and health system-
related problems (HSC, 2008).

*Emergency Department Use*

A common measure of access to healthcare is emergency department use. Visits
to the emergency department represent care that is perceived as needed at the time of
the visit to the hospital (Baker, Stevens, and Brook, 1996). Several studies focus on the
variation of ED use by socioeconomic status and/or race/ethnicity. Sarver, Cyldulka,
and Baker (2002), and Baker, Stevens, and Brook (1996) examine the relationship of
education, employment, and race/ethnicity and ED use. Several studies have found that
having a usual source of care is the most significant predictor of ED use (Baker,
Stevens, and Brook, 1996; Hunt, et al., 2006; Sarver, Cyldulka, and Baker, 2002), after
adjusting for satisfaction, access, and socioeconomic status (Baker, Stevens, and
Brook, 1996; Sarver, Cyldulka, and Baker, 2002). Hunt et al., (2006) found that 81% of
those who access the ED had a usual source of care, and that almost all (84%) had
health insurance. This finding suggests that those who have access to the healthcare
system access the healthcare system at many or multiple points (Hunt, et al., 2006).
Sun, Burstin, and Brennen (2003) suggest a small percentage (3-4%) of patients
actually account for almost a fifth (12-20%) of total ED visits. Hunt et al. (2006) found
that 72% of ED visits were made by 92% of people who also made at least 3 visits
annually, while those with 4 or more visits were responsible for just over one-quarter
(28%) of visits.

While Hunt et al. (2006) found that most people who use the ED have health
insurance, their findings also suggest that one-third of users had incomes below the
federal poverty level. Moreover, 16% of ED users were at or above 400% of the federal poverty level (Hunt et al., 2006). Sun, Burstin, and Brennan found similar results regarding demographic factors associated with ED use. They found indicators of poverty and social distress such as mental health indicators and being a single parent (Sun, Burstin, & Brennan, 2003) significantly affected ED use. These characteristics are also significantly associated with health status, negative feelings, and poor self-rated health.

In contrast to the above-mentioned research findings, Cunningham (2006) found ED use to be more common among those living in poverty. However, the research also indicated that lack of insurance did not necessarily predict high ED use. Cunningham also found racial disparities among ED patrons were highest between the poor, compared to the non-poor, and African Americans, compared to other groups. This finding is largely due to the high cost of ED utilization without insurance. Lowe, et al., (2005) cite research that many times points to ED use being disproportionately high for those who are publically-insured. The Lowe, et al. research refutes this evidence once adjusting for SES and confounding variables. Due to the high level of confounding among poverty, SES, and race/ethnicity, much of the literature is inconsistent with regard to race/ethnicity, poverty, and ED use.

Once adjusting for SES, insurance status is not found to be significantly related to ED use. On average, research indicates that the significance of race/ethnicity is reduced after adjusting for SES. Research by Stratmann, Ullman, and Grumbach (1975) and Baker, Stevens, and Brook (1996) found that race was not significantly associated with ED use after adjusting for insurance status and also health status. Much of the
literature cites health status and poorer self-rated health as significantly associated with ED use. Berstein (2006) cites conclusions of several studies that identify the characteristics of those who frequent the emergency department. People who go to the ED more often are also sicker, and they use more health care in general. In addition, those who visit the ED more often also tend to disproportionately suffer from mental illness and substance abuse. Their findings indicate that one’s race, ethnicity, and insurance status are not strong predictors of ED use (2006). Cunningham (2006), Berstein (2006), and Hunt, et al., (2006) both report ED users as having poor physical and mental health.

People who access care in the emergency department do not necessarily experience the need for urgent care, but may access the system due to other reasons such as “lack of a primary care provider, transportation problems, and need for after-hours care” (Baker, Stevens, & Brook, 1996; GAO, 2003; Glick & Thompson, 1997). Findings by Sarver, Cydulka and Baker and Hunt, et al., suggest that non-urgent care is sought by individuals as a result of unmet needs (Hunt, et al., 2006; Sarver, Cydulka, & Baker, 2002). These studies examined the influential factors that contribute to ED use and unmet health needs (Sarver, Cydulka, & Baker, 2002).

Prescription Medication Access

Several studies test the impact of health disparities on access to prescription medications. In a study by Ranji, Wyn, Salganicoff, and Yu (2007), lack of health insurance was the most significant predictor of the likelihood of accessing prescription medication. The sample comprised of 1,177 working-age women who take at least one prescription medication regularly. They (2007) define cost barriers as foregoing
prescription meds, splitting or skipping dosage due to cost. Ranji, Wyn, Salganicoff, and Yu (2007) controlled for sociodemographic characteristics of income, race/ethnicity, insurance status, and also health status.

Ward and Franks (2007) cite the risk profile for experiencing barriers to prescription medications includes being poor, female, a racial/ethnic minority, and not having health insurance. The population most likely to experience cost barriers to acquiring prescription medication were uninsured and low-income, however women of all income levels reported cost barriers. Other predictors of not filling a prescription medication due to cost were race/ethnicity and health status. Blacks were more likely than other groups to experience any cost barrier, while women in poor health were most likely to experience cost barriers (Ranji, Wyn, Salganicoff, & Yu, 2007; Ward & Franks, 2007). Women who were low income and uninsured had the highest likelihood of experiencing cost barriers to accessing prescription medication. This figure is nearly 7 times greater than women with higher incomes and with health insurance (Ranji, Wyn, Salganicoff, & Yu, 2007). This figure is exacerbated by minority status, as a greater percentage of black and Latinos diagnosed with chronic illness forewent prescription medication due to cost. This figure results in 30% of blacks and a quarter of Latinos with chronic conditions, compared to only 17% of whites (Reed & Hargraves, 2003).

In a study by the Center for Studying Health System Change, Reed (2005) found that the risk of unmet needs for those with a chronic condition is high regardless of race. The study reports that more than half (53%) of uninsured working-age, chronically-ill whites and blacks (60%) could not afford to fill their prescriptions. With regard to those having public insurance, nearly one in three whites and blacks could not afford their
prescribed medication. Race/ethnic disparities, however, are still great with regard to access to prescription medications. This could be a result of the disease incidence for African Americans compared to Anglo Americans (Reed, 2005; Reed & Hargraves, 2003). This is one major limitation for using access to prescription medicine as an access indicator. Individuals experiencing difficulties accessing prescription medication are represented by those who are low-income uninsured. It must be noted, however, that physical ailments and access to healthcare also largely vary not only by income but also race/ethnicity. This point should be highlighted because the type of medication needed is confounded by race/ethnicity. If both objective and subjective health status are also confounded by race/ethnicity, then required prescription medications will also be confounded by objective health status (morbidity), as health status is confounded by race/ethnicity.

Access to prescription medication is most costly for the poor and medically uninsured. Low income and uninsured people often lack coverage for prescription medications, and also do not qualify for drug benefit programs. Even with health insurance and prescription medication coverage, prescription medication can be costly. Among people with insurance plans and prescription drug coverage, medicine can be expensive with one in ten working-age people going without prescription medicine due to cost (Chauncey, Mullins, Tran, McNally, & McEwan, 2006). This figure increases significantly for those with public insurance, or those without insurance entirely. According to a study by the Center for Studying Health System Change, 26% of uninsured adults in 2003 did not purchase at least one prescription drug because of cost. This is compared to only 8.7% of people with employer coverage (Felland, Taylor,
Similarly, Reed and Hargraves (2003) found that individuals who are without health insurance were more than three times as likely as those with private health coverage to have gone without at least one prescription medication because of costs concerns.

Cost concerns are a major barrier to medication access. The costs of prescription medications are typically accrued in addition to the visit to the primary care physician or the emergency department. Barriers exist for prescription medicines such as additional transportation to the pharmacy, the cost of medication, or the cost of the medicine competing with other household costs such as food or housing. Lack of compliance with prescribed drug regimens adversely affects health, results in diminished capacity due to the progress of illness, affects quality of life, and ultimately could result in higher medical care costs (Chisholm, 2003). Nearly 1.8 million working-age adults, more than half of the Reed (2005) sample, paid more than 10% of their incomes for medical expenses. They still were not able to purchase their prescriptions. However, increasing cost concerns are especially burdensome for people with chronic conditions who need to take medication regularly. Reed (2005) cites that privately insured, working-age adults (between 18 and 60) with chronic health conditions who did not purchase all of their prescriptions medications increased from 12.7% to 15.2%, between the years 2001 and 2003. This is more than 12 million working-age adults (Reed, 2005). Chauncey, Mullins, Tran, McNally, and McEwan (2006) implicate the increasing cost of retail medication for this trend. On average, the retail cost of prescription medication increased an average of 7.4% from 1993 to 2003, and even at greater rates since 2003. It is expected that Americans will spend at least $240 billion dollars on prescription
medications in 2008. In 1998, Americans only spent $98 billion. However, with increasing drug costs and an increase of people over the age of 65, this figure is expected to rise (Chisholm, 2003).

The Institute of Medicine (IOM) reports that the most significant barriers to equitable to care must be addressed before reducing health disparities (IOM, 2003; Kelley, Moy, Stryer, Burstin, & Clancy, 2005). Andersen (1995) advocates for the use of “access to healthcare” as an outcome measure. Access to healthcare has the potential to yield large amounts of information about not only the healthcare delivery system, but also the behaviors of the accessing population. He cites that an individual typically equates access to care with characteristics of the population including family income, insurance coverage, or even attitudes toward medical care. These characteristics which are thought to influence whether entry to the system is gained and how satisfied consumers are with it are termed “process indicators” (Andersen & Aday, 1978). This term and these definitions are intended to represent every element of access including geography, proximity to a health center, medical insurance, cost of care, as well as the potential barriers to care such as those barriers to care such as transportation and cultural and linguistic barriers (Meharry, n.d.).

Summary of Literature

In sum, the literature concerning the social determinants of access to health and healthcare is complex. While many scholars attribute health disparities to race and ethnicity, many cite socioeconomic factors as a greater predictor of health status and access to healthcare. The literature is inconsistent (Farmer & Ferraro, 2005), and both have been found to predict health behavior.
Cummings and Jackson (2008) found that differences between races/ethnicities and gender are the greatest between status groups, as opposed to within status groups (i.e. race, ethnicity, or gender) once considering SES. They observed that disparities increase between groups as SES increases. Similarly, as SES decreases so does the disparity. However despite this evidence, high rates of poor health, poor health services, morbidity and mortality still exist for racial/ethnic minorities (AMA, n.d.).

The extenuating circumstances of living in poverty are diminished employment opportunities and reduced access to health insurance. Perceived health status is also a reliable predictor of health behavior. Typically a result of social distress (Gallo & Matthews, 1998; Ross, 2003), poor self-perceived health commonly arises from the added effects of racism, sexism, employment or economic difficulties. Social distress is most commonly experienced by the socially and economically vulnerable, including racial and ethnic minorities and women. This type of experience and the negative emotions experienced as a result can manifest in poorer self-perceived health or in perception of experience of healthcare trust within the medical encounter (Adegbembo, Tomar, & Logan, 2006). Commonly, low-SES is positively associated with high rates of both objective and subjective health (Gallo & Matthews, 1998; Gorman & Sivaganesan, 2007).

Ultimately, access to healthcare is compromised by a variety of social and economic circumstances. Identifying the positive enabling variables and determining the barriers contribute to reducing negative experiences and increasing positive health.
Hypotheses

There are five research hypotheses for this study. They are:

H1: Predisposing, traditional variables will affect health behavior.

H2: Predisposing, vulnerable variables will affect health behavior.

H3: Enabling variables will affect health behavior.

H4: Barrier variables will affect health behavior.

H5: Health need variables will affect health behavior.
CHAPTER 4

METHODOLOGY

Introduction

This chapter describes the research methodology and statistical design of the study. Included in this section is the discussion of the population and sample, research design, study variables, and statistical analyses. Reliability and validity of the study are discussed as well as the limitations.

Population and Sample

The population from this study is composed of 10,000 low-income patients within the John Peter Smith Health Network (JPS) during the months of July and August of 2000. JPS is a tax-supported, publically-funded healthcare network for the indigent in Tarrant County, Texas. This hospital network is considered a safety-net healthcare provider for the county, which encompasses part of the Dallas-Ft. Worth metropolitan area.

This study, *Health status and access disparities among the uninsured working-age population in a safety-net healthcare network in Tarrant County, Texas*, is a part of a larger study, *Uninsured adult working-age population in Tarrant County: Access, cost of care, and health* (Eve et al., 1999). The original research was funded by the Texas Higher Education Coordinating Board, Advanced Research Program, Social and Behavioral Sciences. The original study consisted of a representative sample of the diverse patient-base at JPS, both racially/ethnically, and by insurance type and status. The payments office at JPS provided the list of 10,000 patients. A randomly selected
sample of 2,034 patients was contacted first by letter in the fall of 2000. In this letter, potential participants were informed of the purpose of the study, participant rights, and confidentiality. Finally, the CATI (computer-assisted telephone interviewing) technology was used to call patients for interviews.

Potential participants were also provided with the names and contact information for the principal investigators as well as the IRB Human Subjects Office for the University and hospital. The Institutional Review Board (IRB) at the University of North Texas (UNT), the University of North Texas Health Science Center (UNTHSC), and the Human Subjects Committee at JPS all reviewed and approved the original study.

This study focused on those of working age (18-60 years old) who were born in the United States. This analysis was restricted to three racial/ethnic groups: Anglo Americans, African Americans, and Mexican Americans in the sample. Of the 2,034 participants, 566 people were excluded because they did not meet inclusion criteria for race/ethnicity or were born outside of the United States. Consequently, the sample size for this analysis is 1,468 people.

Research Design

The primary investigators recruited and contracted with the UNT Survey Research Center (SRC) to administer the survey and collect the data. The staff were trained to administer the surveys, and they were also multi-lingual so that research participants could communicate in the language most comfortable for them. The CATI system was used to randomly select patients to be interviewed. Individuals in the sample were called five times at varying days and times. If no connection was made, then the number was dropped for another potential respondent (Eve et al., 1999).
A closed-ended survey instrument was administered to collect the primary data. The survey instrument was comprised of nine main sections: access to care, getting healthcare from a specialist, no usual source of care for sick care, insurance, unmet needs, healthcare in the last twelve months, background information (which included socio-demographic variables) immigration status, and a final section concerning women’s health. The final section was administered to women only (Eve et al., 1999; Queen, 2004). A copy of the original questionnaire is provided in Appendix A.

Reliability and Validity of the Survey Instrument

The survey instrument administered to the participants was based on standardized questions from the National Health Interview Survey (NHIS). Revisions to the instrument were made to meet the needs of the local community where the data were collected. The advantages of using the NHIS are the standardization of the instrument, as well as its reliability and validity, pre-tested and administered previous to this study. Contributing to the validity of the measurement is the adaptation of the questions to the local community. This measure attempts to capture the conditions of the area, which improves both the content validity and general validity of the questionnaire (Babbie, 1998; Queen, 2004).

Study Variables

The variables for this study were selected to represent all domains of the BMVP: the predisposing characteristics, enabling factors, health needs, and healthcare access/behaviors.
**Operational Measures of the Predisposing, Vulnerable and Race/ethnicity Variables**

Original coding of the independent, predictor variables was mostly as nominal variables. For the purposes of this study, all variables -- with the exception of age and years in the U.S. -- were recoded as dummy variables, setting all refused, missing, or NR/DK responses as system missing.

The predisposing, vulnerable variable race/ethnicity is considered a basis for this analysis regarding health disparities. Table 2 describes the recoding for the race and ethnicity variables. Race/ethnicity was measured using a combination of three questions. The first two questions determine ethnicity, while the third question determines race. The ethnicity questions ask, “Are you of Mexican origin or descent?” and “Are you of Mexican American origin or descent?” Response options for both questions are: 1. Yes, 2. No, 9. NR/DK. The race question asks, “Which of the following racial groups do you belong to?” The response options are: 1. White/Caucasian, 2. Black/African American, 3. Asian, 4. Native Hawaiian/other Pacific Islander, 5. American Indian/Alaska Native, 6. Other, 9. NR/DK. This study utilizes the White, Black, and Hispanic/Mexican categories for analysis due to the low sample size of the other groups. This analysis was restricted to two racial groups (Anglo American and African American) and one ethnic group (Mexican American).
Table 2

Recoding of the Predisposing, Vulnerable Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original question</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity</td>
<td>Are you of Mexican origin or descent?</td>
<td>No</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are you of Mexican American origin or descent?</td>
<td>No</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Which of the following groups do you belong to?</td>
<td>White/Caucasian</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Black/African</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>American</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asian</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Native</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hawaiian/other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pacific Islander</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>American</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indian/Alaska</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Native</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NR/DK</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operational measures of the Predisposing, Traditional Variables

Table 3 describes the recoding of the predisposing, traditional variables. Gender was originally coded as 1=female and 2=male; these values were also recoded to reflect 0=male, and 1=female. Age was originally coded as a ratio variable, then for the purposes of this study was recoded as ages 18-30=0, 46-60=1. The question for marital status was, “Are you currently married and living with a spouse?” The original coding was 1. Yes, 2. No, 9. NR/DK. These indicators were recoded as 0=Yes, 1=No, and 9=system missing.
Table 3

Recoding of the Predisposing, Traditional Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>2</td>
<td>Male</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1</td>
<td>Female</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>Ratio</td>
<td>Actual age</td>
<td>18-30</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(in years)</td>
<td>46-60</td>
<td>1</td>
</tr>
<tr>
<td>Not living w/spouse</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
</tbody>
</table>

Operational Measures of the Enabling/Control Variables

The enabling conceptual domain for this study represents resources that one may or may not have that heavily influences access to healthcare. In this study, employment and insurance status are control variables. Table 4 describes the recoding for the enabling, traditional domain variables.

Employment status was determined by the variable of having a paying job. The original question was “Do you currently have at least one job where you work for pay?” The original coding was 1. Yes, 2. No, 9= No answer, refused. These indicators were recoded as 0=Yes, 1=No, and 9=system missing.

Health coverage was addressed by determining insurance status as being either through JPS, private through work, private through spouse’s work, Medicare, and Medicaid. Regarding having JPS Connections, the following question was asked, “Do you currently receive your health care for yourself through JPS Connections?” The original coding was 1. Yes, 2. No, 9. NR/DK. The answers were recoded to represent
those who have JPS and those who do not have JPS coverage. Responses were recoded to reflect 1=Yes, 0=No.

Table 4

Recoding of the Enabling, Traditional Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doesn’t work full-time</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>answer/refused</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance –</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPS Connections</td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
</tbody>
</table>

Operational Measures of the Enabling, Vulnerable Variables

The enabling, vulnerable conceptual domain for this study represents resources that one may or may not have that heavily influences access to healthcare. This domain typically represents barriers to healthcare. In this study, having a usual source of care, having a job that allows for paid time-off from work when sick, having someone to go to the doctor when sick, having access to transportation, and experiencing difficulties with paperwork are considered barriers to healthcare. Table 5 describes the recoding for the enabling, vulnerable domains.

Having a usual source acts as a barrier to healthcare. The question on the questionnaire, “Is there a person or place, like a health clinic or doctor’s office that you usually go to when you are sick or need advice about your health?” The original coding was 1. Yes, 2. No, 9. NR/DK. These indicators were recoded as 0=Yes, 1=No, and 9=system missing. The second enabling, vulnerable variable is paid time-off from work.
It is represented by “Do you get paid time off from work when you are sick?” the original coding for the question was 1. Yes, 2. No, 9. No answer, refused. These indicators were recoded as 0=Yes, 1=No, and 9=system missing,

Many times people want someone to go with them to the doctor. The question, “Does someone usually go with you when you go to the doctor?” was originally coded as 1. Yes, 2. No, 9. No answer, refused. These were recoded as 1=Yes, 0=No, and 9=system missing.

Enabling, vulnerable variables represents barriers including transportation and paperwork. The questions were asked, “Paperwork means things like getting your ID card, having your records changed, processing forms, or other paperwork related to getting care. In the last 12 months, did you have any experiences with paperwork for your health care?” The original coding for this variable was 1. Yes, 2. No, 9. No answer, refused. This variable was recoded as 1=Yes, 0=No, and 9=system missing.

Lastly, “During the past 12 months, did you experience any problems with getting transportation to get health care?” The original coding was 1. Yes, 2. No, 9. No answer, refused. The indicators were recoded as 1=Yes, 0=No, and 9=system missing.

Table 5

Recoding of the Enabling, Vulnerable Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doesn’t have usual source for healthcare</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
</tbody>
</table>

(table continues)
Table 5 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doesn’t get paid time-off from work when sick</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
<tr>
<td>Wants someone to go with them to the doctor</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
<tr>
<td>Problems with paperwork</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
<tr>
<td>Problems with transportation</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
</tbody>
</table>

Operational Measures of the Health Need Variables

Health need variables represent self-reported health status. Four questions represent health status and reflect health need. Table 6 describes the recoding of the health need variables. Perceived health status is measured by the first question, “In general, how would you rate your overall health now?” Answer options were, 1. Excellent, 2. Very Good, 3. Good, 4. Fair, 5. Poor, 9. NR/DK. For the purposes of this study, answers were recoded into dummy variables to reflect 0=excellent/good and 1=fair/poor. The creation of these categories was based on the dummy classification of good health or lack of good health. Categories 1, 2, and 3 were coded as 1 and categories 4 and 5=0, and 9= system missing.

The next two questions measure feeling healthy and full of energy and feeling worried or tense. The third question is, “During the past 30 days, about how often have
you felt very healthy and full of energy? Would you say?” 1. Everyday, 2. Most Days, 3. Some days but not most days, 4. Never, 5. DK/NR. For the purposes of this study, answers were recoded into dummy variables to reflect 1=Yes, 0=No. Categories 1 and 2 were coded as 0, and categories 3 and 4 were coded into 1. All others were coded as system missing. The fourth and final question is, “During the past 30 days, for about how many days have you felt worried, tense, or anxious? Answer options were, 1. Everyday, 2. Most Days, 3. Some days but not most days, 4. Never, 5. DK/NR. For the purposes of this study, answers were recoded into dummy variables to reflect 1=yes, 0=no. Categories 1 and 2 were coded as 1, and categories 3 and 4 were coded into 0. The final question is, “Are you limited in the kind or amount of work that you can do because of physical, mental, or emotional problems?” Answer options were, 1. Yes, 2. No, 3. Don’t know, 9. No answer, refused. For the purposes of this study, answers were recoded into dummy variables to reflect 0=No and 1=Yes.

Table 6

Recoding of the Health Need Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor self-rated health status</td>
<td>Excellent</td>
<td>1</td>
<td>Fair – poor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>2</td>
<td>Excellent - good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>3</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
</tbody>
</table>

(table continues)
Table 6 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doesn’t feel full of energy</td>
<td>Everyday</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Most days</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Some days, but not most days</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feels worried, tense, or anxious</td>
<td>Everyday</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Most days</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Some days, but not most days</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited in work because of health problems</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Don’t know</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No answer</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operational Measures of the Health Behavior Variables

The health behavior variables represent access to healthcare in this study. These variables were originally measured as ordinal or ratio variables. Table 7 describes the recoding of the health behavior variables. Problems getting healthcare in the last twelve months was measured as the following, “Sometimes people have difficulties in getting medical care when they need it. During the past 12 months, was there a time when you wanted medical care or surgery but could not get it?” Response options were 1. Yes, 2. No, 9. NR/DK. These responses were recoded as Yes=1 and No=0. When measuring whether clients had been seen in the emergency department, participants were asked, “In the past 12 months, about how many times have you been seen by a doctor in an emergency department?” Response options were provided as 000 to 366 times and 999
as no answer or refused. Responses were recoded as range, greater than 1 as Yes = 1, and less than 1 visit to the emergency department was recoded as 0. The variable measure for access to prescription medicines asked, “During the past 12 months, was there a time when you wanted a prescription medicine but you could not get it at that time?” Again, answer options revealed choices of 1. Yes, 2. No, 9. No answer, refused, then were recoded as Yes=1, No=0.

The final outcome indicator is forgoing necessities to pay for healthcare. The original question asked, “During the last 12 months, did you NOT receive doctor’s care or prescription medicines because you needed the money to buy food, clothing, or pay for housing?” The original coding was 1. Yes, 2. No, 9. No answer, refused. These indicators were recoded as 1=Yes, 0=No, 9=system missing.

Table 7

Recoding of the Health Behavior, Access Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Original response</th>
<th>Original coding</th>
<th>Recoded response</th>
<th>Recoded value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems getting needed healthcare</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
<tr>
<td>Seen in ED last 12 months</td>
<td>Ordinal</td>
<td>Actual number of times</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Problems getting needed medications</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
<tr>
<td>Forwent healthcare because of competing needs</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>NR/DK</td>
<td>9</td>
<td>System Missing</td>
<td></td>
</tr>
</tbody>
</table>
Statistical Analyses

All variables in this study were recoded as dichotomous variables to represent whether or not an experience occurred. According to the conceptual model, the behavioral model for vulnerable populations (BMVP), outcome measures are represented by both health behaviors and access, while the predisposing characteristics, enabling domain, and health need represent the process or predictor variables. The Statistical Packages for Social Sciences (SPSS), version 16.1, was thus used to generate the statistical analysis for the study.

Bivariate Association

Chi-square tests were used to test relationships between the independent and dependent variables (elaborate and modify later) (Vogt, 1999). The alpha level for this study is set at .05. This means that the probability that this result was produced by chance (or random error) is less than 5% (Vogt, 1999). The purpose of bivariate association for this study is to determine if health disparities exist between Anglo Americans, African Americans, and Mexican Americans.

Hierarchical Logistic Regression Analysis

Due to the nature of the dichotomous dependent variables, logistic regression is used for this study. In addition, this study will use hierarchical regression analysis according to the conceptual model, the BMVP. The measure of association for this modeling method is odd-ratios (OR). Logistic regression modeling is common in medical sociology, health services research, and epidemiological studies (Kleinbaum, 1994). The dichotomous outcome is useful for determining occurrence versus non-occurrence of a health behavior or disease. As stated by Kleinbaum (1994) logistic regression
models yield a predicted value between 0 and 1. These values estimate the probability that a health behavior or disease will occur. The independent and control variables predict the risk of the health behavior or disease, or outcome.

Hierarchal regression analysis allows for the ordering of variables according to the conceptual model, thereby allowing variables within a particular domain for testing. For example, this method allows not only an understanding of which variables predict health status or access to healthcare, but also which domain (predisposing (e.g., race/ethnicity), enabling (e.g., health insurance), health need (e.g., self-reported health)) in the conceptual model best predicts health status (health need) or access to healthcare (health behavior).

The applicable measure of association for this study is the odds-ratio (OR) which describes the odds (versus the odds of not having) for having problems accessing healthcare for a person with particular values of the independent variables (Kleinbaum, 1994). In addition, due to the hierarchical method specified in the design, OR will determine the greatest odds, or probability, of the occurrence of a health need or health behavior based on the combination of predictors as specified by the conceptual framework. In this study, both the dependent and independent variables are dichotomous. Vogt states, “[l]og-linear analysis uses odds rather than proportions, as is done in the more familiar chi-square tests” (1999). The log-odds represents the unstandardized coefficients for logistic regression. The log-odds is interpreted by “how much more likely (or unlikely) it is for the outcome to be present among those with x=1 than among those with x=0” (Hosmer & Lemeshow, 2000). For example, in this study, logistic regression model 1 will measure the likelihood that poor self-rated health will be
more likely (see hypothesis) for someone who doesn’t have health insurance versus one who does. The purpose of logistic regression analysis for this study is to determine the best predictor of health need, and also the best predictor of health behavior, or access to healthcare. This research includes four logistic regression models – one for each dependent variable.

Strengths and Limitations of the Study

One of the strengths of this study is the race/ethnicity variable. The race and ethnicity measures in this study were formed according to the United States Office of Management and Budget (OMB). The OMB published the guidelines in an attempt to standardize research and publications using race and/or ethnicity as concepts. While the directive does not explicitly define “race” or “ethnicity”, it does prescribe classification criteria for grouping people. It describes the rule for classifying American Indian or Alaskan Native, Asian or Pacific Islander, black, and white. The schema allows for two ethnicities: Hispanic or non-Hispanic (Hahn, 1992; LaVeist, 2005). Race and ethnicity are common measures of identity. Mostly employed as an attempt to characterize individuals as members of a group or population, race and ethnicity measure two distinct types of identity; race characterizes skin color while ethnicity seeks to capture cultural identity.

The race/ethnicity classification schema, however, has many criticisms. First, race/ethnicity, while many times perceived as fixed, is highly contingent on self-identification (Kaplan & Bennett, 2003). In addition, the concepts are inexact and do not necessarily capture the true composition of an individual. This occurs due to variation in
categories or options one may select as an identifying category, or because one may identify with multiple categories (Hahn, 1992; Kaplan & Bennett, 2003).

With the exception of age, all of the variables for this study are dichotomous variables that represent an experience as occurring or not occurring. Dichotomizing variables has both advantages and limitations. For instance, this study asks if someone experienced problems accessing healthcare. The advantages to the design are that the answer is simple: either yes, or no. The limitation, however, is that the degree or quantity of problems accessing healthcare is not measured.
CHAPTER 5

FINDINGS AND ANALYSIS

Introduction

A major objective of this research is to discuss equitable access to healthcare in a publically-funded safety-net health network by race and ethnicity controlling for income. The theoretical framework used for this research is the behavioral model for vulnerable populations (BMVP) which yields information about equitable access to healthcare through behavior domains that act as a function of access. This study seeks to determine if equitable access occurs within the healthcare network. The findings and analysis as a part of this chapter will ascertain the variables that account for the variance in health access behavior. As stated by Andersen (1960), the significant predictors of health behavior should occur in the predisposing traditional and need domains. However when the variance is explained by the predisposing vulnerable (race/ethnicity) or the enabling domains, inequities exist because these domains should not determine who gets access to healthcare, especially in a publically-funded healthcare facility (Andersen, 1995).

This chapter begins with the frequencies of the variables used for this study. The first analysis examines bivariate relationships of all of the variables in the BMVP with the dependent variables of health access behavior. Chi-square tests are used to determine the statistical significance of relationships of the variables with the dependent variables. The second analysis entails binary logistic regression analyses. Lastly, a discussion is provided of the significant predictors of health access behavior for this population.
Frequencies of Variables

Frequencies of the Predisposing, Vulnerable Variables

Table 8 provides the frequencies for the predisposing, vulnerable variable of race/ethnicity. The distribution of race/ethnicity in this study is divided into Anglo American, African American, and Mexican American. More than half of the sample is Anglo American with 52.7%, or 774. Almost one-third (31.9%), or 468, of the sample are African Americans, and only 226, or 15.4%, are Mexican American.

Table 8

Frequencies of the Predisposing, Vulnerable Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response</th>
<th>Frequency</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity</td>
<td>Anglo American</td>
<td>774</td>
<td>52.7</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>African American</td>
<td>468</td>
<td>31.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mexican American</td>
<td>226</td>
<td>15.4</td>
<td></td>
</tr>
</tbody>
</table>

Frequencies of the Predisposing, Traditional Variables

Table 9 provides the frequencies for the predisposing, traditional variables that are a part of this study. Gender, age, and respondents who are not living with a spouse are considered a part of the domain that considers demographics as a predictor of health behavior. Most participants in this study are female at 66.3% or 974. The remaining 33.7%, or 494 participants, are male. The distribution of age in the sample is 499 participants or 34.0% are between the ages of 18-30, 559 participants, or 38.1% are between the ages of 31-45 and 410 participants, or 27.9% are between the ages of
46-60. Of the study participants, most, 63.2%, or 928, are not living with a spouse, while 36.8%, or 540 are living with a spouse.

Table 9

Frequencies of the Predisposing, Traditional Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response</th>
<th>Frequency</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>494</td>
<td>33.7</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>974</td>
<td>66.3</td>
<td>1468</td>
</tr>
<tr>
<td>Age</td>
<td>18-30</td>
<td>499</td>
<td>34.0</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>31-45</td>
<td>559</td>
<td>38.1</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>46-60</td>
<td>410</td>
<td>27.9</td>
<td>1468</td>
</tr>
<tr>
<td>Living w/ a spouse</td>
<td>Yes</td>
<td>540</td>
<td>36.8</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>928</td>
<td>63.2</td>
<td>1468</td>
</tr>
</tbody>
</table>

Frequencies of the Enabling, Traditional Variables

Table 10 represents the frequencies for the enabling, traditional domain of variables. Among the sample, 61.6% or 905 respondents do not work full-time, while 563, or 38.4%, do have full-time employment. Although the entire sample is medically uninsured, 800 respondents, or 54.4% of the sample, do have JPS Connections, while 45.5% of the sample, or 668 report not having any type of coverage.

Table 10

Frequencies of the Enabling, Traditional Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response</th>
<th>Frequency</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works full-time</td>
<td>Yes</td>
<td>563</td>
<td>38.4</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>905</td>
<td>61.6</td>
<td>1468</td>
</tr>
<tr>
<td>Insurance – JPS Connections</td>
<td>Yes</td>
<td>800</td>
<td>54.4</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>668</td>
<td>45.5</td>
<td>1468</td>
</tr>
</tbody>
</table>
Frequencies of the Enabling, Vulnerable Variables

Table 11 represents the enabling, vulnerable domain of variables for the BMVP. Of the sample, 1206, or 82.4% of the respondents reported having a usual source of care; 17.6%, or 258, of the sample reported not having a usual source of care. Most of the sample, 1196, or 81.5%, does not get paid-time off from work with sick, while over one-third, or 34.5% (504) wants someone to go to the doctor with them when they are sick. Nearly the entire sample reported problems with both paperwork (73.2%, 1075) and getting access to transportation (89.0%, 1306).

Table 11

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response</th>
<th>Frequency</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a usual source of healthcare</td>
<td>Yes</td>
<td>1206</td>
<td>82.4</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>258</td>
<td>17.6</td>
<td></td>
</tr>
<tr>
<td>Gets paid time-off from work when sick</td>
<td>Yes</td>
<td>272</td>
<td>18.5</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1196</td>
<td>81.5</td>
<td></td>
</tr>
<tr>
<td>Wants someone to go with them to the doctor</td>
<td>Yes</td>
<td>504</td>
<td>34.5</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>958</td>
<td>65.3</td>
<td></td>
</tr>
<tr>
<td>Problems with paperwork</td>
<td>Yes</td>
<td>393</td>
<td>26.8</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1075</td>
<td>73.2</td>
<td></td>
</tr>
<tr>
<td>Problems with transportation</td>
<td>Yes</td>
<td>162</td>
<td>11.0</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1306</td>
<td>89.0</td>
<td></td>
</tr>
</tbody>
</table>
**Frequencies of the Health Need Variables**

Table 12 represents the frequencies for the health need variables in the BMVP. Of the sample, a little more than one-third (35.0%), or 514 have a fair or poor perceived health status. Most, or 59.0% (866), sometimes do not feel full of energy, while 34.9%, or 512, also feel worried every or most days. One-third (33.0%), or 484 of the sample reports experiencing limitations in work because of health problems.

Table 12

**Frequencies of the Health Need Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response Description</th>
<th>Frequency</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-rated health</td>
<td>Excellent or good</td>
<td>954</td>
<td>65.0</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>Fair or poor</td>
<td>514</td>
<td>35.0</td>
<td></td>
</tr>
<tr>
<td>Feels full of energy</td>
<td>Every day, most days</td>
<td>602</td>
<td>41.0</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>Some days, never</td>
<td>866</td>
<td>59.0</td>
<td></td>
</tr>
<tr>
<td>Feels worried</td>
<td>Every day, most days</td>
<td>512</td>
<td>34.9</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>Some days, never</td>
<td>956</td>
<td>65.1</td>
<td></td>
</tr>
<tr>
<td>Limited in work because of health problems</td>
<td>Yes</td>
<td>484</td>
<td>33.0</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>984</td>
<td>67.0</td>
<td></td>
</tr>
</tbody>
</table>

**Frequencies of the Health Behavior, Access Variables**

Table 13 illustrates the frequencies for the dependent variables that are representative of the health behavior domain of the BMVP. Almost one-third (28.7%), or 421 respondents in the sample, report problems accessing healthcare. Most, or 59.6% (875), were seen in the emergency department in the past year, while just over one-
third (34.0%), or 499 of the sample experienced problems getting needed medications.

Lastly, 30.8%, or 452, of the sample reported having to forego healthcare to pay for other necessities.

Table 13

Frequencies of the Health Behavior, Access Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response</th>
<th>Frequency</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems getting needed healthcare</td>
<td>Yes</td>
<td>421</td>
<td>28.7</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1047</td>
<td>71.3</td>
<td></td>
</tr>
<tr>
<td>Seen in ED last 12 months</td>
<td>Yes</td>
<td>875</td>
<td>59.6</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>593</td>
<td>40.4</td>
<td></td>
</tr>
<tr>
<td>Problems getting needed medications</td>
<td>Yes</td>
<td>499</td>
<td>34.0</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>969</td>
<td>66.0</td>
<td></td>
</tr>
<tr>
<td>Forwent healthcare because of competing needs</td>
<td>Yes</td>
<td>452</td>
<td>30.8</td>
<td>1468</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1016</td>
<td>69.2</td>
<td></td>
</tr>
</tbody>
</table>

Results from the Bivariate Analysis

The use of bivariate analysis for this study helps to determine the significant correlations of the predictor variables on the four dependent variables that represent health behavior in the BMVP. The dependent variables represent problems accessing healthcare, use of the emergency department, problems accessing prescription medication, and having to forego healthcare to pay for competing needs such as food or clothing.
**Bivariate Association with Predisposing, Vulnerable Variables**

Table 14 provides the results of the cross-tabulation of the dependent variables with the independent variables as a part of the BMVP. Only three statistically significant relationships were found within the predisposing, vulnerable domain. Those health behaviors were with those who utilized the emergency department and people who forewent healthcare to pay for other necessities. These relationships were different for different races/ethnicities. African Americans, compared to both Anglo Americans and Mexican Americans, were more likely to use the emergency department (63.5% versus 57.8%; $\chi^2 = 4.24$, $p = .039$). Forgoing healthcare to pay for other necessities is a statistically significant problem for Anglo Americans, compared to African Americans and Mexican Americans. Just over one-third (34.5%) of Anglo Americans versus 26.7% of African and Mexican Americans reported having forgone healthcare for other necessities ($\chi^2 = 10.55$, $p = .001$). At the same time, 23.0% of Mexican Americans, compared to 32.2% of African Americans and Anglo Americans, reported having to forego healthcare to pay for other necessities at ($\chi^2 = 7.59$, $p = .006$).
Table 14

Bivariate Association with Predisposing, Vulnerable Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
</tr>
<tr>
<td>Anglo American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>29.7</td>
<td>58.5</td>
<td>35.4</td>
<td>34.5***</td>
</tr>
<tr>
<td>No</td>
<td>27.5</td>
<td>60.8</td>
<td>32.4</td>
<td>26.7</td>
</tr>
<tr>
<td>African American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27.4</td>
<td>63.5*</td>
<td>33.8</td>
<td>28.4</td>
</tr>
<tr>
<td>No</td>
<td>29.3</td>
<td>57.8</td>
<td>34.1</td>
<td>31.9</td>
</tr>
<tr>
<td>Mexican American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27.9</td>
<td>55.3</td>
<td>29.6</td>
<td>23.0**</td>
</tr>
<tr>
<td>No</td>
<td>28.8</td>
<td>60.4</td>
<td>34.8</td>
<td>32.2</td>
</tr>
</tbody>
</table>

* p ≤ .05, ** p ≤ .01, *** p ≤ .001

Note: the statistical test is comparing values of the independent variable (yes versus no) for each dependent variable.

Bivariate Association with Predisposing, Traditional Variables

Of the variables representative of the predisposing, traditional domain, gender has a statistically significant relationship with every dependent variable with the exception of emergency department use. Table 15 provides the bivariate association with the predisposing, traditional variables in this study.

Of women, 30.9% reported problems accessing healthcare, compared to only 24.3% of men reporting problems accessing healthcare ($\chi^2 = 7.006, p = .008$). The same for those who reported problems accessing prescription medications as 37.3% of women reported problems, compared to only 27.5% of men ($\chi^2 = 13.854, p < .001$). Lastly, the percentage difference between men and women reporting having to forego
healthcare was statistically significant. More women (34.1%) than men (24.3%) reported having to forego healthcare to pay for other necessities \( (\chi^2 = 14.756, p < .001) \).

Those respondents (25.3%) who are between the ages of 18-30, compared to all other age groups (30.4%), experienced problems accessing healthcare \( (\chi^2 = 4.343, p = .037) \), while only 25.3% of 18-30 year olds, compared to 38.5% in the other age groups, experienced problems accessing prescription medications \( (\chi^2 = 25.745, p < .001) \). Respondents between the ages of 31-45, compared to all other age groups, also had statistically relationships with problems accessing healthcare (34.2% versus 25.3%) \( (\chi^2 = 13.301, p < .001) \), and 42.0% experienced problems accessing prescription medications, compared to 29.0% of the other age groups \( (\chi^2 = 26.057, p = .000) \).

However, 37.2% of those between the ages of 31-45 reported significant problems with having to forego healthcare to pay for other necessities, compared to 26.8% of respondents in other age groups \( (\chi^2 = 17.456, p < .001) \). Of those between the ages 46-60, 54.1% utilized the emergency department at statistically significant levels, compared to 61.7% of the other ages \( (\chi^2 = 7.040, p = .008) \). Also, 25.4% of those between the ages of 46-60 reported having to forego healthcare to pay for other necessities, compared to 32.9% of those within the other age categories \( (\chi^2 = 7.855, p = .005) \).

Lastly, as a part of the predisposing, traditional domain is if one is or is not living with their spouse. Statistically significant correlations with this variable are emergency department use and also having to forego healthcare to pay for other necessities. For those not living with a spouse, 62.1% reported ED use compared to 55.4% of those who do live with a spouse \( (\chi^2 = 6.362, p = .012) \). The same is true for having to forego healthcare to pay for other necessities. Of those who do not live with a spouse, 32.9% reported having to forego
healthcare to pay for other necessities, compared to 27.2% of those who do live with a spouse ($\chi^2 = 5.103, p = .024)$.

Table 15

**Bivariate Association with Predisposing, Traditional Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24.3**</td>
<td>60.7</td>
<td>27.5***</td>
<td>24.3***</td>
</tr>
<tr>
<td>Female</td>
<td>30.9</td>
<td>59.0</td>
<td>37.3</td>
<td>34.1</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25.3*</td>
<td>61.7</td>
<td>25.3***</td>
<td>28.1</td>
</tr>
<tr>
<td>No</td>
<td>30.4</td>
<td>58.5</td>
<td>38.5</td>
<td>32.2</td>
</tr>
<tr>
<td>31-45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34.2***</td>
<td>61.7</td>
<td>42.0***</td>
<td>37.2***</td>
</tr>
<tr>
<td>No</td>
<td>25.3</td>
<td>58.3</td>
<td>29.0</td>
<td>26.8</td>
</tr>
<tr>
<td>46-60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25.4</td>
<td>54.1**</td>
<td>33.7</td>
<td>25.4**</td>
</tr>
<tr>
<td>No</td>
<td>30.0</td>
<td>61.7</td>
<td>34.1</td>
<td>32.9</td>
</tr>
<tr>
<td>Living w/ spouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>26.1</td>
<td>55.4*</td>
<td>32.2</td>
<td>27.2*</td>
</tr>
<tr>
<td>No</td>
<td>30.2</td>
<td>62.1</td>
<td>35.0</td>
<td>32.9</td>
</tr>
</tbody>
</table>

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

*Note: the statistical test is comparing values of the independent variable (yes versus no) for each dependent variable.

**Bivariate Association with Enabling, Traditional Variables**

With regard to the enabling domain of characteristics, 36.6% of those who do not work full-time, compared to 29.8% of those who do work full-time, reported problems accessing prescription medications ($\chi^2 = 7.016, p = .008$). While 37.8% who have JPS Connections experienced problems accessing prescriptions, 29.5% who do not have
JPS Connections reported problems accessing prescription medications ($\chi^2 = 11.067, p = .001$). These two relationships are the only two statistically significant relationships in the enabling domain. Table 16 provides the bivariate association with the enabling, traditional variables.

Table 16

*Bivariate Association with Enabling, Traditional Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
</tr>
<tr>
<td>Works full-time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27.2</td>
<td>59.5</td>
<td>29.8**</td>
<td>30.2</td>
</tr>
<tr>
<td>No</td>
<td>29.6</td>
<td>59.7</td>
<td>36.6</td>
<td>31.2</td>
</tr>
<tr>
<td>Insurance – JPS Connections</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30.0</td>
<td>58.3</td>
<td>37.8**</td>
<td>31.1</td>
</tr>
<tr>
<td>No</td>
<td>27.1</td>
<td>61.2</td>
<td>29.5</td>
<td>30.4</td>
</tr>
</tbody>
</table>

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

*Note*: the statistical test is comparing values of the independent variable (yes versus no) for each dependent variable.

*Bivariate Association with Enabling, Vulnerable Variables*

Table 17 provides the bivariate association with the enabling, vulnerable variables. For those not having a usual source of care, 35.9% report problems accessing healthcare, compared to those who do have a usual source for healthcare (27.1%) ($\chi^2 = 8.082, p = .004$). For those who don’t get paid time-off when sick (61.0%), compared to those who do get paid time-off when sick (53.7%), emergency department use is most prevalent at statistically significant proportions ($\chi^2 = 4.873, p = .027$). Just
over one-third, 35.9%, of the respondents who don’t get paid time off when sick had problems accessing prescription medications, compared to 25.7% who do get paid time-off when sick ($\chi^2 = 10.143, p = .001$). Lastly, 32.1% of those who do not get paid time-off when sick had to forego healthcare for other necessities, compared to 25.0% who do get paid time-off ($\chi^2 = 5.253, p = .022$). Wanting someone to go to the doctor significantly correlated with emergency department use. Of the 66.5% of those who wanted someone to go to the doctor with them utilized the emergency department, compared to the 56.0% who did not want someone to go with them to the doctor ($\chi^2 = 15.016, p < .001$).

Problems with paperwork and transportation have statistically significant relationships with every dependent variable. Compared to those who did not report problems with paperwork or transportation, those reporting problems with paperwork also reported problems accessing healthcare at 39.4% versus 24.7% ($\chi^2 = 30.388, p < .001$), emergency department use at 65.9% versus 57.3% ($\chi^2 = 8.842, p = .003$), problems accessing prescription medications at 45.0% versus 30.0% ($\chi^2 = 29.186, p < .001$), and also having to forego healthcare to pay for other necessities at 41.0% versus 27.1% ($\chi^2 = 26.082, p < .001$). It is the same for problems with transportation. Of those who reported problems with getting transportation, 52.5% also reported problems accessing healthcare, compared to 25.7% not experiencing problems with transportation ($\chi^2 = 50.389, p < .001$), or emergency department use at 68.5% versus 58.5% ($\chi^2 = 6.009, p = .014$), problems accessing prescription medications at 64.2% versus 30.2% ($\chi^2 = 74.046, p < .001$), and also having to forego healthcare to pay for other necessities at 64.2% versus 26.6% ($\chi^2 = 95.368, p < .001$).
Table 17

*Bivariate Association with Enabling, Vulnerable Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
</tr>
<tr>
<td>Usual source of care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27.1**</td>
<td>59.0</td>
<td>34.7</td>
<td>29.9</td>
</tr>
<tr>
<td>No</td>
<td>35.9</td>
<td>62.6</td>
<td>30.5</td>
<td>34.7</td>
</tr>
<tr>
<td>Gets paid time-off when sick</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>24.6</td>
<td>53.7</td>
<td>25.7***</td>
<td>25.0*</td>
</tr>
<tr>
<td>No</td>
<td>29.6</td>
<td>61.0*</td>
<td>35.9</td>
<td>32.1</td>
</tr>
<tr>
<td>Wants someone to go with them to doctor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>28.6</td>
<td>66.5***</td>
<td>35.9</td>
<td>31.2</td>
</tr>
<tr>
<td>No</td>
<td>28.7</td>
<td>56.0</td>
<td>33.0</td>
<td>30.6</td>
</tr>
<tr>
<td>Problems with paperwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>39.4***</td>
<td>65.9**</td>
<td>45.0***</td>
<td>41.0***</td>
</tr>
<tr>
<td>No</td>
<td>24.7</td>
<td>57.3</td>
<td>30.0</td>
<td>27.1</td>
</tr>
<tr>
<td>Problems with transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>52.5***</td>
<td>68.5*</td>
<td>64.2***</td>
<td>64.2***</td>
</tr>
<tr>
<td>No</td>
<td>25.7</td>
<td>58.5</td>
<td>30.2</td>
<td>26.6</td>
</tr>
</tbody>
</table>

* * p ≤ .05, ** p ≤ .01, *** p ≤ .001

Note: the statistical test is comparing values of the independent variable (yes versus no) for each dependent variable.
**Bivariate Association with Health Need Variables**

The health need domain of the BMVP reports the most statistically significant relationships with the health behavior domain, or dependent variables. Every predictor variable has a strong correlation with the health behavior domain which includes self-rated health, feeling full of energy, feeling worried, and being limited in one’s amount of work because of health. Table 18 provides the bivariate association with the health need variables.

Compared to those who reported better than fair to poor self-rated health, poor self-rated health has a strong correlation with problems accessing healthcare as 40.1% reported problems, compared to 22.5% reporting good or excellent health ($\chi^2 = 50.249, p < .001$), 68.9% (versus 54.6%) also reported emergency department use ($\chi^2 = 28.208, p < .001$), 49.8% (versus 25.5%) reported problems accessing prescription medications ($\chi^2 = 88.152, p < .001$), and 41.2% (versus 25.2%) reported having to forego healthcare for other necessities ($\chi^2 = 40.570, p < .001$). Compared to those who reported feeling full of energy (17.9%), 36.1% who reported not feeling full of energy also reported problems with accessing healthcare ($\chi^2 = 57.530, p < .001$), 62.9% (versus 54.8%) reported emergency department use ($\chi^2 = 9.715; p = .002$), 42.8% (versus 21.3%) reported problems accessing prescriptions medications ($\chi^2 = 73.696, p < .001$), and 38.9% (versus 19.1%) had to forego healthcare to pay for other necessities ($\chi^2 = 40.570, p < .001$). At the same time, 44.1% of those who reported feeling worried, compared to those who reported not feeling worried (20.4%), experienced problems accessing healthcare ($\chi^2 = 91.897, p < .001$). Of those who feel worried, 66.6% compared to 55.9% of those who do not feel worried, reported emergency department use ($\chi^2 = 15.985, p <
.001). In addition, 48.4% of those who feel worried, compared to 26.3% of those who do not feel worried, reported problems accessing prescriptions medications ($\chi^2 = 73.121, p < .001$), and 46.5% (versus 22.4%) of those who feel worried had to forego healthcare to pay for other necessities ($\chi^2 = 90.873, p < .001$) at similar proportions. Lastly, compared to those who have not experienced limitations with regard to their work because of their health, those who reporting as having limitations with work because of their health 39.3% reported problems accessing healthcare, compared to 23.5% ($\chi^2 = 39.499, p < .001$), 66.7% reported emergency department use, compared to 56.1% ($\chi^2 = 15.248, p < .001$), 48.8% reported problems accessing prescriptions medications, compared to 26.7% ($\chi^2 = 70.190, p < .001$), and 44.2% had to forego healthcare to pay for other necessities, compared to 24.2% who are not limited in work because of health ($\chi^2 = 61.067, p < .001$).

Table 18

**Bivariate Association with Health Need Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
<td>% yes</td>
</tr>
<tr>
<td>Poor self-rated health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40.1***</td>
<td>68.9***</td>
<td>49.8***</td>
<td>41.2***</td>
</tr>
<tr>
<td>No</td>
<td>22.5</td>
<td>54.6</td>
<td>25.5</td>
<td>25.2</td>
</tr>
</tbody>
</table>

(Table continues)
Table 18 (continued).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feels full of energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>17.9</td>
<td>54.8</td>
<td>21.3</td>
<td>19.1***</td>
</tr>
<tr>
<td>No</td>
<td>36.1***</td>
<td>62.9**</td>
<td>42.8***</td>
<td>38.9</td>
</tr>
<tr>
<td>Feels worried</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>44.1***</td>
<td>66.6***</td>
<td>48.4***</td>
<td>46.5***</td>
</tr>
<tr>
<td>No</td>
<td>20.4</td>
<td>55.9</td>
<td>26.3</td>
<td>22.4</td>
</tr>
<tr>
<td>Limited in work b/c of health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>39.3***</td>
<td>66.7***</td>
<td>48.8***</td>
<td>44.2***</td>
</tr>
<tr>
<td>No</td>
<td>23.5</td>
<td>56.1</td>
<td>26.7</td>
<td>24.2</td>
</tr>
</tbody>
</table>

* p ≤ .05, ** p ≤ .01, *** p ≤ .001

Note: the statistical test is comparing values of the independent variable (yes versus no) for each dependent variable.

Summary of Significant Findings of Bivariate Analysis

In summary, the statistically significant relationships as a part of the bivariate correlation in this study illustrate an important conclusion: poor perceived health as a part of the health need domain has an overwhelming representation of statistical significance in this study. Other statistically significant characteristics predicting problems across the dependent variables include reporting female, age 31-45, and having other problems accessing the healthcare network such as with paperwork or with transportation.

Statistically significant associations for the predisposing, vulnerable domain of race/ethnicity revealed some surprising results. This domain did not show the most
significant relationships, nor did it show the most profound results. By race/ethnicity, only two dependent variables showed to have a significant association with either races or ethnicity. Having to forego healthcare to pay for other necessities was the only dependent variable that indicated more than one race/ethnicity experiencing significant problems. Just over one-third (34.5%) of Anglo Americans versus 26.7% of African and Mexican Americans reported having forgone healthcare for other necessities ($\chi^2 = 10.55, p = .001$). At the same time, 23.0% of Mexican Americans, compared to 32.2% of African Americans and Anglo Americans, reported having to forego healthcare to pay for other necessities at ($\chi^2 = 7.59, p = .006$). The only other statistically significant relationship was for African Americans and emergency department use as 63.5% of African Americans, compared to the other groups (57.8%), reported ED use ($\chi^2 = 4.24, p = .039$).

**Results from Logistic Regression**

The logistic regression models for this study are used to determine the predictors of health access behavior in a publically-funded safety-net healthcare provider. Each of the four dependent variables tests five models that employ variables from each of the behavioral domains of the BMVP. The first model examines the effects of the predisposing, vulnerable characteristics of race/ethnicity on health behavior, while the second model tests the effects of the predisposing, traditional variables on health behavior. The third model includes the variables that represent the enabling variables of full-time employment and having health insurance, while the fourth model tests the variables that represent vulnerability variables that are characteristic of barriers in access to healthcare. These variables are not having a usual source of care, not getting
paid time-off to go to the doctor, not having someone to go with you to the doctor, and having problems with each paperwork and transportation. The fifth and final model is a fully nested model that includes self-reported health need as a predictor of access behavior. These tables can be found in Appendix A of this document. Table 18 presents the logistic regression results for predicting the odds of experiencing problems accessing healthcare, emergency department use, problems accessing prescription medications, and having to forego healthcare to pay for other necessities such as food or clothing. This table compares the final models for each of the dependent variables in this study. Each of these models presented a better fit compared to the logistic regression models with only the intercept. For problems accessing healthcare, the nested model that includes all predictor variables in the study is the better fit (-2 log likelihood= 1552.174, \( \chi^2 = 207.217, p < .001 \), Nagelkerke R\(^2\) = .189, df = 17). The same is true for the other health behavior variables. Emergency department use is significant at the -2 log likelihood 1892.360, \( \chi^2 = 88.210, p < .001 \), Nagelkerke R\(^2\) = .079, df = 17. Problems accessing prescription medications is significant at -2 log likelihood of 1640.670, \( \chi^2 = 241.251, p < .001 \), Nagelkerke R\(^2\) = .210, df = 17. Lastly, having to forego healthcare to pay for other necessities, the final model is significant at -2 log likelihood 1549.900, \( \chi^2 = 262.821, p < .001 \), Nagelkerke R\(^2\) = .231, df = 17. The following paragraphs elaborate on the usefulness of particular independent variables for predicting health behaviors.

**Logistic Regression Analyses of Predisposing, Vulnerable Variables**

Table 19 presents the logistic regression results for predicting the odds of experiencing problems accessing healthcare, emergency department use, problems
accessing prescription medications, and foregoing healthcare because of competing needs. The first consideration for predicting health behavior is the predisposing, vulnerable domain of race/ethnicity. Across all dependent variables race/ethnicity only had limited influence predicting health behavior. This is contrary to the literature concerning the significance of race/ethnicity on health behaviors. Compared to Anglo Americans, only African Americans use of the emergency department was a statistically significant predictor. African Americans were more likely than Anglo Americans to use the emergency department ($b = .256$, $p = .046$, $e^b = 1.292$). Concerning ED use, African Americans, compared to the reference group of Anglo Americans, approached significance in both models one ($p = .085$) and four ($p = .072$), however was not significant until the final model (see Appendix A).

Interestingly, both African American and Mexican American, compared to the reference group of Anglo American, were statistically significant or approaching statistical significance for every model, until the fifth and nested model for having to forego healthcare because of competing needs. Only Mexican Americans were significantly less likely than Anglo Americans ($b = -.444$, $p = .022$, $e^b = .641$) to forego care because of competing needs. Every relationship predicting the likelihood of having to forego healthcare because of competing needs has a negative coefficient for the stated race or ethnicity. This means that the likelihood of African American or Mexican American reporting having to forego healthcare is less than for Anglo Americans. The individual results for each model are in Appendix A of this document.

In attempt to explain the trend of race/ethnicity becoming less significant once accounting for perceived need, a crosstabulation of race/ethnicity with the health need...
domain was conducted. This crosstabulation produced statistically significant correlations with every variable in the health need domain. Race/ethnicity crosstabulated with poor self-rated health is approaching significance ($\chi^2 = 5.509$, $p = .064$). Not feeling full of energy ($\chi^2 = 10.237$, $p = .006$), feeling worried ($\chi^2 = 7.630$, $p = .022$), and limited in work due to health ($\chi^2 = 20.769$, $p < .001$) all have a statistically significant relationship with race/ethnicity. The strong, positive relationships with race/ethnicity and health need accounts for the levels of predictability of the predisposing, vulnerable variables with foregoing healthcare because of competing needs.

**Logistic Regression Analyses of Predisposing, Traditional Variables**

The predisposing, traditional variables of gender, age, and not living with spouse generated significant results as predictors for health behaviors. Women presented statistically significant odds of about 1.5 times more likely than men to experience problems accessing healthcare ($b = .341$, $p = .015$, $e^b = 1.407$), problems accessing prescription medications ($b = .437$, $p = .001$, $e^b = 1.548$), and foregoing healthcare because of competing needs ($b = .565$, $p < .001$, $e^b = 1.759$).

Age produced similar results. For problems accessing healthcare and problems accessing prescription medications, ages 18-30 are less likely to experience problems accessing healthcare compared to the reference group, age 31-45. ($b = -.314$, $p = .006$, $e^b = .731$). The same is for problems accessing prescription medications. Age 18-30 is less likely to experience problems accessing prescription medications compared to those between the ages of 31-45 ($b = -.602$, $p = .002$, $e^b = .548$).
This finding is similar for the age category 46-60. Those between the ages of 46-60 are only slightly less likely than those in the reference group that are between the ages of 31 and 45 to experience problems accessing healthcare ($b = -.567$, $p < .001$, $e^b = .567$), access the ED ($b = -.398$, $p = .004$, $e^b = .672$), experience problems accessing prescription medications ($b = -.601$, $p < .001$, $e^b = .548$), and having to forego healthcare because of competing needs ($b = -.778$, $p < .001$, $e^b = .459$).

This finding is consistent for all models for all health behavior variables. Age consistently predicted health behavior. For problems accessing healthcare, ages 18-30 and 46-60 were less likely to experience problems than the reference group of those between the ages of 31-45. The same is true for problems accessing prescription medications and having to forego healthcare because of competing needs. The exception is emergency department use. Only the age category 46-60 produced statistically significant results for predicting ED use. Again, these relationships were negative as those between the ages of 46-60 were less likely to go to the emergency department than those between the ages of 31-45. Regarding ED use, the age category 18-30 did not produce any statistically significant results predicting health behaviors. These results are available in more details in Appendix A of this document.

Not living with spouse did not produce any statistically significant results for the nested health behavior models. However, not living with a spouse did produce significant results until considering health need as a predictor of health behavior. Not living with a spouse increased the likelihood of emergency department use and foregoing healthcare because of competing needs at consistent levels. Regarding ED use, not living with a spouse was statistically significant for every model until
considering health need. Once considering perceived need, significance of living with a spouse is no longer statistically significant. However, this relationship is approaching significance ($b = -0.199$, $p = 0.088$, $e^b = 1.220$). Considering those having to forego healthcare because of competing needs, not living with a spouse was significant for those until the model considered enabling vulnerable characteristics of the participants in the study. The same is true for problems accessing healthcare, however these predictors only produced results approaching statistical significance. More details of this discussion are in Appendix A of this document.

*Logistic Regression Analyses of Enabling, Traditional Variables*

Not working full-time only produced statistically significant relationships with having to forego healthcare because of competing needs. Compared to the reference group of those who work full-time, those who do not have full-time employment are less likely to forego care because of competing needs ($b = -0.337$, $p = 0.021$, $e^b = 0.714$). The only other significant relationship is having JPS Connections and problems accessing prescription medications. Those who have JPS Connection are 1.267 times more likely to have problems accessing prescription medications ($b = 0.237$, $p = 0.046$) than those who do not have JPS Connections (see Appendix A). This relationship, however, does not continue after considering the other enabling and need domains.

Relationships approaching significance for the enabling, traditional domain are not working full-time ($b = -0.213$, $p = 0.098$, $e^b = 1.238$) and having JPS Connections ($b = -0.202$, $p = 0.089$, $e^b = 0.817$) and ED use. Those who do not work full-time are 1.238 times more likely to use the ED than those who do have full-time employment, while those who have JPS Connection are only 0.817 times more likely to use the ED than those who
are not members of the program. An additional relationship approaching significance is not having full-time employment and accessing to prescription medication ($b = -0.010$, $p = 0.072$, $e^b = 1.010$), however this relationship disappears entirely once considering other enabling, vulnerable characteristics.

**Logistic Regression Analyses of Enabling, Vulnerable Variables**

The enabling, vulnerable domain did not produce any profound explanations for health behavior. There are, however, some statistically significant predictors of health behaviors. Not having a usual source of care positively accounts for the increased likelihood to experience problems accessing healthcare. Those without a usual source of care are 2 times more likely than those who have a usual source for healthcare to experience problems accessing care ($b = 0.694$, $p < 0.001$, $e^b = 2.003$) and 1.5 times more likely than those who have a usual source of care having to forego healthcare because of competing needs ($b = 0.421$, $p = 0.011$, $e^b = 1.524$). Not having a usual source for healthcare also was a significant predictor in the previous model concerning problems accessing healthcare. Those who do not have a usual source for healthcare were almost twice as likely to experience problems accessing healthcare as well ($b = 0.534$, $p = 0.001$, $e^b = 1.705$). Those not having a usual source of healthcare are 1.7 time more likely that those who do have a usual source of care to experience problems accessing healthcare. The same is true for foregoing healthcare because of competing needs. However, this relationship is only approaching significance ($b = 0.275$, $p = 0.085$, $e^b = 1.316$).

Getting paid time-off when sick is not a significant predictor for any of the health behaviors. However, this predictor does produce significant and approaching-
significance in previous models for ED use \((b = .319, p = .035, e^b = 1.376)\), problems accessing prescription medications \((b = .331, p = .054, e^b = 1.393)\), and foregoing healthcare because of competing needs \((b = .720, p = .062, e^b = 1.388)\). This predictor variable shows with every relationship those not getting paid time-off when sick are about 1.3 times more likely to experience problems accessing healthcare than those who do not get paid time-off when sick.

Wanting someone to go to the doctor only significantly predicts ED use. This relationship is significant \((b = .386, p < .001, e^b = 1.470)\) as those who want someone to go with them to the doctor are 1.470 times more likely to access the ED, than those who do not necessarily want someone to go with them to the doctor. This relationship is also evident in earlier models of ED use \((b = .460, p < .001, e^b = 1.583)\).

Both problems with paperwork and transportation are statistically significant for every model for every health behavior variable, with the exception of ED use. Problems with transportation are not a significant predictor of accessing the ED for any model. Those who experiencing problems with paperwork were about 1.3 to 1.5 times more likely to experience problems accessing healthcare \((b = .452, p = .001, e^b = 1.572)\) and to have ED use \((b = .308, p = .018, e^b = 1.361)\) than those who did not experience problems with paperwork. They experienced problems accessing prescription medications \((b = .418, p = .002, e^b = 1.519)\), and having to forego healthcare because of competing needs \((b = .347, p = .012, e^b = 1.415)\), compared to those who did not experience problems with paperwork.

Problems accessing transportation produced similar results to problems with paperwork. Those who experienced problems accessing transportation were from about
1.8 to almost 4 times as likely to experience problems accessing healthcare, than those who did not report problems with transportation \((b = .780, \ p < .001, \ e^{b} = 2.182)\), problems accessing prescription medications \((b = .990, \ p < .001, \ e^{b} = 2.692)\), and having to forego healthcare because of competing needs \((b = 1.346, \ p < .001, \ e^{b} = 3.842)\).

Additional findings for these variables are listed in the tables in Appendix A.

*Logistic Regression Analyses of Health Need Variables*

The health need domain produced overwhelming and consistent results for predicting health behavior. With the exception of two relationships, the variables included in the health need domain predict problems accessing healthcare, ED use, problems accessing prescription medications, and having to forego care due to competing needs at odd ratios ranging from 1.1 to 2.2 times more likely to experience other problems accessing care. Actually, as previously stated there is a strong correlation of this domain predicting health behavior as some of the other predictors become less significant once accounting for health need.

Poor self-rated health significantly predicts all health behavior variables with the exception of having to forego healthcare because of competing needs. This final relationship, however is approaching significance \((b = .253, \ p = .088, \ e^{b} = 1.288)\). Those reporting poor self-rated health are 1.571 times more likely to experience problems accessing healthcare \((b = .451, \ p = .002)\), while they are 1.654 time more likely to access the ED \((b = .503, \ p < .001)\), and 1.739 times more likely than those who are in good to excellent health to report problems accessing prescription medications \((b = .553, \ p < .001)\).
Compared to those feeling full of energy, those who do not feel full of energy are about 1.6 to almost 1.7 times more likely to experience problems with healthcare. The exception is ED use as this relationship is not statistically significant. Not feeling full of energy significantly predicts problems accessing healthcare as those who do not feel full of energy are 1.646 times likely to experience problems accessing healthcare (b= .498, p = .001). Similarly, those who do not feel full of energy also experience problems accessing prescription medication at 1.613 as likely to have problems than those who feel full of energy (b= .528, p = .001) and 1.695 times more likely to forego healthcare due to competing needs also compared to those who feel full of energy (b= .528, p < .001).

The remaining two independent variables successfully predict experiencing problems with healthcare. Feeling worried significantly predicts problems accessing healthcare. Compared to those who did not report feeling worried, those who report feeling worried are 2.225 times more likely to report problems accessing healthcare (b= .800, p < .001). Those reporting feeling worried are 1.277 times more likely to report ED use (b= .244, p = .050) and 1.740 times more likely to report problems accessing prescription medications (b= .554, p < .001), and 1.976 time more likely to forego healthcare due to competing needs (b= .681, p < .001) compared to those who feel full of energy.

Finally, reporting experiencing limitations for work because of health problems also significantly predicts problems with healthcare, with the exception of ED use. Those who are limited in work due to health problems are 1.366 times more likely to report problems accessing healthcare (b= .312, p = .039), 1.434 times more likely to
report problems accessing prescription medications ($b = .360, p = .013$), and 1.766 times more likely to forego healthcare due to competing needs ($b = .569, p < .001$) compared to those who did not report experiencing limitations in work because of health problems.

Table 19

*Logistic Regression Models for all Health Behavior Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Problems accessing prescription medications</th>
<th>Emergency department use</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predisposing characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Reference: Anglo American)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>$b = .023$</td>
<td>$b = .048$</td>
<td>$b = .256^*$</td>
<td>$b = -.208$</td>
</tr>
<tr>
<td>Mexican American</td>
<td>$b = .162$</td>
<td>$b = -.007$</td>
<td>$b = .899$</td>
<td>$b = -.444^*$</td>
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<tr>
<td><strong>Gender</strong></td>
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<td></td>
</tr>
<tr>
<td>(Reference: Male)</td>
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<td></td>
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</tr>
<tr>
<td>Female</td>
<td>$b = .341^*$</td>
<td>$b = .437^{***}$</td>
<td>$b = .947$</td>
<td>$b = .565^{***}$</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(Reference 31-45)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>18-30</td>
<td>$b = -.314^*$</td>
<td>$b = .077$</td>
<td>$b = 1.080$</td>
<td>$b = -.602^{***}$</td>
</tr>
<tr>
<td>46-60</td>
<td>$b = -.567^{***}$</td>
<td>$b = -.398^{**}$</td>
<td>$b = .672$</td>
<td>$b = -.601^{***}$</td>
</tr>
<tr>
<td><strong>Not living w/ Spouse</strong></td>
<td></td>
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<tr>
<td></td>
<td>$b = -.033$</td>
<td>$b = .199$</td>
<td>$b = 1.220$</td>
<td>$b = -.100$</td>
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<tr>
<td><strong>Enabling characteristics</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Doesn’t work full-time</td>
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<tr>
<td></td>
<td>$b = -.140$</td>
<td>$b = -.213$</td>
<td>$b = .808$</td>
<td>$b = -.123$</td>
</tr>
<tr>
<td>Insurance – JPS Connections</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$b = .047$</td>
<td>$b = .202$</td>
<td>$b = .817$</td>
<td>$b = .122$</td>
</tr>
<tr>
<td><strong>Enabling, vulnerable characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No usual source of Care</td>
<td>$b = .694^{***}$</td>
<td>$b = 2.003$</td>
<td>$b = .078$</td>
<td>$b = .421^*$</td>
</tr>
<tr>
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### Summary of Significant Predictors of Health Behavior

In summary, Hypothesis 1 predicted the predisposing, vulnerable domain of race/ethnicity as a significant predictor of health behavior was rejected. The logistic regression models did not consistently reveal race/ethnicity, or African American or Mexican American, as statistically significant predictors of problems accessing healthcare, problems accessing prescription medications, or having to forego healthcare for other necessities.
due to competing needs. The only exception was African American (versus Anglo American) and ED use.

The predisposing, traditional variables of gender, age, and living with a spouse also did not overwhelmingly predict problems with healthcare. However, gender did significantly predict problems accessing healthcare, problems accessing prescription medications, and foregoing healthcare due to competing needs, with the latter two producing the strongest relationships.

Age produced statistically significant relationships. All relationships were statistically significant with the exception of age 18-30 (versus 31-45) and ED use and having to forego care because of competing needs. Not living with spouse was not a significant predictor of health behavior. Hypothesis 2 that predicts the influence of the predisposing, traditional domain on health behavior fails to reject.

The enabling domains, both traditional and vulnerable, are rejected as significant predictors of health behaviors. With the exception of problems with paperwork and problems accessing transportation, no other variables providing consistent significant results for predicting problems accessing healthcare, ED use, problems with prescription medications, or having to forego care.

Lastly, the health need domain is consistently the strongest and most significant predictor of health behaviors in this study. With three exceptions, poor self-rated health, not feeling full of energy, feeling worried, and having limitations in work because of health problems significantly predicts problems accessing healthcare, ED use, problems accessing prescription medications, and having to forego healthcare because of competing needs.
CHAPTER 6

SUMMARY, DISCUSSION AND CONCLUSION

Introduction

Central to the topic of this research was inequitable access to healthcare in an equal-access health network. Health disparities scholarship identifies barriers to care that include inequitable access to care due to circumstances associated with a particular race or ethnicity and/or poverty. This study addressed the issue of health status and access disparities within a publically-funded, safety-net healthcare network in Tarrant County, Texas. Those who access healthcare by way of the safety-net health network are considered to be especially vulnerable. As a result of this increased vulnerability due to economic disadvantage, or racial or ethnic barriers, safety-net healthcare becomes especially important. This study seeks to determine if and which barriers exist accessing healthcare in this safety-net health network in Tarrant County, Texas. Specifically, this study sought to answer two research questions:

1) Do race/ethnic disparities exist among uninsured patients in a publically-funded, equal access, safety-net healthcare network?

2) What is the strongest predictor of problems accessing healthcare in a publically-funded, equal access, safety-net healthcare network?

Summary of Hypotheses and Significant Findings

This research tested predictor variables within behavioral domains of the behavioral model for vulnerable populations (BMVP) as a function of health behavior and access to healthcare. This research is designed according to the theoretical model,
BMVP. Anderson (1960) states that the equitable access of health services will be evenly distributed through the predisposing traditional domain and the health need domain. Based on the findings of this study, the domains that predict access are the predisposing traditional and health need domains; however, these hypotheses are only partially supported. Every domain influenced health behavior, but some more than others. Table 20 provides a summary of the hypotheses tested for this study, while Table 21 provides a summary of the significant relationships.

Table 20

<table>
<thead>
<tr>
<th>Variable</th>
<th>H1</th>
<th>H2</th>
<th>H3</th>
<th>H4</th>
<th>H5</th>
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<tbody>
<tr>
<td>Predisposing, vulnerable domain</td>
<td>Reject</td>
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<td>Predisposing, traditional domain</td>
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<td>Enabling, traditional domain</td>
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<td>Enabling, vulnerable domain</td>
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<td>Reject</td>
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<tr>
<td>Health need domain</td>
<td></td>
<td></td>
<td></td>
<td>Fail to reject</td>
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</tbody>
</table>

Hypothesis 1

Hypothesis 1 predicted that the predisposing, vulnerable domain of the BMVP, race/ethnicity, would predict health behavior. This domain yielded unexpected results as
this domain did not exhibit overwhelming significance for predicting health behavior. With the exceptions of African Americans and emergency department use and Mexican Americans and competing needs, there we no other statistically significant predictors of access to healthcare. Surprisingly, Anglo Americans exhibited more problems with healthcare and poorer health status than African Americans or Mexican Americans. This finding that low-income Anglo-Americans have more similar experiences to other low-income groups is consistent with the literature citing the narrowing of health disparities once SES decreases. AHRQ (2004), Baum, Garofalo, and Yali (1999), Commonwealth Fund (n.d.), Kawachi, Daniels, and Robinson (2005), LaViest (2005), and Vladeck (2007) all recognize that the disparity between race/ethnicity narrows as SES decreases. This research found that health need was a stronger predictor of health behavior than race and ethnicity, thereby possibly validating this assertion.

This finding is significant for health disparities literature due to the possibility of confounding relationships with race/ethnicity including discrimination (Williams, 1999), institutional mistrust (Adegbembo, Tomar, & Logan, 2006; Stepanikova & Cook, 2007) and past policies that have constrained current employment (Reschofsky, Strunk, & Ginsburg, 2006; White-Means & Hersch, 2005) and housing (Baum, Garofalo, & Yali, 1999; Mechanic & Tanner, 2007; Williams, 1999) opportunities. Stepanikova and Cook (2007) surveyed 4,556 adults and found that feelings of discrimination are significant for all those living in poverty regardless of race/ethnicity. This study supports the possibility of this finding.
Hypothesis 2

Hypothesis 2 posits that predisposing, traditional variables such as gender, age, and marital status will influence health behavior. Statistically significant relationships in this domain point toward females and people between the ages of 31-45 to experience the most problems with healthcare, including having to forego healthcare because of competing needs. This research fails to reject the hypothesis that predisposing, traditional variables influence access to healthcare.

Gender, however, significantly impacts access to healthcare both in this study and in the literature. Women, and especially poor and minority women, experience a great challenge in achieving healthcare needs. Lille-Blanton, Martinez, Taylor, and Robinson (1999) recognize the increasing number of households headed by women in the United States. Due to the changing economic conditions, lower wages, and changes in marriage opportunities, women are increasingly faced with a compounded and exacerbated vulnerability. Women face the additional burden of a higher incidence of unmet physical and emotional needs (Gallo & Matthews, 1998; Sherbourne, Dwight-Johnson, & Klap, 2001) and overall social distress as a result of the compounded stressors of economic difficulties, less social support, single motherhood, and poverty (Ranji, Wyn, Salganicoff, & Yu, 2007; Sherbourne, Dwight-Johnson, & Klap, 2001). These studies are consistent with the findings of this study that shows evidence of a gender disparity.

Hypothesis 3

Hypothesis 3 put forward that enabling, traditional variables will influence access to healthcare. In the United States, full-time employment and health insurance ensure
access to healthcare. However, this research did not support the significance of this relationship. This finding is likely because of the strength of the relationships between the health need variables and the access variables. Similar to race/ethnicity, having health insurance is actually a proxy for other equally significant predictors of access to healthcare such as employment and employment opportunities that can be determined by social structural constraints such as race/ethnicity, neighborhood, and education. These attributes are considered barriers to care (IOM, 2003), and are also a manifestation of the structured inequalities of the U.S. healthcare system.

Hypothesis 4

Hypothesis 4 posits that enabling, vulnerable characteristics that act as barriers to healthcare will influence access to healthcare. This hypothesis, however, is rejected. Not having a usual source of care was significant for problems accessing healthcare and also having to forego healthcare to pay for other necessities. Not getting paid time-off was never a significant predictor of access, while wanting someone to go with you to the doctor was only significant for emergency department use. Both problems with transportation and paperwork were significant for predicting most all problems with healthcare, including foregoing healthcare. Access to resources for the vulnerable is constrained due to the exacerbating circumstances of that vulnerability. Not getting paid time-off is a luxury of particular fields of employment that is not always available to this population, while increased difficulties with access to transportation or experiences with paperwork and the bureaucracy of the healthcare network are characteristic of vulnerable populations. However, this domain is not the strongest predictor of access to healthcare once considering other factors such as perceived need.
Hypothesis 5

Lastly, Hypothesis 5 predicted the influence of health need on health behaviors in the BMVP. Every predictor variable, with the exception of two relationships, predicted health behaviors. Perceived health need is an important predictor of access because it can account for both objective and subjective health (Boardman, 2004; Farmer & Ferraro, 2005; Franks, Gold, & Fiscella, 2003; Gorman & Sivaganesan, 2007). The significance of these relationships is profound considering the characteristics of this socially and economically vulnerable population. The literature supports this finding and is significant because as a predictor of access to healthcare, this variable represents current health status, health need, and the amount of resources necessary to provide healthcare.

Table 21

Summary of Predictors of Access to Healthcare

<table>
<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predisposing characteristics (Reference: Anglo American)</td>
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<td>African American</td>
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<tr>
<td>Gender (Reference: Male)</td>
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<tr>
<td>Female</td>
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Table 21 (continued).

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<thead>
<tr>
<th>Variable</th>
<th>Problems accessing healthcare</th>
<th>Emergency department use</th>
<th>Problems accessing prescription medications</th>
<th>Forewent healthcare for other necessities</th>
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<tr>
<td>Age (Reference 31-45)</td>
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</tr>
<tr>
<td>18-30</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>46-60</td>
<td>*</td>
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In sum, health need is the greatest overall predictor of access to healthcare.

Individuals in this study experienced poorer health status and the greatest problems in the healthcare network, including having to forego healthcare. Within a publically-
funded, safety-net healthcare network, barriers to healthcare are present, and health disparities do exist.

Discussion

This study recognizes that health disparities narrow as SES decreases (Cummings & Jackson, 2008). As differences between the groups become smaller, reduced access to resources becomes a common feature among the groups. However, though the disparity gap narrows, it does not disappear entirely (Schulz, Israel, Williams, Parker, Beckers, and James, 2000; Williams, 1999). A major objective of this research was to determine if race/ethnicity was the strongest predictor of access to healthcare among a population of shared social and economic status, then to determine what, if not race/ethnicity, is the greatest predictor of access. Findings from this research reveal that race/ethnicity is not the strongest determinant of health disparities. Rather, perceived health status overwhelmingly predicts health behavior. JPS Health Network treats the most economically and socially vulnerable in the county. Therefore, these findings are meaningful for safety-net healthcare in Tarrant County as patients are not reporting differences in access based on race or ethnicity, but rather perceived need.

As a result of the findings of this research, it is interesting to consider how vulnerable populations seek healthcare and why the race/ethnic health disparity narrows once falling below the poverty line. Two theories, relative deprivation theory and social drift hypothesis, seek to explain why members of this particular study population will be more likely to share similar life circumstances across race/ethnicity, rather than with those within race or ethnicity.
Theory of Relative Deprivation

Relative deprivation refers to the understanding of poverty as it is defined according to the societal norms of having wealth. Deprivation is related to the lack of resources and necessities for living. Someone is considered to be deprived if they deviate from what is considered to be the appropriate amount of food for the body, the right clothes for the group, and also normative education and working conditions (Stronks, van de Mheen, & Mackenbach, 1998).

The theory of relative deprivation postulates that the factors associated with poverty, such as housing, neighborhood, adequate food, clothing, and even medical care can contribute to risk when determining health or illness (Stronks, van de Mheen, & Mackenbach, 1998). In addition, health behavior and mental and emotional health could also affect physical health. Mechanic and Tanner (2007) explain the lack of balance within communities due to limited resources and opportunities not only as a result of low-income but also because of the outmigration of those with access to better resources. They explain that particular resources can either contribute to or harm the capacities of an individual to access basic necessities such as health, health care, education, and even income and wealth. In addition, access to resources that contribute to planning, preparation, the mating pool and cognitive ability is also influenced by relative deprivation. Lastly, access to helpful these resources can be mitigated by family, social networks, community resources, and mating (Almgren, 2007; Mechanic & Tanner, 2007).

Research indicates that low SES is related to poor perceived health status (AHRQ, 2004; Cockerham, 2001, LaVeist, 2005). The direction of this relationship is
largely inconsistent and undetermined, however. Most postulate that the relationship is reciprocal. Gallo and Matthews (1998) illustrate this relationship of poor SES to low self-efficacy. They propose that people with access to fewer resources encounter more demands which contribute to the further depletion to the already compromised resource reserve. Not having resources available to access influences one's ability to navigate the systems and also to practically and emotionally cope with particular circumstances (Gallo & Matthews, 1998).

**Social Drift Hypothesis**

Social drift hypothesis (social selection theory) posits that “people with worse health status are less able to develop the human capital (such as education or specialized training) that will make them competitive in the economic market” (LaVeist, 172, 2005). Social drift is useful for explaining certain progressions of health and illness, including access to resources and illness. Moreover, people who have debilitating conditions or who feel that they are unable to meet daily needs, are unable to maintain employment and maintain the resources necessary to meet basic needs. According to this hypothesis, this reduction in activity leads to heightened risk for unemployment or reduced employment, as well as the potential for low wages which thereby creates conditions favorable for low socioeconomic status.

Bruce Dohrenwend and colleagues have given social drift hypothesis considerable deliberation. Their research contributes to the understanding of social [downward] drift by citing evidence that those who are healthy tend to at least maintain status, while those who are not healthy can easily lose social status. These theories arise largely from the literature concerning SES-psychopathology associations.
(Dohrenwend et al., 1992) of schizophrenia and depression citing evidence of individuals who suffer from both mental illness and who also experience a low SES position. Their research does consider that different racial or ethnic groups could be affected differently. The authors theorize that healthy individuals even from a disadvantaged group are more resilient to prejudice and discrimination, than individuals who are not healthy. This provides the opportunity for individuals to “dilute” (Dohrenwend et al., 1992) the group thereby allowing for stronger members to support other members of the group. Dohrenwend et al., conclude: “the more advantaged the ethnic group, the more its members would be able to support unhealthy individuals at higher SES levels” (947, 1992).

With regard to this study, social drift hypothesis captures the essence of the findings. As described in the hypothesis section of this research, relative deprivation theory focuses on the barriers to healthcare, and attempts to provide an explanation for the lack of balance within communities due to the lack of resources including health insurance, this study found that health insurance was not the most significant predictor of access to a public health network. Rather, social drift hypothesis better explains the findings from this study that perceived health need best predict health behavior. Lastly, this health need domain captures the relationships mentioned as influential in social drift such just as race/ethnicity is also confounded by characteristics of being impoverished such as experiencing negative emotions, feelings of discrimination, and institutional mistrust.
Conclusion

The crux of the matter with regard to health disparities, however, lies within the entangled relationships between class and race in the United States. This research lends to the urgency of the effort to disentangle this relationship and to discover the health behaviors and needs of those who are socially and economically vulnerable. The relationship between SES and health is complex and highly confounded by multiple indicators of poverty, environmental and social context, and health behaviors. Vulnerability, however, is influenced by previous generations and influences subsequent generations. The social conditions of poverty are pervasive and can be mitigated by equal access to healthcare. Individual and community interventions are not limited to medical care, but rather should extend beyond medical treatment to include healthcare that encompasses safe communities and housing, healthier diets (Almgren, 2007; Mechanic & Tanner, 2007), and access to quality education and healthy relationships. Social drift hypothesis highlights the necessity for possessing these resources. Not having physically health and lacking positive subjective health is significant for having the ability to be resistant to the daily stresses of life and the effects of discrimination and negative emotions. Especially with regard to social drift, it is necessary to discern the barriers to accessing healthcare and how and why different races and ethnicities seem to share experiences when they are all poor.

Studies concerning health disparities require valid socioeconomic data and reliable race/ethnicity data. The strengths of this study were that the study population was economically homogenous, and that ethnicity was distinguished. The sample was specifically Mexican American which highlights the unique characteristics of this
ethnicity, also distinguishing them from a grouping such as Hispanic or Latino/a. Future research should seek to collect more specific race/ethnicity data and also income and class data. It is because of the experiences of this particular vulnerable population in Tarrant County, Texas that it is useful to determine the experiences of Anglo Americans as well. The questions of leading theories and especially social drift hypothesis will be useful to examine the generational effects of poverty on healthcare seeking behaviors.

In addition to collecting quality data concerning race/ethnicity, it should be noted that it is recommended that this study be replicated. Research concerning safety-net healthcare is critical at this juncture in health policy in the United States. Especially considering the findings of this research, it is useful to learn more about the experiences of low-income individuals in safety-net healthcare including the experiences of medically underserved Anglo Americans. It would be useful to expand the study research to include more details concerning gender and social distress, and neighborhood effects on access to healthcare. Additional data should be gathered to consider the barriers to accessing safety-net healthcare and the concerns of accessing safety-net healthcare once different insurance options are made available.

In conclusion, while safety-net healthcare in the United States is under scrutiny for failing to meet the needs of the low income population, the safety-net healthcare network for the most vulnerable residents of Tarrant County provides equitable, need-based healthcare. Improvements to safety-net healthcare include extending care to individuals not based on geographic parameters or local or county funding. Lastly, individuals would have more options for accessing the safety-net healthcare system if more access points were made available through subsidizing healthcare for already
existing healthcare providers and expanding services to already existing public access points such as schools or community centers.
APPENDIX A
LOGISTIC REGRESSION TABLES
Table A.1

Logistic Regression Analyses of Problems Accessing Healthcare

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* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$
Table A.2

Logistic Regression Analyses of ED Use

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Logistic Regression Analyses of Problems Getting Prescription Medication

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* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$
Table A.4

Logistic Regression Analyses of Foregoing Healthcare Because of Competing Needs

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*Significant at the .05 level
**Significant at the .01 level
***Significant at the .001 level

(table continues)
Table A.4 (continued).

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* \(p \leq .05\), ** \(p \leq .01\), *** \(p \leq .001\)
APPENDIX B

SURVEY INSTRUMENT

AND CODE BOOK
SECTION 1: ACCESS TO CARE

We would like to start by asking you a series of questions about where you get your health care.

Q1. Is there a person or place, like a health clinic or doctor’s office, that you usually go to when you are sick or need advice about your health?
   1. Yes: IF YES, (GO TO Q2)
   2. No: IF NO, (GO TO Q10)
   9. NR/DK

1A. HAS USUAL SOURCE OF CARE:

Q2. Is there more than one place that you usually go to when you are sick or need advice about your health?
   1. Yes
   2. No (GO TO Q3)
   9. NR/DK

   Q2a. How many places do you usually go to when you are sick or need advice about your health?
   1. one
   2. two
   3. three
   4. four
   5. nr/dk

Q3. What is the name of the place (or places) you usually go to? (RECORD VERBATIM.)

   Q3a 1. NAME OF FIRST PLACE (Go to Q4)
   Q3b 2. NAME OF SECOND PLACE
   Q3c 3. NAME OF THIRD PLACE
   Q3d 4. NAME OF FOURTH PLACE
       (Q3b-Q3d go to Q3a)

FOR PEOPLE WHO HAVE MORE THAN ONE PLACE, ASK:
Q3aa. You have listed XX places that you usually go to when you are sick or need advice about your health. Which of these places have you been to most often in the past year, (PLACE 1, PLACE 2, PLACE 3, OR PLACE 4)?

   1. Place 1
   2. Place 2
   3. Place 3
   4. Place 4
Please answer the following questions about this place that you have used most often in the past year.

Q4. What kind of a place is this? It is a....
   1. A community or neighborhood health clinic or center
   2. A hospital outpatient clinic
   3. A hospital emergency room
   4. A VA or military hospital or clinic
   5. A psychiatric hospital or clinic
   6. A private doctor’s office or clinic
   7. Some other Place
   99. Don’t know

Q5. How long have you been using that place as your usual source of health care?
   1. Less than three months
   2. 3 up to 6 months
   3. 6 months up to a year
   4. A year or longer (GO TO Q5A)
   5.
   99. NR/DK

   Q5a. How many years? ______ Years

Q6. Is this place able to provide most of the care you need when you are sick?
   1. Yes
   2. No
   3. Don’t know
   4. No answer, refused

Q7. Is this place able to provide care or arrange for care on evenings and weekends when you are sick?
   1. Yes
   2. No
   3. Don’t know
   4. No answer, refused

Q8. A personal doctor is the health provider who knows you best. This can be your general doctor, or a specialist doctor. Do you have one person that you think of as your personal doctor at the place you usually go to when you are sick or need advice about health?
   1. Yes
   2. No
   3. NR/DK
1B. GETTING HELP FROM A SPECIALIST

When you answer the next questions, do not include dental visits.

Q9. Specialists are doctors like surgeons, heart doctors, allergy doctors, skin doctors, and others who specialize in one area of health care. In the last 12 months, did you or a doctor think you needed to see a specialist?

1. Yes
2. No (GO TO Q11)
3. Don’t know

IF YES: Q9a. In the last 12 months, how much of a problem, if any, was it to get a referral to a specialist that you needed to see?

1. A big problem
2. A small problem
3. Not a problem
4. No answer, refused

Q9b. In the last 12 months, did you see a specialist?

1. Yes
2. No
99.NR/DK

(GO TO Q11)

SECTION 2: NO USUAL SOURCE OF CARE FOR SICK CARE

Q10. You said you do not have a person or place that you usually go to when you are sick or need advice about health care. There are many reasons why people do not have a person or place to go to when they are sick. Please tell me if any of the following are reasons you do not have a usual source of care.

a. I do not need a doctor. Is this a reason you do not have a place you usually go to when you are sick or need advice about heath care?
b. I do not like or trust doctors. Is this a reason you do not have a place you usually go to?
c. I don’t know where to go. Is this a reason?
d. I have moved away from my previous doctor.
e. I do not have insurance.
f. I cannot afford to pay for care.
g. I speak a different language than most doctors.
h. No care is available for me.
i. The health care that is available is not convenient for me.
j. I have no way to get to the doctor.
SECTION 3. INSURANCE SECTION

3A. SCREENING SECTION

The next questions are about health insurance coverage. Please answer these questions for yourself only, not for your husband or wife, children, or any other family members.

Q11. Do you currently receive your health care for yourself through JPS Connections?
   1. Yes (GO TO Q14)
   2. No (GO TO Q12)
   9. NR/DK

Q12. Do you currently have health insurance for yourself from any of the following sources? Remember, this is coverage only for your health care needs, not those of your family. Are you currently covered by:

   Private insurance through work?
   Private insurance through your husband or wife’s work?
   Medicare?
   Medicaid?
   CHAMPUS or TRI-CARE?
   Military health care of VA?
   Do you have health insurance through some other source?
      IF YES: Please tell me the name of this insurance? RECORD VERBATIM.

(IF PERSON ANSWERED YES TO ANY INSURANCE IN QUESTION q12 a-g, ASK QUESTION q13)

3B. FOR PEOPLE WHO ARE INSURED:

Q13. During the last 12 months, was there any time when you did not have any health insurance or coverage?

   Yes (GO TO Q17)
   No (GO TO Q17)
   NR/DK

3C. FOR PEOPLE WHO HAVE NO INSURANCE:

Q14. About how long has it been since you had health insurance coverage, other than JPS Connections? (INTERVIEWER: PATIENT MAY THINK JPS CONNECTIONS IS HEALTH INSURANCE. IF SO, DO NOT correct HIM/HER.)

   6 months or less
   More than 6 months but not more than 3 years
Q15. I am going to read you a list of reasons people do not have health insurance coverage other than JPS Connections. Please tell me if these are reasons you do not have health insurance coverage.

I have usually been healthy, haven't needed insurance? Is this a reason you do not have health insurance coverage?
I lost my job or changed employers?
My husband/wife lost his/her job or changed employers?
My employer does not offer or stopped offering insurance coverage?
I work part time work?
I am a temporary employee?
I couldn't afford to pay the insurance premiums?
The insurance company refused coverage because of poor health or illness?
I lost my Medical eligibility?
Free or inexpensive care is easily available so I don't need insurance?

Q16. If buying health insurance for yourself was important to you, could you afford to spend $40 per month for health insurance just for yourself and not including any other members of your family?

1. Yes
2. No
9. No answer, refused

SECTION 4: UNMET NEEDS SECTION

4A. DIFFICULTIES GETTING MEDICAL CARE

Q17. Sometimes people have difficulties in getting medical care when they need it. During the past 12 months, was there a time when you wanted medical care or surgery but could not get it?

1. Yes
2. No
9. NR/DK

Q18. During the past 12 months, was there a time when a clinic or doctor refused to see you when you tried to get medical care or surgery?

1. Yes
2. No
(IF Q17 OR Q18 ARE YES, THEN ASK THE FOLLOWING): OR (SKIP TO Q23)

Q19. I am going to read you a list of reasons people sometimes have difficulty getting the medical care they need when they want it. The last time you did not get medical care you wanted, were any of these reasons you didn’t get care?
   a. I could not afford it? Was that a reason you could not get medical care?
   b. I had no insurance? Was that a reason you could not get care?
   c. The doctor did not accept Medicaid or my insurance?
   d. My health Problem was not serious enough?
   e. I had to wait too long in the clinic or office?
   f. I had difficulty in getting an appointment?
   g. No doctor was available?
   h. I didn’t know where to go?
   i. I had no way to get there?
   j. The hours were not convenient?
   k. I speak a different language than most doctors?
   l. The health of another family member prevented me from getting there?
   m. The doctor said I did not need the care I wanted.

Q20. The last time you tried to obtain medical care or surgery but could not get it at that time, did a doctor tell you that you needed medical care or surgery?
   Yes
   No
   9. No answer, refused

Q21. A that time, how serious did you think your health condition or problem was? Was it:
   1. Very serious
   2. Somewhat serious
   3. Not serious at all
   9. No answer, refused

Q22. Were you treated for this problem later?
   1. Yes (GO TO Q22b)
   2. No
   9. No answer, refused

   IF NO: Q22a. Do you think you would have been better off if you had received care for this problem?
   1. Yes
   2. No
   9. NR/DK
      GO TO Q23
Q22b. Do you think you would have been better off if you had received care earlier?
   1. Yes
   2. No
   9. No answer, refused

4B. PRESCRIPTION MEDICINES

Q23. During the past 12 months, was there a time when you wanted a prescription medicine but you could not get it at that time?
   1. Yes
   2. No
   9. No answer, refused

IF YES, ASK: Q23a. I am going to read you a list of reasons people sometimes have difficulty getting prescription medicines when they want it. The last time you did not get the prescription medicines you wanted, were any of these reasons you didn’t get the medicine?

   a. I could not afford it? Was this a reason you could not get the medicine you wanted?
   b. I had no insurance? Was this a reason for you?
   c. The pharmacy did not accept Medicaid or my insurance?
   d. My health problem was not serious enough?
   e. I had to wait too long in pharmacy?
   f. No pharmacy was available?
   g. I didn’t know where to go?
   h. There was no way to get to pharmacy
   i. The hours of pharmacy not convenient?
   j. I speak a different language than the pharmacist?
   k. My doctor did not think I needed this medicine.

In the next few questions, I will be asking you about your prescribed medicine.

Q24. The last time you wanted a prescribed medicine but could not get it at that time, did you actually have a prescription from a doctor for the medicine you could not get?
   1. Yes
   2. No (GO TO Q27)
   9. No answer, refused

Q25. At that time, how serious did you think your health condition or problem was? Was it
   1. Very serious
   2. Somewhat serious
   3. Not serious at all
9. No answer, refused

Q26. Did you get the medicine later?

1. Yes (GO TO Q26b)
2. No (GO TO Q26A)
9. No answer, refused

IF NO: Q26a. Do you think you would have been better off if you had been able to get this medicine?

1. Yes
2. No
9. NR/DK

(Go to Q27)

Q26b. Do you think you would have been better off if you have gotten the medicine earlier?

1. Yes
2. No
9. NR/DK

(Go to Q27)

4D. DENTAL CARE

Q27. About how long has it been since you last saw or talked to a dentist? Include all types of dentists, such as orthodontists, oral surgeons, and other dental specialists, as well as dental hygienists.

1. 6 months or less
2. More than 6 months but not more than 1 year ago
3. More than 1 year but not more than 3 years ago
4. More than 3 years ago
5. Never
6. Don’t know
9. No answer, refused

Q28. During the past 12 months, was there a time when you wanted dental care but you could not get care?

1. Yes
2. No
9. No answer, refused
SECTION 5: YOUR HEALTHCARE IN THE LAST 12 MONTHS

Q29. An interpreter is someone who repeats or signs what one person says in a language used by another person. In the last 12 months, did you need an interpreter to help you speak with doctors or other health providers?

1. Yes
2. No (GO TO Q31)
9. NR/DK

Q30. In the last 12 months, when you needed an interpreter to help you speak with doctors or other health providers, how often did you get one?

1. Never
2. Sometimes
3. Usually
4. Always
9. No answer, refused

Q30a. In the last 12 months, when you needed an interpreter how much of a problem was it to get one?

1. a big problem
2. a small problem
3. not a problem
9. NR/DK

Q31. In the last 12 months, did you have a health problem which you needed special medical equipment, such as a cane, a wheelchair, or oxygen equipment?

1. Yes
2. No (GO TO Q33)
9. No answer, refused

Q32. In the last 12 months, how much of a problem, if any, was it to get the special medical equipment you needed?

1. A big problem
2. A small problem
3. Not a problem
9. No answer, refused

Q33. In the last 12 months, did you have any health problems that needed special therapy, such as physical, occupational, or speech therapy?

1. Yes
2. No (GO TO Q35)
9. No answer, refused

Q34. In the last 12 months, how much of a problem, if any, was it to get the therapy you needed?
1. A big problem
2. A small problem
3. Not a problem
9. No answer, refused

Q35. Paperwork means things like getting your ID card, having your records changed, processing forms, or other paperwork related to getting care. In the past 12 months, did you have any experiences with paperwork related to getting care. In the last 12 months, did you have any experiences with paperwork for your health care?
   1. Yes
   2. No (GO TO Q37)
   9. No answer, refused

Q36. In the last 12 months, how much of a problem, if any, did you have with the paperwork for getting your health care?
   1. A big problem
   2. A small problem
   3. Not a problem
   9. No answer, refused

Q37. During the past 12 months, did you experience any problems with getting transportation to get health care?
   1. Yes
   2. No (GO TO Q39)
   9. No answer, refused

Q38. In the past 12 months, how much of a problem was it for you to get transportation to get the health care you needed?
   1. A big problem
   2. A small problem
   3. Not a problem
   9. No answer, refused

Q39. During the last 12 months, did you NOT receive doctor’s care or prescription medicines because you needed the money to buy food, clothing or pay for housing?
   1. Yes
   2. No
   9. No answer, refused

Q40. In the past 12 months, have you had a serious problem having enough money to pay doctor and hospital bills for yourself?
   1. Yes
   2. No
   9. No answer, refused
Q41. In the past 12 months, have you had a serious problem paying for prescription medicines that you needed for yourself?
   1. Yes
   2. No
   9. No answer, refused

Q42. In the past 12 months, have you had a serious problem getting health care that you needed for yourself?
   1. Yes
   2. No
   9. No answer, refused

SECTION 6: ABOUT YOU
Now I would like to ask you some questions about you. Please answer the following questions for yourself.

6A. HEALTH

Q43. In general, how would you rate your overall health now?
   1. Excellent
   2. Very good
   3. Fair
   4. Poor
   9. NR/DK

Q44. Because of any physical, mental or emotional problems, do you need the help of other persons with your personal care needs, such as eating, bathing, dressing, or getting around inside the house?
   1. Yes
   2. No
   3. Don’t know
   9. No answer, refused

Q45. Because of any physical, mental or emotional problems, do you need help of other persons with your routine needs, such as everyday household chores, doing necessary business, shopping or getting around for any other purpose?
   1. Yes
   2. No
   3. Don’t know
   9. No answer, refused

Q46. Are you limited in the kind or amount of work that you can do because of physical, mental or emotional problems?
   1. Yes
   2. No
   3. Don’t know
9. No answer, refused

Q47. Are you limited in any way in any activities because of any physical, mental or emotional problems?
   1. Yes
   2. No
   3. Don’t know
   9. No answer, refused

Q48. During the past 30 days, about how often have you felt you did not get enough rest or sleep? Would you say:
   1. Everyday
   2. Most days
   3. Some days but not most days
   4. Never
   9. DK/NR

Q49. During the past 30 days, about how often have you felt very healthy and full of energy? Would you say?
   1. Everyday
   2. Most days
   3. Some days but not most days
   4. Never
   9. DK/NR

Q50. During the past 30 days, about how often have you felt sad, blue or depressed?
   1. Everyday
   2. Most days
   3. Some days but not most days
   4. Never
   9. DK/NR

Q51. During the past 30 days, for about how many days have you felt worried, tense or anxious?
   1. Everyday
   2. Most days
   3. Some days but not most days
   4. Never
   9. DK/NR

Q52. In the past 6 months, have you been a patient in a hospital overnight or longer?
   1. Yes
   2. No
   9. DK/NR
Q53. In the past 12 months, about how many times have you been seen by a doctor in an emergency room?
   000 to 366 times
   999 No answer, refused

Q54. In the past 12 months, about how many doctors visits have you had for yourself? Do not include emergency room visits.
   000 to 366 times
   999 No answer, refused

Q55. Are you of Mexican origin or descent?
   1. Yes
   2. No
   9. DK/NR

Q55a. Are you of Mexican American origin or descent?
   1. Yes
   2. No
   9. DK/NR

Q56. Which of the following racial groups do you belong to?
   1. White/Caucasian
   2. Black/African-American
   3. Asian
   4. Native Hawaiian/other Pacific Islander
   5. American Indian/Alaska Native
   6. Other
   9. DK/NR

Q57a. Which of the following languages do you speak at home? Do you speak English?
   1. Yes
   2. No
   9. DK/NR

Q57b. Which of the following languages do you speak at home? Do you speak Spanish?
   1. Yes
   2. No
   9. DK/NR

Q57c. Which of the following languages do you speak at home? Do you speak Vietnamese?
   1. Yes
   2. No
   9. DK/NR
Q57d. Which of the following languages do you speak at home?
   Do you speak some other language?
   1. Yes
   2. No
   9. DK/NR

Q58. Are you currently married and living with a spouse?
   1. Yes
   2. No
   9. DK/NR
6B: EMPLOYMENT, SICK LEAVE, GETTING TO THE DOCTOR
In the next few questions, I will be asking you about your work and sick leave when you need to go to the doctor.

Q59. Do you currently have at least one job where you work for pay?
   1. Yes
   2. No (GO TO Q67)
   9. No answer, refused

Q60. How many jobs do you have where you work for pay?
   List number:

Q61. Are you self-employed or do you work for someone else or both?
   1. Self-employed
   2. Work for someone else
   3. Work for someone else and self-employed
   9. No answer, refused

Q62. About how many hours a week do you work at all your jobs where you work for pay?
   000-989 or more hours a week
   999 No answer, refused

Q63. In the past year, about how many days did you miss work at a job or business because of illness or injury? Do not include maternity leave.
   0. None
   1-366 days
   998. Don’t know
   999 No answer refused

Q64. Do you get paid time off from work when you are sick?
   1. Yes
   2. No
   9. No answer, refused

Q65. Do you get paid time off from work when you have to go see a doctor?
   1. Yes
   2. No
   9. No answer, refused

Q66. How would you describe your employer’s reaction to your taking time off from work to go to the doctor – does it cause a lot of trouble or problems, some trouble or problems, a little trouble or problems, or no trouble or problems?
   1. Lot of trouble or problems
   2. Some trouble or problems
   3. A little trouble or problems
4. No trouble or problems
9. NR/DK

Q67. Does someone usually go with you when you go to the doctor?
   1. Yes
   2. No
   9. No answer, refused

Q68. Does that person every have to take time off from work to take you to the doctor?
   1. Yes
   2. No
   3. Person doesn’t work
   9. No answer, refused

Q69. Have you ever had to put off going to the doctor because that person could not get
time off from work?
   1. Yes
   2. No
   9. No answer, refused
SECTION 7. IMMIGRATION

Finally, we would like to ask you about your residence in the United States.

Q70. Were you born in the United States?
   1. Yes, I was born in the United States (Go to gender)
   2. No, I was not born in the United States
   9. NR/DK

Q70a. (If no to q70) About how many years have you been in the United States?
   0. Less than one year
      # years
   9. NR/DK

Q70b. Which of these statements is most true for you?
   1. I am a U.S. citizen
   2. I am applying for U.S. citizenship
   3. I do not qualify yet to apply for citizenship
   4. I need to become a permanent resident first
   5. I prefer to remain a citizen of my home country
   9. NR/DK

   Q70c. If Q70b answer #2-5 ask: What is the name of the country where you are a citizen? (RECORD VERBATIM)

Qgender. (Interviewer: Do not read)
   1. Female (go to Q71)
   2. Male (go to Thank)
SECTION 8: WOMEN’S HEALTH: ASK OF FEMALE RESPONDENTS ONLY

Q71. Are you pregnant right now?
   1. Yes
   2. No (GO TO Q73)
   9. NR/DK

Q72. IF YES: Have you been to a doctor or other health provider for a pregnancy care checkup for this pregnancy?
   1. Yes
   2. No
   9. NR/DK

Q73. Have you ever had a test for cancer of the cervix or uterus, like a Pap smear?
   1. Yes
   2. No
   9. NR/DK

Q74. About how long has it been since you had a pap smear? Was that within the past year, between 1 and 3 years ago, or over 3 years ago?
   1. Within past year
   2. 1 to 3 years ago
   3. Over three years ago
   9. NR/DK

THANKS:

That is the end of our survey. Thank you very much for sharing your experiences with us.
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