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Memory Manda

University of Nebraska-Lincoln, mmanda2@huskers.unl.edu

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FACTORS ASSOCIATED WITH RACIAL DIFFERENCES IN HEALTH CARE
ACCESS

By

Memory Manda

A THESIS

Presented to the Faculty of
The Graduate College at the University of Nebraska
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Under the Supervision of Professor Christina D. Falci

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FACTORS ASSOCIATED WITH RACIAL DIFFERENCES IN HEALTH CARE
ACCESS

Memory Manda, M.A.

University of Nebraska, 2022

Advisor: Christina D. Falci

Using data from the 2018 National Health Interview Survey (NHIS), this study examined racial group differences in health care access, including measures for usual place of sick or preventative care and delayed or forgone care and the mechanisms that explain those differences. This study integrated the Fundamental Cause Theory and Anderson's Behavioral model to understand the causal mechanism responsible for racial disparities in health care access. Results showed that Hispanics were more likely to have no usual place for sick or preventative care and more likely to delay care than other racial groups. Blacks were more likely to use other sick or preventative care places than a doctor's office and more likely to forgo care due to cost than other racial groups. Whites were more likely to have a doctor's office as a place for sick or preventative care, followed by Asians, Hispanics, and Blacks. In addition, health insurance coverage highly contributed to explaining racial differences in health care access for Blacks and Hispanics, followed by family income, marital status, education attainment, and employment status. Results show that Blacks and Hispanics are at a higher disadvantage in accessing health care. Therefore, further research needs to focus on reducing disparities in health care access, especially for Blacks and Hispanics.

Dedication

I dedicate this thesis to my late mother, Agnes Richard Banda, who always encouraged me to be focused and believed in my abilities to do great work.

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Introduction

Health care access is essential for preventing and treating various health problems to promote and maintain health (Hummer and Hamilton 2019; Office of Disease Prevention and Health Promotion 2021; Richardson and Norris 2010). In the United States, the need for health care access is well documented, especially among racial minorities (Anon 2004; Callahan, Hickson, and Cooper 2006; Chaves et al. 2019; Copeland 2005; Durden and Hummer 2006; Manuel 2018; Miller and Wherry 2017). Minoritized racial groups such as Blacks, Asians, and Hispanics have reported lower health care access than Whites. According to the 2018 National Health care Quality and Disparities Report, “Blacks experienced worse access to care than Whites for 43 percent of the health care access measures while Asians experienced worse access to care than Whites for 37 percent of the measures” (Chaves et al. 2019: 26).

Minoritized racial groups such as Blacks and Hispanics experience racism, and the White majority has racial privilege, leading to racial differences in access to resources (education, employment, income, marriage, and health insurance) and opportunities that promote health (Bailey, Feldman, and Bassett 2021; Feagin and Bennefield 2014; Williams, Lawrence, and Davis 2019). Therefore, racial differences in health care access likely contribute to worse health outcomes for Blacks or African Americans, Asians, and Hispanics compared to Whites (Chen et al. 2016; Council on Ethical and Judicial Affairs 1990; Richardson and Norris 2010; Williams and Sternthal 2010), including higher morbidity, higher mortality, and lower life expectancy (Hummer and Hamilton 2019; Phelan and Link 2015).

As such, it is important to understand racial differences in health care access. Using data from the 2018 National Health Interview Survey (NHIS), the focus of this study is to understand racial group differences in health care access, including measures for usual place of sick or preventative care and delayed or forgone care and the mechanisms that explain those differences.

While disparities in health care access are evident, the mechanisms that produce the racial differences are unclear. This study draws on two theoretical frames, Fundamental Cause, and Andersen's Behavioral Model, to explore the factors associated with racial differences in health care access. I argue that SES is a fundamental cause of racial disparity in health care access because it shapes the availability of resources key to gaining access to health care, such as income, employment, and marriage. Andersen's Behavioral Model points to further inequality mechanisms to understand racial disparities in health care access, including functional limitations and chronic conditions.

This study makes several contributions to the current research literature. First, integrating Fundamental Cause Theory and Anderson's Behavioral model sets up a broad array of mechanisms to explore to understand racial disparities. It also leads to a reformulation of educational, marital, and employment status as causal mechanisms of inequality rather than control variables or predisposing characteristics, as named by the Anderson Model. Second, previous research on health care access has primarily focused on individuals' usual place of sick care (Charron-Chénier and Mueller 2018; Chen et al. 2016; Kirby and Kaneda 2005, 2006; Manuel 2018). This study also includes a diverse array of health care access measures, including the usual place of preventative or sick care as well as forgone and delayed care. Preventative health care is essential for the early

detection of diseases to prevent disability caused by chronic diseases, compromised quality of life, and death (National Center for Chronic Disease Prevention and Health Promotion 2009).

Third, this research compares health care access across four racial groups, including Hispanics, Blacks, Asians, and Whites. Much previous research has compared only Blacks to Whites (Copeland 2005; Council on Ethical and Judicial Affairs 1990) or Hispanics to Whites (Durden and Hummer 2006; Perez et al. 2009), although there are a few exceptions to this trend (see Lau 2016; Manuel 2018; Richardson and Norris 2010).

Literature Review

Health Care Access

The Agency for Health Research and Quality (2020) defines health care access as a situation where a person can visit a place that offers medical care and use health services on time to achieve the best health outcomes (Agency for Health Research and Quality 2020). Yet, studies vary considerably in how health care access is measured. A common measure pertains to whether an individual had a usual place of sick care with a dichotomous response of “yes or no” (Auchincloss, Van Nostrand, and Ronsaville 2001; Bustamante et al. 2009, 2019; Callahan et al. 2006; Wheldon and Kirby 2013).

Some studies also investigate the source of usual sick care (Dedania and Gonzales 2019; Durden and Hummer 2006; Ye et al. 2012). For example, studies differentiate between a doctor’s office (including a clinic, health center, or Health Maintenance Organization), the emergency room, and other sources (Durden and Hummer 2006; Ye et al. 2012).

Sick care captures health care access when a person has a medical issue such as an injury, illness, or disease. Another way to assess health care access is having preventative care such as vaccinations, annual health check-ups, dental check-ups, and health screenings (breast cancer, cervical cancer, cholesterol, blood pressure). Having access to preventative care increases the chances of detecting diseases early (National Center for Chronic Disease Prevention and Health Promotion 2009).

Furthermore, preventative care reduces the risk of diseases, disability caused by chronic diseases, and death (Borsky et al. 2018; National Center for Chronic Disease Prevention and Health Promotion 2009). However, most studies on health care access have concentrated on the usual place and source of sick care and not the usual place and source of preventative care (Charron-Chénier and Mueller 2018; Chen et al. 2016; Kirby and Kaneda 2005, 2006; Manuel 2018). This study will explore both the usual place and source of sick and preventative care.

Having a usual source of care (preventative or sick care) is associated with better health outcomes than not having a usual place (Blewett et al. 2008; Jetty et al. 2015; Levine, Landon, and Linder 2019). Moreover, a doctor's office or primary care provider is the ideal usual source of care compared to an emergency room, hospital outpatient department, or other sources (Levine et al. 2019; Smith et al. 2017; Xu 2002). According to Levine and Colleagues (2019), people with doctor's offices or primary care providers as a usual source of care receive better overall quality health care (Levine et al. 2019) and have better health outcomes (Blewett et al. 2008; Jetty et al. 2015; Levine et al. 2019).

Studies also measured health care access in terms of forgone care due to cost and delayed care. Forgone care captures health care access when a person needs health care

but does not get it because they cannot afford it. On the other hand, delayed care occurs when a person needs health care but postpones getting it due to reasons such as the inability to get an appointment soon enough, the doctor's office was not open when they got there, or they did not have transportation.

The forgone and delayed care measurements vary across studies (Auchincloss et al. 2001; Bustamante et al. 2009; Callahan et al. 2006; Chen et al. 2016; Weissman et al. 2018). For example, some studies measured delayed health care based on whether, during the past 12 months, the respondents delayed seeking medical care due to worry about the cost (Auchincloss et al. 2001; Callahan et al. 2006). On the other hand, Bustamante and Colleagues (2009) measured delayed health care based on whether an individual did not experience a delay in obtaining health care (Bustamante et al. 2009).

The measurement of forgone health care due to cost has also varied across studies. For example, Auchincloss and Colleagues (2001) measured forgone care due to cost based on whether, during the past 12 months, the respondent needed care but did not get at least one of the following: (a) medical or surgical care, (b) dental care, (c) mental health care, (d) prescription medication, or (e) eyeglasses (Auchincloss et al. 2001). Lastly, Bustamante and Colleagues (2009) measure forgone care based on whether an individual could afford all health care (Bustamante et al. 2009).

Racial differences in health care access

The definition of race is varied, even among sociologists. Scholars argue that race categorization is socially constructed and bound to change over time (Brown et al. 2013; Golash-Boza 2016; Howell and Emerson 2017). According to Golash-Boza (2016), the socially constructed notion that race can be divided into distinct groups based on

individuals' cultural and physical attributes is linked to White superiority and the inferiority of other racial groups leading to racial inequality. In the current study, I acknowledge that the definition of race is socially constructed and complex.

Many scholars view race as a socially constructed status defined through and by social interaction across historical times that categorizes individuals based on ethnicity, phenotypic, nationality, and other indicators of social difference (Brown et al. 2013; Clair and Denis 2015; Morning 2009; Nyborg 2019; Obach 1999; Williams, Lawrence, and Davis 2019; Williams and Sternthal 2010). Working from this idea, this study will focus on the four largest racial groups widely recognized in the United States: Whites, Blacks, Asians, and Hispanics.

Racial differences in health care access exist across racial groups. Scholars have found that minority racial groups such as Blacks, Hispanics, and Asians are less likely to have a usual place and source of sick care (Agency for Health Research and Quality 2020; Bulatao, Anderson, and National Research Council (U.S.) Panel on Race 2004; Manuel 2018; Mitchell 2015; Sommers et al. 2017). According to Gaskin and Colleagues (2007), Whites were most likely to have a doctor's office as a usual source of care, followed by Asians, Blacks, and Hispanics (Gaskin et al. 2007). Additionally, Hispanics were more likely to report not having usual source care and more likely to use community health centers and hospital outpatient departments, followed by Blacks, Asians, and Whites (Gaskin et al. 2007). Therefore, in this study, I expect Whites to be most likely to have a doctor's office as a usual place of sick care, followed by Asians, Blacks, and Hispanics.

I expect to see the same racial differences in access to preventative care as those in access to sick care. Whites will be most likely to have a doctor's office as a usual place of preventative care, followed by Asians, Blacks, and Hispanics. Since minoritized racial groups are less likely to go to a doctor's office as a usual place for sick care than Whites, they will be less likely to go to a doctor's office for preventative care than Whites.

Racial differences in health care access have also been reported based on forgone health care due to cost and delayed care. For example, Burgard and Hawkins (2014) found that Hispanics and Blacks were more likely to forgo health care due to cost, while Asians and Whites were less likely to forgo health care due to cost (Burgard and Hawkins 2014). In addition, Chen and colleagues (2016) found that Blacks had the highest likelihood of delaying or forgoing health care due to cost than other racial groups (Chen et al. 2016). Therefore, in this study, I expect Blacks and Hispanics to be more likely to forgo health care due to cost and delay health care than Whites and Asians.

Mechanisms of Inequality in Health Care Access

This study draws its theoretical framework from the Theory of Fundamental Causes and Andersen's Behavioral Model to understand racial differences in health care access. Generally, the Theory of Fundamental Causes deals with inequality in power, knowledge, prestige, money, social connections, and social support concerning health. The Theory of fundamental causes outlines how socioeconomic status (SES) is a fundamental cause of disease and inequalities in health (Link and Phelan 1995; Phelan and Link 2015; Phelan, Link, and Tehranifar 2010). People with higher SES have the capacity to mobilize resources such as knowledge, money, and social connections needed

to access health care and, thus, experience better health outcomes health (Link and Phelan 1995; Phelan and Link 2015; Phelan et al. 2010).

According to Phelan and Link (2015), in the Theory of fundamental causes, racism is a fundamental cause of differences in health care access and health outcomes. Racial privilege is viewed as a resource that contributes to better SES and, as a result, better health-promoting actions (Phelan and Link 2015). Various scholars highlight that racism toward minoritized racial groups such as Blacks and Hispanics has led to racial disparities in access to resources that support access to health care and, ultimately, racial differences in health care access (Bailey et al. 2021; Feagin and Bennefield 2014; Williams et al. 2019).

Blacks and Hispanics are more likely to experience racism and have lower SES than Whites on average, and, as a result, Blacks and Hispanics are less likely to have the resources (education, marriage, health insurance, employment, income) necessary to access health care compared to Whites (Bailey et al. 2021; Chen et al. 2016; Jones, Trivedi, and Ayanian 2010; Lau 2016; Williams et al. 2019).

Andersen's Behavioral Model indicates the factors that lead to health care access and utilization. Andersen's Behavioral Model states that three factors influence health care access and utilization, predisposing characteristics (demographic), enabling factors (personal or family and community), and need factors (perceived and evaluated) (Andersen 1995). According to Andersen (1995), predisposing characteristics depict people's susceptibility to use health services (Andersen 1995). Predisposing characteristics such as age or gender represent biological necessities that suggest that people will most likely need health care (Andersen 1995). On the other hand, enabling

factors enable or hinder health care access (Andersen 1995). Finally, need factors necessitate access to health services, such as health status or disability (Andersen 1995).

The Theory of fundamental causes and Andersen's Behavioral Model have overlapping mechanisms that help explain disparities in health care access. For example, some of Andersen's Behavioral Model's predisposing factors, such as education, marital status, and employment status, which are consistent with standard control variables (Andersen 1995), are considered causal mechanisms contributing to explaining racial inequality in health care access by the Theory of fundamental causes (Link and Phelan 1995; Phelan and Link 2015; Phelan et al. 2010). Therefore, integrating the two theories allows the combination of Andersen's Behavioral Model's enabling factors and the mechanisms of disadvantage from the Theory of fundamental causes as enabling causal mechanisms explaining racial differences in health care access.

Additionally, the Theory of fundamental causes points to inequality as a major driver in health care need differences (Link and Phelan 1995; Phelan and Link 2015; Phelan et al. 2010) and that people with low SES are less likely to have resources to improve their health despite the need (Link and Phelan 1995). On the other hand, Andersen's Behavioral Model shows how need factors such as functional limitations and chronic health conditions explain differences in health care access.

Enabling/ Disadvantage Factors

Enabling factors (personal or family, and community) allow or hinder health care access. Drawing from the Theory of Fundamental Causes and Andersen's Behavioral Model, in this study, enabling factors also serve as inequality mechanisms that help explain racial differences in health care access. Enabling /disadvantage factors include

employment status, health insurance coverage, family income, educational attainment, and marital status. An individual's employment status and insurance coverage impact access to health care services. For example, Pharr, Moonie, and Bungum (2012) found that unemployed individuals were less likely to access health care services due to cost than employed individuals (Pharr, Moonie, and Bungum 2012).

Additionally, Pew Research Center (2016) and the U.S. Bureau of Labor Statistics 2019 reported that Blacks had a higher likelihood of being unemployed, followed by Hispanics, Whites, and Asians (Pew Research Center 2016; U.S. Bureau of Labor Statistics 2019) and therefore, less likely to have health insurance coverage and health care access (Manuel 2018). According to Sohn (2017), health care access is tied to health insurance coverage, and in turn, health insurance coverage is tied to employment status (Sohn 2017). Kirby and Kaneda (2010) found that Blacks and Hispanics were more likely to be uninsured than Asians and Whites (Kirby and Kaneda 2010) and, therefore, less likely to access health care. Hence, in this study, I expect the unemployed and uninsured individuals to be less likely to access health care. I also expect Blacks and Hispanics to have a higher likelihood of being unemployed and uninsured.

Some scholars have distinguished between private and public health insurance coverage and how these two types of insurance coverage are associated with health care access. According to Berchick, Barnett, and Upton (2021), most people in the United States have private health insurance provided mainly by an employer. Many others have public health insurance acquired through government-sponsored programs like Medicare and Medicaid (Berchick, Barnett, and Upton 2021). According to Spencer, Gaskin, and Roberts (2013), people with private health insurance obtain better quality care than

people with public health insurance (Spencer, Gaskin, and Roberts 2013). In their study Spencer, Gaskin, and Roberts (2013) found that people with public insurance (medicare) had higher than expected mortality rates for all studied medical conditions than people with private insurance (Berchick et al. 2021).

Additionally, Berchick, Barnett, and Upton (2021) reported that Hispanics were the least likely to have private health insurance coverage followed by Blacks, Asians, and Whites (Berchick et al. 2021). However, public health insurance coverage showed a different pattern. Asians were the least likely to have public health insurance coverage followed by Whites, Hispanics, and Blacks (Berchick et al. 2021). Therefore, I expect people with private insurance to be more likely to access health care. I also expected Whites to be more likely to have private health insurance, followed by Asians, Blacks, and Hispanics.

Marital status increases the likelihood of having health insurance coverage and higher income and, thus, health care access. For example, Pandey and Colleagues (2019) found that married people were more likely to have health insurance coverage and disposable income, enabling them to access health care than unmarried people (Pandey et al. 2019). According to Berchick, Barnett, and Upton (2021), many people acquire health insurance coverage through a family member's health insurance plan, such as a spouse (Berchick et al. 2021).

The United States Census Bureau's reports that in 2016, Asians had the highest marriage rates, followed by Hispanics (US Census Bureau 2021). Blacks had the lowest marriage rates, followed by Whites (US Census Bureau 2021). Therefore, in this study, I expect the married to be more likely to access health care than the unmarried. I also

expect Asians to be the most likely to be married, followed by Hispanics, Whites, and Blacks.

Two social indicators of SES are educational attainment and family income. Previous studies have shown that individuals with higher SES are more likely to access health care than individuals with low SES (Beckles and Truman 2011; Caballo, Brian et al. 2021; McMaughan, Oloruntoba, and Smith 2020; Ohlson 2020). According to Beckles and Truman (2011), educational attainment and family income are good indicators of SES, and educational attainment is a significant determinant of one's employment and income (Beckles and Truman 2011). Beckles and Truman (2011) also argue that income reflects material resources that enable people to access health care (Beckles and Truman 2011). Hence in this study, I expect people with higher education and higher income to be more likely to access health care.

Williams, Priest, and Anderson (2016) report that college graduation levels are lowest among Blacks and Hispanics than Whites and Asians. College graduation levels of Whites are two times higher for Whites than Blacks and Hispanics (Williams, Priest, and Anderson 2016). Williams, Priest, and Anderson (2016) also report that Asians had the highest median household income, followed by Whites, Hispanics, and Blacks (Williams et al. 2016). Therefore, in this study, I expect Asians and Whites to have higher income and higher education levels than Hispanics and Blacks.

Need Factors

Need factors necessitate using health services, such as health status or disability (Andersen 1995). In this study, the need factors are chronic conditions and functional limitations. According to the Theory of fundamental causes, need factors are driven by

class and racial inequality. The Theory of fundamental causes highlights that higher SES and racial privilege are vital resources for better health outcomes (Link and Phelan 1995). Link and Phelan (1995) argued that people with lower SES had lower life expectancy, higher morbidity and mortality rates. Blacks had lower SES and higher rates of chronic conditions such as renal failure, cancers, and stroke than Whites (Link and Phelan 1995).

Studies have shown that chronic conditions and functional limitations are determinants of health care access (Beatty et al. 2003; Chen et al. 2016; National Academies of Sciences, Engineering and Medicine 2018). According to Beatty and Colleagues (2003), people with functional limitations and chronic health conditions such as cancer, diabetes, hypertension, and heart diseases need timely access to health care services than those without chronic conditions or functional limitations. However, not everyone with functional limitations or chronic conditions has access to health care when needed, partly due to health insurance coverage (Beatty et al. 2003). Additionally, people with chronic conditions or functional disabilities are more likely to face challenges accessing health care than people without functional limitations or chronic conditions (Beatty et al. 2003). Thus, I expect people with chronic conditions or functional limitations to be less likely to access health care than people without a functional limitation or a chronic condition.

Scholars have found that Blacks and Hispanics have a higher probability of having chronic and disabling diseases than Whites and Asians (Braveman 2006; Brown 2018; National Academies of Sciences, Engineering and Medicine 2018). The racial disparity in chronic conditions and functional limitations has been due to SES. According to Brown (2018), Blacks, compared to Whites, tend to have more functional limitations

and chronic conditions such as heart diseases, arthritis, hypertension, stroke, and diabetes (Brown 2018). Additionally, Hispanics are more likely to have functional limitations and chronic conditions like kidney disease, liver disease, and diabetes than Whites (Brown 2018). Therefore, I expect Blacks and Hispanics to be more likely to have chronic conditions and functional limitations.

Control Variables

The control variables used in this study include the predisposing characteristics from the Anderson Model that we have not reclassified as inequality mechanisms (Andersen 1995), such as age and gender (Dunlop et al. 2002; Kim and Lee 2016; Kirby and Kaneda 2005; Manuel 2018). Predisposing characteristics are consistent with standard control variables. Therefore, in this study, the predisposing characteristics of age and gender serve as control variables. This is because the predisposing factors age and gender are not causal mechanisms in explaining racial differences in health care access but control variables, even though these factors are viewed as mechanisms in Andersen's Behavioral model.

The Current Study

This study examines racial differences in health care access across four measures (usual place of sick care, usual place of preventative care, delayed care, and forgone care) and the mechanisms that explain those differences—mechanisms of inequality (health insurance coverage, marital status, educational attainment, employment status, and family income) functional limitations and chronic conditions. This study draws on two theoretical frames, Fundamental Cause and Andersen's Behavioral Model, to explore the factors associated with racial differences in health care access.

In this study, I expect a) Whites to be most likely to have a doctor's office as a usual place of sick care, followed by Asians, Blacks, and Hispanics. b) Whites to be most likely to have a doctor's office as a usual place of preventative care, followed by Asians, Blacks, and Hispanics. c) Blacks and Hispanics to be more likely to delay care than Asians and Whites. d) Blacks and Hispanics to be more likely to forgo health care due to cost than Whites and Asians. I also expect family income, health insurance coverage, marital status, and chronic conditions to explain most differences in health care access in Blacks and Hispanics compared to Whites. I expect Asians and Whites to have similar levels of health care access.

Methods

Source of Data and Study Population

This study used data from the 2018 National Health Interview Survey (NHIS) (National Center for Health Statistics 2020). The NHIS is a nationally representative cross-sectional household interview survey conducted annually on the civilian noninstitutionalized population living in the United States at the time of the interview (National Center for Health Statistics 2020). The sample design for the 2018 NHIS is a probability design stratified by state. The 2018 NHIS data is suitable for this study because it provides adequate information about demographic factors, socioeconomic factors, health information, and health care access (National Center for Health Statistics 2020).

The NHIS consists of four main components: the Household Composition section, the Family Core, the Sample Child Core, and the Sample Adult Core. According to the National Center for Health Statistics (2020), "the publicly released data files for the 2018

NHIS contain data for 29,839 households containing 72,831 persons in 30,309 families. The number of sample children is 8,269, and the number of sample adults is 25,417. In 388 cases, a knowledgeable proxy answered for the sample adult. The total household response rate was 64.2 percent. The non-response rate was 35.8 percent (26 percent was a result of respondent refusal and unacceptable “insufficient” partial interviews, while 9.8 percent was the result of failure to locate an eligible respondent at home after repeated contact attempts)” (National Center for Health Statistics 2020: 15).

This study used the sample adult, family, and household datasets. The sample size for this study is 19,629 after the listwise deletion (5,788 cases) of missing values across all variables of interest (dependent, independent, intervening, and control variables). The focus of this study is the Black (2,214), Hispanic (2,277), Asian (1,061), and White (14,077) racial groups. Therefore, the cases containing other racial groups (American Indian/ Alaska Native, Multiple races, and other races) were excluded from the analysis.

Measures

Dependent Variables

The outcome variable in this study is health care access. To measure health care access, I used four health care access measures from the NHIS. (a) Usual place of sick care was measured using two questions, “is there a place that you usually go to when you are sick or need advice about your health?” (1 = yes, 2 = there is no place, 3 = there is more than one place) and “what kind of place is it - a clinic, Doctor's office, emergency room, or some other place? (1 =Clinic or health center, 2= Doctor's office or HMO, 3=

Hospital emergency room, 4= Hospital outpatient department, 5= Some other place, 6= Doesn't go to one place most often).”

The responses to these questions were recoded into a new variable called “usual place of sick care.” In the new variable, respondents who said no to having a usual place of sick care were categorized as “0=No usual place”; respondents who said yes to having a usual place of sick care or went to more than one place and went to a clinic or health center, Doctor's office or HMO were combined into one category called “1=Doctor’s office”; and respondents who said yes to having a usual place of sick care or went to more than one place and went to a hospital emergency room, hospital outpatient department, some other place, or did not go to one place most often were combined into one category called “2=Other place.”

(b) Usual place of preventative care was measured using three questions, “Is that the same place you usually go when you need routine or preventive care, such as a physical examination or check-up?” (1= yes, 2= no,), “What kind of place do you usually go to when you need routine or preventive care, such as a physical examination or check-up?” (0= Doesn't get preventive care anywhere, 1 =Clinic or health center, 2= Doctor's office or HMO, 3= Hospital emergency room, 4= Hospital outpatient department, 5= Some other place, 6= Doesn't go to one place most often)” and “is there a place that you usually go to when you are sick or need advice about your health?” (1 = yes, 2 = there is no place, 3 = there is more than one place).

The responses to these questions were recoded into a new variable called the “usual place of preventative care.” In the new variable, respondents who said they did not get preventive care anywhere were categorized as “No usual place.” respondents who

said yes to having a usual place of preventative care that was the same as their usual place of sick care and went to a clinic or health center, Doctor's office, or HMO were combined into one category; called "1=Doctor's office." Likewise, respondents who said they went to a different place for preventative care, either Clinic or health center, or Doctor's office or HMO, were also added to the "Doctor's office category."

Additionally, respondents who said yes to having a usual place of preventative care that was the same as their usual place of sick care and went to a hospital emergency room, hospital outpatient department, some other place, or did not go to one place most often were combined into one category called "2=Other place." Finally, respondents who said they went to a different place for preventative care, that was a hospital emergency room, hospital outpatient department, some other place, or did not go to one place most often, were also added to the "Other place category."

(c) Delayed care was measured using the question "Have you delayed getting care for any of the following reasons in the past 12 months?" (You couldn't get through on the telephone, You couldn't get an appointment soon enough, Once you get there, you have to wait too long to see the Doctor, The (clinic/doctor's) office wasn't open when you could get there, and You didn't have transportation). I recoded these questions into a dichotomous variable representing any delayed care and no delayed care (0= No delayed care, 1= Delayed care).

(d) Forgone care was measured using the question, "During the past 12 months, was there any time when you needed any of the following, but didn't get it because you couldn't afford it?" (Prescription medicines, Mental health care or counseling, Dental care (including check-ups), and Eyeglasses). I recoded these questions into a dichotomous

variable representing any forgone care and no forgone care (0= No forgone care, 1= forgone care).

Key independent variable

Race was measured using a recoded variable from the 2018 NHIS adult dataset representing race/ ethnicity (1 = Hispanic; 2 = Non-Hispanic White; 3 = Non-Hispanic Black, 4 = Non-Hispanic Asian, 5 = Non-Hispanic all other race groups). The Non-Hispanic all other race groups category set to missing. In this study, the race variable has four categories: Hispanic, White, Black, and Asian).

Mediators

Enabling/ Disadvantage Factors

Health insurance coverage was measured using two questions, “Are you/Is anyone in the family covered by any kind of health insurance or some other kind of health care plan?” (1= yes, 2= no) and “What kind of health insurance or health care coverage do you/does ALIAS have?” (1=Private health insurance, 2= Medicare, 3= Medi-Gap, 4= Medicaid, 5= SCHIP (CHIP/Children's Health Insurance Program), 6= Military health care (TRICARE/VA/CHAMP-VA), 7= Indian Health Service, 8= State-sponsored health plan, 9= Other government program, 10= Single service plan (e.g., dental, vision, prescriptions), 11= No coverage of any type).

The two variables were recoded into a new variable called “Health insurance coverage.” In the new variable, respondents who reported not having any kind of health insurance and no coverage of any type were categorized as “0= No insurance.” Those

respondents who said yes to having health insurance coverage and had private insurance as “1= Private insurance.” Lastly, those respondents who said yes to having health insurance coverage and had a kind of public insurance such as Medicare or Medicaid were categorized as “2= Public insurance.”

Employment status was measured using the question, “What is your current working status?” (1= working for pay at a job or business, 2= with a job or business but not at work; 3= looking for work, 4= working, but not for pay, at a family-owned job or business, 5= not working at a job or business and not looking for work). The employment status variable was recoded into a dichotomous variable: 0= employed and 1= unemployed. The employed category is a combination of categories (1= working for pay at a job or business, 2= with a job or business but not at work, and 4= working, but not for pay, at a family-owned job or business). In contrast, the unemployed category will be a combination of categories (3= looking for work and 5= not working at a job or business and not looking for work).

Marital status was measured with the question, “Are you now married, widowed, divorced, separated, never married, or living with a partner?” (1= Married - spouse in household, 2= Married - spouse not in household, 3= Married - spouse in household unknown, 4= Widowed, 5= Divorced, 6= Separated, 7= Never Married, 8= Living with partner, 9= Unknown marital status). The categories 1=Married, 2= Married - spouse not in household, and 3= Married - spouse in household unknown were combined to create a category “married,” and the “unknown marital status” category will be set to missing. The remaining categories are: 1= Married, 2= Divorced/separated/widowed, 3= Never Married, 4= Living with a partner.

Educational attainment was measured using the question, “What is the highest level of school you have/alias has completed, or the highest degree you have/alias has received?” This variable has had 21 categories and therefore was recoded into four categories: 1= High school diploma or less, 2= Some college or associates degree, 3= Bachelor's degree, 4= Master's degree or greater.

Family Income is a continuous variable ranging from \$0 to 246000 measured using the question, “What is your best estimate of earnings before taxes and deductions from ALL jobs and businesses in last calendar year in 4-digit format?”

Need Factors

The need-related factors in this study are functional limitations and chronic conditions. The Functional limitations variable is an index variable comprising 12 items with a Cronbach’s alpha of .92. Functional limitation was measured using the question, “By yourself, and without using any special equipment, how difficult is it for you to..” (Walk a quarter of a mile - about 3 city blocks?, Walk up 10 steps without resting?, Stand or be on your feet for about 2 hours?, Sit for about 2 hours?, Stoop, bend, or kneel?, Reach up over your head?, Use your fingers to grasp or handle small objects?, Lift or carry something as heavy as 10 pounds such as a full bag of groceries?, Push or pull large objects like a living room chair?, Go out to things like shopping, movies, or sporting events?, Participate in social activities such as visiting friends, attending clubs and meetings, going to parties?, Do things to relax at home or for leisure (reading, watching TV, sewing, listening to music)?). The response items were: 0= Not at all difficult, 1=Only a little difficult, 2= Somewhat difficult, 3= Very difficult 4= Can't do at all.

Chronic conditions is a dichotomous variable representing 1= any chronic condition and 0= no chronic conditions. This variable was measured using the question, “during the past 12 months, have you been told by a doctor or other health professional that you had hypertension, also called high blood pressure, Coronary heart disease, Angina, also called angina pectoris, heart attack, Any kind of heart condition or heart disease, a stroke, Emphysema, Chronic bronchitis, chronic obstructive pulmonary disease, also called COPD, asthma, cancer, arthritis, and Diabetes).

Predisposing Characteristics/ Control Variables

In this study, the predisposing factors serve as control variables. This is because the predisposing factors are not causal mechanisms in explaining racial differences in health care access, even though these factors are viewed as mechanisms in Andersen’s model. Therefore, the control variables in this study are age and gender).

Age is a continuous variable measured in years based on the question, “How old are you?” Gender is a dichotomous variable (1= male and 2=female) based on the question, “Are you male or female?” This variable will be recoded into a 0/1 variable for analysis purposes. The new categories are 0= male, 1= female.

Analytical Strategy

This study aims to understand racial group differences in health care access and the mechanisms that explain those differences in the United States using STATA Version 15.1. I analyzed the data at three levels to evaluate the association between race and health care access. At the first level, I conducted univariate analyses on all variables of interest (dependent variables, the key independent variable, Mediators, and control variables). The descriptive statistics for the usual place of sick care, usual place of

preventative care, delayed care, forgone care, race, employment status, health insurance coverage, educational attainment, marital status, family income, functional limitations, chronic conditions, gender, and age are shown in Table 1.

At the second level, I carried out bivariate analyses (analysis of variance and chi-square test) focused on determining the relationship between the focal independent variable (race) and the outcome variables (usual place of sick care, usual place of preventative care, delayed care, forgone care) presented in Table 2; and the relationship between the focal independent variable (race) and the mediators (employment status, health insurance coverage, educational attainment, marital status, family income, functional limitations, chronic conditions) and control variables (gender, and age) presented in Table 3.

At the third level, I conducted a multivariate analysis to assess the association between the explanatory variables and the four outcome variables. I used multinomial logistic regression to determine the factors related to racial differences in health care access variables (usual place of sick care and usual place of preventative care) with three categories presented in Tables 4 and 5. Additionally, I used logistic regression to examine the factors associated with racial differences in binary health care access variables (delayed care and forgone care) presented in Tables 6 and 7.

Additionally, I ran Wald tests using the test command to determine health care access differences across racial groups. Superscripts in tables 4,5,6, and 7 represent the results of the Wald tests. This was done to capture racial group differences in health care access not captured in the regression models. The regression models only compare Hispanics, Blacks, and Asians to Whites.

The first model of all multivariate analyses examined the association between health care access and race. The second model included the dependent variable (health care access), the focal independent variable (race), need factors (functional limitations and chronic conditions), and control variables (gender and age). The third model included all the variables in model 2 and disadvantage/enabling factors (employment status, health insurance coverage, educational attainment, marital status, family income).

Additionally, predicted probability values were calculated based on model 1 to determine the predicted probability of having a usual place of sick or preventative care for each racial group (Hispanics, White, Black, and Asians), holding all variables in the model at their means. Since there are three possible outcomes (Doctor's office, no usual place, and other places), I used the margins command three times, one for each outcome value. The predicted probabilities are presented in Tables 8 and 9.

Ethical Considerations

This study used secondary data from the 2018 National Health Interview Survey, and therefore, ethical approval is not required. In addition, the publicly available data does not include any personal identifiers, and therefore, there are no confidentiality issues.

Results

Descriptive Characteristics

Table 1 presents the descriptive statistics for study variables. The results show that the mean age for the sample is 51.73 years old, and the mean family income is \$78,655.45. Men accounted for 45 percent of the sample, and women accounted for 55 percent of the sample. Most of the people in the sample are married (48 percent) and

employed (61 percent). The results also show that most of the sample is White (72 percent), 12 percent is Hispanic, 11 percent is Black, and 5 percent is Asian.

Table 1 also shows that 32 percent of the sample have a high school diploma or less, 31 percent have some college or associate's degree, 23 percent have a bachelor's degree, and 14 percent have a master's degree. The results also show that 4 percent of the sample do not have health insurance coverage, 49 percent have private health insurance coverage, and 47 percent have public health insurance coverage. The results also show that 61 percent have one or more chronic conditions, and the mean functional limitation score is .31.

The results in table 1 also show that 5 percent of the sample does not have a usual place of sick care, 91 percent have a doctor's office as a usual place of preventative care (91 percent), and 4 percent have another place as a usual place of sick care. On the other hand, 6 percent of the sample does not have a usual place of preventative care, 91 percent has a doctor's office as a usual place of preventative care (91 percent), and 3 percent have another place as a usual place of sick care. Table 1 also shows that 15 percent of the sample have forgone care due to cost, and 13 percent have delayed care for various reasons other than cost.

Racial Differences across Dependent and Mediating Concepts

Table 2 presents the chi-square test results of race and this study's dependent variables (usual place of sick care, usual place of preventative care, delayed care, and forgone care). The results show that race and the usual place of sick care have a statistically significant association ($X^2 = 257.9, P \leq .001$). Whites are the most likely to report having a doctor's office for sick care (93%), followed by Asians (91%), Blacks

(87%), and Hispanics (86%). Hispanics are the most likely to have no usual place for sick care (9%), followed by Asians (7%), Blacks (5%), and Whites (4%). Blacks are the most likely to have a place for sick care other than a doctor's office (8%), followed by Hispanics (5%), whites (3%), and Asians (2%).

Table 2 also reveals that race and the usual place of preventative care have a statistically significant association [$X^2 = 195.1, P \leq .001$]. The racial differences in preventative care mirror those reported for usual place of sick care. Whites are the most likely to report having a doctor's office for preventative care (93%), followed by Asians (90%), Blacks (88%), and Hispanics (86%). Hispanics are the most likely to have no usual place of for sick care (11%), followed by Asians (7%), Blacks (6%), and Whites (5%). Blacks are the most likely to have a place for sick care other than a doctor's office (6%), followed by Hispanics (3%), Asians (3%), and Whites (2%).

Table 2 results show a statistically significant association between race and delayed health care [$X^2 = 28.4, P \leq .001$]. The findings show that 15.6 percent of Hispanics, 14.9 percent of Blacks, 12.3 percent of Whites, and 11.3 percent of Asians have delayed health care due to health provider availability and lack of transportation. Table 2 also indicates that race and forgone health care have a statistically significant association [$X^2 = 118.8, P \leq .001$]. The results show that 20.4 percent of Blacks, 17.9 percent of Hispanics, 13.5 percent of Whites, and 9.1 percent of Asians have forgone health care due to cost.

Table 3 presents the analysis of variance and chi-square test results of race and this study's mediating and control variables. The findings show that Whites (64.4%) and Blacks (64.1%) are more likely to have a chronic condition compared to Hispanics (48%)

and Asians (43%). Blacks also have the highest number of functional limitations on average (.4), followed by Hispanics (.3) and Whites (.3), and then Asians (.2). The results also show that Blacks are the most likely to have public health insurance (52.4%), Asians are the most likely to have private health insurance (59.8), and Hispanics are the most likely to have no health insurance (9%).

Table 3 also shows that 61 percent of Asians, 51.2 percent of Whites, 45.3 percent of Hispanics, and 26.9 percent of Blacks are married. The results also reveal that 67.1 percent of Asians, 64.3 percent of Hispanics, 59.7 percent of Whites, and 59 percent of Blacks are employed. Additionally, Asians (\$95,462.9) have the highest mean family income, followed by Whites (\$84,379.4), Hispanics (\$59,758.4), and Blacks (\$53,642.1). Asians have the highest levels of educational attainment, followed by Whites, Blacks, and Hispanics.

Understanding Racial Differences in Access to Sick Care

Table 4 presents the multinomial logistic regression results examining racial differences in health insurance, employment status, marital status, education, income, functional limitations, and chronic conditions that might explain racial differences in usual place of sick care. Model 1 only includes race and the control variables for age and gender. The first comparison indicates that the risk ratio for having no usual place of sick care relative to a doctor's office is 1.96 times higher ($p \leq .001$) for Hispanics, 1.37 times higher ($p \leq .05$) for Asians, and 1.26 times higher ($p \leq .05$) for Blacks than Whites (the omitted reference group). The superscripts in the table further show that Hispanics have a significantly higher risk of having no usual place for sick care relative to a doctor's office than Asians and Blacks. The second comparison shows that the risk ratio for having some

other place of sick care relative to a doctor's office is 2.83 times higher ($p \leq .001$) for Blacks and 1.59 times higher ($p \leq .001$) for Hispanics than Whites. The superscripts for this comparison further show that Blacks have a higher risk of having another place for sick care relative to a doctor's office than Hispanics and Asians.

Overall, the results in Model 1 are consistent with the bivariate analyses. To further illustrate the significant differences by race, Table 8 presents the predicted probabilities for access to sick care by race based on Model 1 results. Converting the predicted probabilities into percentages, the findings show that Hispanics (6%) are most likely to have no usual sick care place compared to Asians (5%), Blacks (4%), and Whites (3%). Additionally, Blacks (7%) are most likely to have a place of sick care other than a doctor's office compared to Hispanics (4%), Whites (3%), and Asians (2%). Finally, Whites (94%) are most likely to have a doctor's office as a place for sick care, followed by Asians (93%), Hispanics (90%), and Blacks (89%).

Model 2 adds the need factor mechanisms into the model for functional limitations and chronic conditions. Individuals who have a chronic condition are relatively less likely to have no usual place (RRR= .37, $p < .001$) or some other place (RRR= .80, $p < .01$) of sick care relative to a doctor's office. Having more functional limitations makes one less likely to have no usual place for sick care relative to a doctor's office (RRR= .80, $p < .01$). However, people with more functional limitations are relatively more likely (RRR=1.28, $p \leq .001$) to go to a place for sick care other than a doctor's office. The introduction of need factors in model 2 alters the racial differences in access to sick care in several ways. This write-up will focus on explaining Blacks' higher

use of a place other than a doctor's office for sick care and Hispanics' higher prevalence of having no usual place for sick care.

First, accounting for needs factors leads to a small decrease in the likelihood of Blacks using a place of sick care other than a doctor's office compared to Whites, Asians, and Hispanics but significant differences remain. To some extent, having more functional limitations explains the higher use of other places for sick care among Blacks than other racial groups. Although Blacks also have higher chronic conditions, this would only suppress existing racial differences because having a chronic condition decreases the likelihood of having some other place for sick care. Second, needs factors also produce a small decrease in the likelihood of Hispanics having no usual place of sick care relative to a doctor's office compared to Whites and Blacks. This happens because Hispanics are less likely to have a chronic condition than Whites and Blacks.

Model 3 includes the disadvantage/enabling mechanisms. Marital status shapes access to sick care. Compared to a married individual, the relative risk ratio for having no usual place of sick care instead of a doctor's office is 2.34 times higher ($p \leq .001$) for someone living with a partner, 1.45 times higher ($p \leq .001$) for someone who has never been married, and 1.43 times higher ($p \leq .001$) for someone who is divorced or separated or widowed. The relative risk ratio for having other places of sick care instead of a doctor's office is 1.68 times higher ($p \leq .001$) for someone living with a partner than for someone married.

Educational attainment is also significantly associated with access to sick care. Compared to people with a high school diploma, people with an associate's degree ($RRR=.80, p \leq .05$) or a bachelor's degree ($RRR=.70, p \leq .05$) are relatively less likely to

have no usual place of sick care compared to a doctor's office. Employed people are relatively more likely (RRR=1.35, $p \leq .01$) to have no usual place of sick care compared to a doctor's office than unemployed people.

Overall, being married or employed and having more education provides the most benefit to limiting one's chances of having no place for usual sick care. In contrast, health insurance coverage affects access to sick care in two ways. First, people with private health insurance (RRR=.08, $p \leq .001$) or public health insurance (RRR=.06, $p \leq .001$) are substantially less likely to have no usual place of sick care than a doctor's office. Second, people with private health insurance (RRR=.24, $p \leq .001$) and public health insurance (RRR=.38, $p \leq .001$, respectively) are also relatively less likely to have a place of sick care other than a doctor's office.

The inclusion of these mechanisms in Model 3 alters race differences in access to sick care. First, it completely explains the differences for Hispanics and Blacks from Whites in having no place of sick care relative to a doctor's office. Second, it reduces the likelihood of Hispanics and Blacks having places of sick care other than a doctor's office compared to Whites, but significant differences remain. Supplementary analysis reveals that health insurance coverage contributes highly to explaining racial differences in access to sick care followed by family income, marital status, educational attainment, and employment status.

Understanding Racial Differences in Access to Preventative Care

Table 5 presents the multinomial logistic regression results of race, health insurance, employment status, marital status, education, income, functional limitations, and chronic conditions on usual place of preventative care and control variables. Model 1

indicates that the relative risk ratio for having no usual place of preventative care instead of a doctor's office is 1.75 times higher ($p \leq .001$) for Hispanics and 1.21 times higher ($p \leq .05$) for Blacks than Whites. The superscripts in the table further show that Hispanics have a significantly higher risk of having no usual place for preventative care relative to a doctor's office than Asians and Blacks. The relative risk ratio for having other places of preventative care instead of a doctor's office is 2.84 times higher ($p \leq .001$) for Blacks and 1.65 times higher ($p \leq .001$) for Hispanics than Whites. The superscripts for this comparison further show that Blacks have a higher risk of having another place for preventative care relative to a doctor's office than Hispanics and Asians.

Consistent with the findings on access to sick care, the findings on access to preventative care show two clear racial differences as illustrated by predicted probabilities from Model 1 results presented in Table 9. First, Hispanics (7%) are relatively more likely to have no usual place of preventative care than a doctor's office than Whites (4%), Asians (5%), and Blacks (5%). Second, Blacks (5%) are relatively more likely to have other places of preventative care than a doctor's office than Whites (2%), Asians (2%), and Hispanics (3%). Finally, Whites (94%) are most likely to have a doctor's office as a place for preventative care, followed by Asians (93%), Hispanics (90%), and Blacks (90%).

The factors that explain these racial differences in access to preventative care are similar to those found for sick care. Model 2 shows that people with functional limitations ($RRR=.76, p \leq .01$) and chronic conditions ($RRR=.41, p \leq .001$) are relatively less likely to have no usual place of preventative care compared to a doctor's office. People with chronic conditions are also relatively less likely ($RRR=.78, p \leq .05$) to

go to other places of preventative care than a doctor's office. However, people with functional limitations are relatively more likely (RRR=1.24, $p \leq .01$) to go to other places of preventative care than a doctor's office.

The introduction of functional limitations and chronic conditions in model 2 leads to a decrease in the likelihood of Hispanics having no usual place of preventative care (RRR=1.65, $p \leq .001$) and other places of preventative care (RRR=1.60, $p \leq .001$) compared to Whites. Functional limitations and chronic conditions also contribute to an increase in Blacks having no usual place of preventative care (RRR=1.26, $p \leq .05$) and a decrease (RRR=2.79, $p \leq .001$) in the likelihood of Blacks having other places of preventative care compared to Whites.

Model 3 indicates that the relative risk ratio for having no usual place of preventative care instead of a doctor's office is 1.99 times higher ($p \leq .001$) for someone living with a partner, 1.28 times higher ($p \leq .01$) for someone who has never been married, and 1.45 times higher ($p \leq .001$) for someone who is divorced or separated or widowed than someone married. The relative risk ratio for having other places of preventative care instead of a doctor's office is 1.88 times higher ($p \leq .001$) for someone living with a partner than for someone married.

Model 3 also shows that people with a bachelor's degree (RRR=.81, $p \leq .05$) or a master's degree or greater (RRR=.69, $p \leq .01$) are relatively less likely to have no usual place of preventative care compared to a doctor's office than people with a high school diploma or less. People with private health insurance (RRR=.09, $p \leq .001$ and RRR=.27, $p \leq .001$, respectively) and public health insurance (RRR=.07, $p \leq .001$ and RRR=.51, $p \leq .001$, respectively)

.001, respectively) are relatively less likely to have no usual place of preventative care or other places of preventative care than a doctor's office.

The inclusion of these mechanisms in Model 3 alters race differences in access to preventative care. Specifically, racial differences in having no usual place for preventative care relative to a doctor's office are completely explained. Supplemental analysis reveals that health insurance coverage contributes highly to explaining racial differences in access to preventative care followed by family income, marital status, education attainment, and employment status. On the other hand, significant differences remain across races for going to some other place of preventative care relative doctor's office compared to Whites. However, the size of the differences is reduced for Blacks (RRR=2.40, $p \leq .001$) and Hispanics (RRR=1.39, $p \leq .05$) compared to Whites.

Understanding Racial Differences in Delayed Care

Table 6 presents the logistic regression results of race, health insurance, employment status, marital status, education, income, functional limitations, and chronic conditions on delayed health care and control variables. Model 1 indicates that the odds of delaying care due to reasons other than cost are 1.26 times higher ($p \leq .001$) for Hispanics and 1.20 times higher ($p \leq .01$) for Blacks than Whites.

Model 2 adds the need factor mechanisms into the model for functional limitations and chronic conditions. The odds of delaying care are 1.75 times higher ($p \leq .001$) for people with functional limitations and 1.72 times higher ($p \leq .001$) for people with chronic conditions than people with no functional limitations or chronic conditions. Accounting for needs factors alters racial differences in delayed care. The initial significant differences between Blacks (OR=1.07) and Whites are no longer statistically

significant. Supplementary analyses show that functional limitations contribute to the decrease in the odds of delaying care for Blacks.

Model 3 indicates that the odds of delaying care are 1.31 times higher ($p \leq .05$) for people who have public health insurance and 1.18 times higher for people who have private health insurance than people who have no insurance. The odds of delaying care are 1.14 times higher ($p \leq .05$) for people with some college or associate degrees, 1.37 times higher ($p \leq .001$) for people with a bachelor's degree, and 1.35 ($p \leq .001$) times higher for people with master's degrees or greater than people with high school diplomas or less. Including enabling factors produces a suppression effect for Hispanics compared to all other racial groups in delayed care. Specifically, Hispanics are significantly more likely to experience delayed care than Whites, Blacks, and Asians.

Understanding Racial Differences in Forgone Care

Table 7 below presents the logistic regression results of race, health insurance, employment status, marital status, education, income, functional limitations, and chronic conditions on forgone health care and control variables. Model 1 indicates that the odds of forgoing care due to cost are 1.34 times higher ($p \leq .001$) for Hispanics, 1.59 times higher ($p \leq .001$) for Blacks, and .63 times lower ($p \leq .001$) for Asians than Whites.

Model 2 includes need factor mechanisms. The results show that the odds of forgoing care are 1.97 times higher ($p \leq .001$) for people with functional limitations and 1.72 times higher ($p \leq .001$) for people with chronic conditions than people with no functional limitations or chronic conditions. Need factors alter racial differences in forgone care. Specifically, the odds of forgoing care reduce for Hispanics (OR=1.31, $p \leq .001$) and Blacks (OR=1.41, $p \leq .001$) compared to Whites and Asians when functional

limitations and chronic conditions are added to model 2. Supplementary analyses show that functional limitations contribute the most to explaining these decreases. Chronic conditions, in contrast, suppress racial differences.

Model 3 indicates that the odds of forgoing care are .35 times lower ($p \leq .001$) for people who have private health insurance and .37 times lower ($p \leq .001$) for people who have public health insurance than people who have no insurance. The odds of forgoing care are 1.21 times higher ($p \leq .001$) for people with some college or associate degrees than people with high school diplomas or less. The odds of forgoing care are 1.17 times higher ($p \leq .01$) for employed people than for unemployed people. The odds of forgoing care are 1.12 times higher ($p \leq .01$) for people who are divorced/separated/widowed, are .72 times lower ($p \leq .001$) for people who have never married, and 1.30 times higher ($p \leq .01$) for people who are living with a partner than married people.

With the inclusion of enabling factors in Model 3, there is a decrease for Blacks (OR=1.15, $p \leq .05$) and Hispanics relative to White in forgoing care. In fact, the differences from Whites for, Hispanics and Blacks are no longer statistically significant. Interestingly, significant differences remain among Asians, who are also less likely to forgo care relative to Whites. Supplementary analysis reveals that family income followed by education attainment, health insurance, and marital status contribute to explaining racial differences in forgone care. Family income contributes to a greater reduction in the odds of Hispanics and Blacks forgoing care.

Discussion of Findings

Health care access occurs when individuals can use health care services on time for the best possible health outcomes (Agency for Health Research and Quality 2020). Scholars have stressed the need for health care access to promote and maintain health, especially among minoritized racial groups such as Blacks, Hispanics, and Asians (Anon 2004; Callahan, Hickson, and Cooper 2006; Chaves et al. 2019; Copeland 2005; Durden and Hummer 2006; Manuel 2018; Miller and Wherry 2017).

This study examined the factors associated with racial differences in health care access. The focus was on White, Asian, Black, and Hispanic racial groups. I used data from the 2018 National Health Interview Survey (NHIS) to examine the racial differences in health care access and the mechanisms that explain those differences. The Fundamental Cause Theory, Andersen's Behavioral Model, and previous literature on the racial disparities in health care access guided this study. This study looked at four measures of health care access: usual place of sick care, usual place of preventative care, delayed care, and forgone care.

Racial Differences in Access to Sick Care

The results suggest that Hispanics were more likely to have no usual place of sick care than a doctor's office than Whites, followed by Asians then Blacks. At the same time, Blacks were more likely to use other places of sick care instead of a doctor's office than Whites, followed by Hispanics. Whites were most likely to have a doctor's office as a place for sick care, followed by Asians, Hispanics, and Blacks. These findings are consistent with Gaskin and Colleagues' (2007) study, which found that Hispanics were more likely to report not having a usual source of care followed by Blacks, Asians, and

Whites and that in comparison to Whites, Blacks were more likely to use other sources of health care such as hospital outpatient departments and community health centers instead of a doctor's office followed by Hispanics and Asians (Gaskin et al. 2007). In this study, I hypothesized that Whites would be most likely to have a doctor's office as a usual place of sick care, followed by Asians, Blacks, and Hispanics, and the findings are consistent with the hypothesis.

Chronic conditions and functional limitations partly explain Hispanics' higher likelihood of having no usual place of sick care relative to a doctor's office and Blacks' higher likelihood of using places of sick care other than a doctor's office compared to Whites and Asians. The results show that Hispanics are less likely to have a chronic condition than Whites and Blacks and, therefore, more likely to have no usual place of sick care. At the same time, the results suggest that having more functional limitations explains the higher use of other places for sick care among Blacks than Hispanics, Whites, and Asians. In Addition, Blacks have higher chronic conditions than Hispanics and Asians. However, having a chronic condition decreases the likelihood of having another place for sick care than a doctor's office.

Previous literature shows that Blacks and Hispanics are more likely to have chronic and disabling diseases than Whites and Asians (Braveman 2006; Brown 2018; National Academies of Sciences, Engineering and Medicine 2018). This study indicates that people with more functional limitations are relatively less likely to have no usual sick care place than a doctor's office. In addition, people with a chronic condition are relatively less likely to have no usual place or some other place of sick care relative to a

doctor's office. However, people with functional limitations are more likely to go to other places of sick care than a doctor's office.

The results suggest that among the mechanisms of inequality, health insurance coverage contributes highly to explaining racial differences in access to sick care followed by family income, marital status, education attainment, and employment status. These results are not surprising because previous literature has shown that many people acquire health insurance coverage through a family member's health insurance plan, such as a spouse (Berchick et al. 2021). Married people are more likely to have health insurance coverage and disposable income, enabling them to access health care than unmarried people (Pandey et al. 2019).

Health insurance coverage, family income, and marital status partly explain racial differences in access to sick care (having no usual place of sick care and another place of sick care compared to a doctor's office) for Blacks and Hispanics compared to Whites. Previous literature shows that Blacks are the least likely to get married, followed by Whites, Hispanics, and Asians (US Census Bureau 2021). Hispanics and Blacks have the lowest household income, lowest college graduation levels (Williams et al. 2016), and are least likely to have private health insurance coverage (Berchick et al. 2021). This study also suggests that married people, people with higher education and health insurance coverage (private or public) are more likely to have a doctor's office as a usual place for sick care.

Racial Differences in Access to Preventative Care

This study shows that the findings for access to preventative care mirror those for access to sick care. I expected the results for access to sick and preventative care to be

similar. I hypothesized that Whites would be most likely to have a doctor's office as a usual place of preventative care, followed by Asians, Blacks, and Hispanics. The results show that Hispanics were more likely to have no usual place of preventative care than a doctor's office than Whites, followed by Asians then Blacks. On the other hand, Blacks were more likely to use other places of preventative care instead of a doctor's office than Whites, followed by Hispanics. Whites were most likely to have a doctor's office as a place for sick care, followed by Asians, Hispanics, and Blacks.

This study also indicates that people with chronic conditions are relatively less likely to have no usual preventative care place or other places of preventative care than a doctor's office. However, people with functional limitations are more likely to go to other places of preventative care and less likely to have no usual place of preventative care than a doctor's office. Chronic conditions and functional limitations partly explain Hispanics' higher likelihood of having no usual place of preventative care relative to a doctor's office and Blacks' higher likelihood of using places of preventative care other than a doctor's office compared to Whites and Asians.

Like access to sick care, the results suggest that health insurance coverage highly explains racial differences in access to preventative care, followed by family income and marital status. For Blacks and Hispanics, health insurance coverage, family income, and marital status partly explain racial differences in access to preventative care (having no usual place of preventative care and another place of preventative care compared to a doctor's office). This study also suggests that married people, people with higher education and health insurance coverage (private or public) are more likely to have a doctor's office as a usual place for preventative care.

Racial Differences in Delayed Care

The results show that the odds of delaying care are higher for Hispanics followed by Blacks compared to Whites. I expected Blacks and Hispanics to be more likely to delay care than Asians and Whites. A study by Chen and colleagues (2016) on racial and ethnic disparities in health care access and utilization under the affordable care act found that Blacks had the highest likelihood of delaying health care, followed by Hispanics than Whites (Chen et al. 2016). This study also shows that functional limitations explain differences in delayed care for Blacks compared to Whites.

The results suggest that people with public health insurance are more likely to delay care, followed by people with private health insurance and people with no health insurance. Spencer, Gaskin, and Roberts (2013) found that people with private health insurance obtain better quality care than people with public health insurance (Spencer et al. 2013). Therefore, it is expected that people with public health insurance are more likely to delay care than people with private health insurance. However, surprising to find that people with no health insurance are the least likely to delay care.

This study also shows that delaying care is higher for people with higher education than those with lower education. Family income and marital status partially explain racial differences in delayed care for Hispanics and Blacks. The results in Table 3 show that Blacks and Hispanics have lower family incomes than Asians and Whites, and Blacks are the least likely to be married, followed by Hispanics.

Racial Differences in Forgone Care

The results suggest that the odds of forgoing care due to cost are higher for Blacks, followed by Hispanics, Whites, and Asians. I expected Blacks and Hispanics to

be more likely to forgo care than Asians and Whites, and this hypothesis is consistent with the findings. Burgard and Hawkins (2014), in their study on race/ethnicity, educational attainment, and foregone health care in the United States in the 2007–2009 recession, found that Hispanics and Blacks were more likely to forgo health care due to cost than Asians and Whites (Burgard and Hawkins 2014).

This study shows that the odds of forgoing care are highest for people with functional limitations, followed by people with chronic conditions than people with no functional limitations or chronic conditions. In addition, functional limitations contribute the most to explaining the differences in the odds of forgoing care for Blacks and Hispanics compared to Whites and Asians. In contrast, chronic conditions suppress racial differences.

Family income, education attainment, health insurance coverage, and marital status partly explain differences in forgone care for Hispanics and Blacks compared to Whites. The results also suggest that people with private health insurance are the least likely to forgo care, followed by people with public health insurance and people with no health insurance. Forgoing care is higher for people with higher education than those with lower education. Forgoing care is higher for employed people than for unemployed people. The likelihood of forgoing care is lowest among people who have never married, followed by married people, divorced/separated/widowed people, and living with a partner.

Limitations

In this study, race was categorized into four groups—Hispanics, Blacks, Whites, and Asians. However, there are challenges associated with race classification because it is a

socially constructed phenomenon. Some scholars argue that race classification into exclusive categories treats race as a social constant and not a social construct that is changing and diverse (Golash-Boza 2016; Zuberi and Bonilla-Silva 2008). Additionally, Golash-Boza (2016) argues that racial classification is motivated by White supremacy and leads to inequality. Howell and Emerson (2017) argue that true racial categorization does not exist because race is a socially constructed phenomenon that continually changes (Howell and Emerson 2017).

Conclusions

Health care access, especially for minoritized racial groups such as Blacks and Hispanics, is a concern in the United States. Previous literature shows that Blacks and Hispanics have experienced lower health care access than Whites (Anon 2004; Callahan, Hickson, and Cooper 2006; Chaves et al. 2019; Durden and Hummer 2006; Manuel 2018; Miller and Wherry 2017). The racial disparities in health care access for Blacks and Hispanics have been attributed to the limited access to resources needed to access health care, driven by racism (Bailey et al. 2021; Feagin and Bennefield 2014; Williams et al. 2019).

In the current study, Hispanics were most likely to have no usual place for sick or preventative care. Blacks were most likely to use other sick or preventative care places instead of a doctor's office than other racial groups. Hispanics were more likely to delay care, and Blacks were more likely to forgo care due to cost than other racial groups. Chronic conditions and functional limitations partly explain Hispanics' higher likelihood of having no usual place of sick or preventative care and Blacks' higher likelihood of

using places of sick care or preventative other than a doctor's office than Whites and Asians.

Functional limitations explain differences in delayed care for Blacks and contribute the most to explaining the differences in forgone care for Blacks and Hispanics compared to Whites and Asians. Health insurance coverage contributes highly to explaining racial differences in health care access to sick or preventative care, delayed care, and forgone care, followed by family income, marital status, education attainment, and employment status.

The lessons learned from this study will help to build on existing literature and inform future studies on factors associated with racial differences in health care access. Further research and interventions need to focus on ways to reduce disparities in health care access for Blacks and Hispanics. This study revealed that Blacks and Hispanics are at a higher disadvantage in accessing health care.

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Appendix A: Tables

Table 1: Descriptive characteristics of the sample (N=19,629)

Variable	Mean	Min	Max
<i>Dependent Variables</i>			
Usual Place of Sick Care			
No usual place	.05	0	1
Doctor's office	.91	0	1
Other place	.04	0	1
Usual Place of Preventative Care			
No usual place	.06	0	1
Doctor's office	.91	0	1
Other place	.03	0	1
Delayed Care	.13	0	1
Forgone Care	.15	0	1
<i>Focal Independent Variable</i>			
Race			
Hispanic	.12	0	1
White	.72	0	1
Black	.11	0	1
Asian	.05	0	1
<i>Need Factors</i>			
Functional Limitations	.31	0	4
Chronic Conditions	.61	0	1
<i>Disadvantage/ Enabling Factors</i>			
Health Insurance Coverage			
No insurance	.04	0	1
Private insurance	.49	0	1
Public insurance	.47	0	1
Employed	.61	0	1
Marital Status			
Married	.48	0	1
Divorced/separated/widowed	.26	0	1
Never married	.21	0	1
Living with partner	.05	0	1
Educational Attainment			
High school diploma or less	.32	0	1
Some college or associates degree	.31	0	1
Bachelor's degree	.23	0	1
Master's degree or greater	.14	0	1
Family Income	78655.45	0	246000
<i>Predisposing Factors/ Control Variables</i>			
Female	.55	0	1
Age	51.73	18	85

Table 2: Summary of chi-square test of dependent variables by race

Variable	Hispanic (%)	White (%)	Black (%)	Asian (%)	Chi-square
Usual Place of Sick Care					257.9 ***
No usual place	9.2 (209)	4.2 (586)	5.1 (113)	7.0 (74)	
Doctor's office	86.2 (1963)	93.0 (13085)	87.2 (1930)	90.7 (962)	
Other place	4.6 (105)	2.9 (406)	7.7 (171)	2.4 (25)	
Usual Place of Preventative Care					195.1 ***
No usual place	10.5 (240)	5.3 (748)	6.4 (142)	7.3 (77)	
Doctor's office	86.1 (1960)	92.6 (13034)	88.0 (1948)	90.2 (957)	
Other place	3.4 (77)	2.1 (295)	5.6 (124)	2.5 (27)	
Delayed Care	15.6 (355)	12.3 (1737)	14.9 (329)	11.3 (120)	28.4 ***
Forgone Care	17.9 (408)	13.5 (1899)	20.4 (451)	9.1 (97)	118.8 ***
N	2,277	14,077	2,214	1,061	

Note: Cell size in parentheses

Table 3: Summary of analysis of variance and chi-square test of independent variables by race

Variable	Hispanic (mean/ %)	White (mean/ %)	Black (mean/ %)	Asian (mean/ %)	Chi-s quare /F-value
<i>Need Factors</i>					
Functional Limitations	0.3	0.3	0.4	0.2	38.1 ****
Chronic Conditions	48.3	64.4	64.1	42.7	378.8 ***
<i>Disadvantage/ Enabling Factors</i>					
Health Insurance Coverage					268.5 ***
No insurance	9.1	3.2	5.5	3.2	
Private insurance	46.8	49.0	42.1	59.8	
Public insurance	44.1	47.8	52.4	37.0	
Employed	64.3	59.7	59.0	67.1	39.3 ***
Marital Status					828.0 ***
Married	45.3	51.2	26.9	61.0	
Divorced/separated/widowed	20.9	26.4	31.4	13.8	
Never married	27.1	17.1	37.0	22.4	
Living with partner	6.8	5.4	4.7	2.8	
Educational Attainment					868.7 ***
High school diploma or less	50.5	29.0	41.0	19.1	
Some college or associates degree	28.0	31.3	33.2	21.3	
Bachelor's degree	14.9	24.7	16.4	31.5	
Master's degree or greater	6.6	15.1	9.4	28.1	
Family Income	59758.4	84379.4	53642.1	95462.9	262.1 ****
<i>Predisposing Factors/ Control Variables</i>					
Female	57.8	53.7	59.4	51.5	38.3 ***
Age	45.6	53.4	49.8	46.8	170.5 ****
N	2,277	14,077	2,214	1,061	

Table 4: Regression coefficients from multinomial logistic regression models of race, health insurance, employment status, marital status, education, income, functional limitations and chronic conditions on usual place of sick care

Independent Variables	Usual Place of Sick Care		
	MODEL 1	MODEL 2	MODEL 3
	No sick care vs. doctor's office	No sick care vs. doctor's office	No sick care vs. doctor's office
	RRR	RRR	RRR
Intercept	.40 ***	.35 ***	.42 ***
<i>Focal Independent Variable</i>			
Race			
Hispanic	1.96 ***AB	1.84 ***AB	1.21 B
Black	1.26 *	1.32 **	.92 C
Asian	1.37 *	1.20	1.54 **
<i>Need Factors</i>			
Functional Limitations		.76 **	.71 **
Chronic Conditions		.37 ***	.37 ***
<i>Disadvantage/Enabling Factors</i>			
Health Insurance Coverage			.08 ***
Private insurance			.06 ***
Public insurance			1.35 **
Employed			1.43 ***
Marital Status			1.45 ***
Divorced/separated/widowed			2.34 ***
Never married			.96
Living with partner			.80 *
Educational Attainment			.70 *
Some college or associates degree			1.00 ***
Bachelor's degree			1.00 ***
Master's degree or greater			1.00 ***
<i>Family Income</i>			
<i>Predisposing Factors/ Control Variables</i>			
Female	.39 ***	.39 ***	.43 ***
Age	.96 ***	.98 ***	.99 ***
Model Fit Statistics			
N	19,629	19,629	19,629
LR X ²	855.04 ***	1071.14 ***	2248.93 ***
Pseudo R ²	.06	.08	.16

*p ≤ .05. **p ≤ .01. ***p ≤ .001. ****p ≤ .0001.

Reference Categories: race= white; insurance= no insurance; marital status= married; and education attainment= high school diploma or less.

A= Hispanics is significantly different from Asians; B= Hispanics is significantly different from Blacks, and C= Blacks is significantly different from Asians.

Table 5: Regression coefficients from multinomial logistic regression models of race, health insurance, employment status, marital status, education, income, functional limitations and chronic conditions on usual place of preventative care

Independent Variables	MODEL 1			MODEL 2			MODEL 3		
	No prev care vs. doctor's office	Other place vs. doctor's office	No prev care vs. doctor's office	Other place vs. doctor's office	No prev care vs. doctor's office	Other place vs. doctor's office	No prev care vs. doctor's office	Other place vs. doctor's office	Other place vs. doctor's office
	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
Intercept	.50 ***	.06 ***	.46 ***	.07 ***	4.18 ***	.25 ***			
<i>Focal Independent Variable</i>									
Race									
Hispanic	1.75 **AB	1.65 ***B	1.65 ***AB	1.60 ***B	1.10	1.39 #B			
Black	1.21 *	2.84 ***C	1.26 *	2.79 ***C	.91	2.40 ***C			
Asian	1.12	1.14	.98	1.11	1.20	1.18			
<i>Need Factors</i>									
Functional Limitations			.76 **	1.24 **	.70 ***	1.07			
Chronic Conditions			.41 ***	.78 *	.42 ***	.73 **			
<i>Disadvantage/ Enabling Factors</i>									
Health Insurance Coverage									
Private insurance					.09 ***	.27 ***			
Public insurance					.07 ***	.51 ***			
Employed					1.15	.93			
Marital Status									
Divorced/separated/widowed					1.45 ***	1.15			
Never married					1.28 **	1.11			
Living with partner					1.99 ***	1.88 ***			
Educational Attainment									
Some college or associates degree					.92	1.02			
Bachelor's degree					.81 *	1.06			
Master's degree or greater					.69 **	1.16			
Family Income					1.00 ***	1.00 **			
<i>Predisposing Factors/ Control Variables</i>									
Female	.42 ***	.48 ***	.42 ***	.46 ***	.46 ***	.45 ***			
Age	.96 ***	.99 ***	.98 ***	.99 ***	.98 ***	.98 ***			
Model Fit Statistics									
N	19,629	19,629	19,629	19,629	19,629	19,629			
LR X ²	878.76 ****	1084.40 ****	1084.40 ****	1084.40 ****	2276.66 ****	2276.66 ****			
Pseudo R ²	.06	.16	.08	.16	.16	.16			

*p ≤ .05. **p ≤ .01. ***p ≤ .001. ****p ≤ .0001.

Reference Categories: race= white; insurance= no insurance; marital status= married; and education attainment= high school diploma or less.

A= Hispanics are significantly different from Asians; B= Hispanics are significantly different from Blacks; C= Blacks is significantly different from Asians.

Table 6: Regression coefficients from logistic regression models of race, health insurance, employment status, marital status, education, income, functional limitations, and chronic conditions on delayed care

Independent Variables	Delayed Care					
	MODEL 1		MODEL 2		MODEL 3	
	odds ratio		odds ratio		odds ratio	
Intercept	.14	***	.18	***	.14	***
<i>Focal Independent Variable</i>						
Race						
Hispanic	1.26	*** ^A	1.24	***	1.27	*** ^{AB}
Black	1.20	** ^C	1.07		1.06	
Asian	.89		1.00		.98	
<i>Need Factors</i>						
Functional Limitations			1.75	***	1.76	***
Chronic Conditions			1.72	***	1.70	***
<i>Disadvantage/ Enabling Factors</i>						
Health Insurance Coverage						
Private insurance					1.18	
Public insurance					1.31	*
Employed					1.10	
Marital Status						
Divorced/separated/widowed					1.05	
Never married					.99	
Living with partner					1.05	
Educational Attainment						
Some college or associates degree					1.14	*
Bachelor's degree					1.37	***
Master's degree or greater					1.35	***
Family Income					1.00	***
<i>Predisposing Factors/ Control Variables</i>						
Female	1.41	***	1.32	***	1.29	***
Age	1.00	***	.98	***	.98	***
Model Fit Statistics						
N	19,629		19,629		19,629	
LR X ²	99.54	****	630.98	****	674.52	****
Pseudo R ²	.01		.04		.04	

*p ≤ .05. **p ≤ .01. ***p ≤ .001. ****P ≤ .0001.

Reference Categories: race= white; insurance= no insurance; marital status= married; and education attainment= high school diploma or less.

A= Hispanics are significantly different from Asians; B= Hispanics are significantly different from Blacks; C= Blacks are significantly different from Asians.

Table 7: Regression coefficients from logistic regression models of race, health insurance, employment status, marital status, education, income, functional limitations and chronic conditions on forgone care

Independent Variables	Forgone Care					
	MODEL 1		MODEL 2		MODEL 3	
	odds ratio		odds ratio		odds ratio	
Intercept	.16	***	.22	***	1.20	
<i>Focal Independent Variable</i>						
Race						
Hispanic	1.34	*** ^{AB}	1.31	*** ^A	1.05	^A
Black	1.59	*** ^C	1.41	*** ^C	1.15	* ^C
Asian	.63	***	.71	**	.77	*
<i>Need Factors</i>						
Functional Limitations			1.97	***	1.76	***
Chronic Conditions			1.72	***	1.74	***
<i>Disadvantage/ Enabling Factors</i>						
Health Insurance Coverage						
Private insurance					.35	***
Public insurance					.37	***
Employed					1.17	**
Marital Status						
Divorced/separated/widowed					1.12	*
Never married					.72	***
Living with partner					1.30	**
Educational Attainment						
Some college or associates degree					1.21	***
Bachelor's degree					1.12	
Master's degree or greater					1.11	
Family Income					1.00	***
<i>Predisposing Factors/ Control Variables</i>						
Female	1.36	***	1.25	***	1.22	***
Age	1.00	***	.98	***	.98	***
Model Fit Statistics						
N	19, 629		19,629		19,629	
LR X ²	182.76	****	961.03	****	1797.19	****
Pseudo R ²	.01		.06		.11	

*p ≤ .05. **p ≤ .01. ***p ≤ .001. ****p ≤ .0001.

Reference Categories: race= white; insurance= no insurance; marital status= married; and education attainment= high school diploma or less.

A= Hispanics are significantly different from Asians; B= Hispanics are significantly different from Blacks; C= Blacks are significantly different from Asians.

Table 8: Predicted probabilities of race on usual place of sick care at mean values

Variable	Usual Place of Sick Care					
	Doctor's Office		Other Place		No Usual Place	
	Probability		Probability		Probability	
White	0.94 ***		0.03 ***		0.03 ***	
Asian	0.93 ***		0.02 ***		0.05 ***	
Hispanic	0.90 ***		0.04 ***		0.06 ***	
Black	0.89 ***		0.07 ***		0.04 ***	

*p ≤ .05. **p ≤ .01. ***p ≤ .001. ****P ≤ .0001.

Table 9: Predicted probabilities of race on usual place of preventative care at mean values

Variable	Usual Place of Preventative Care					
	Doctor's Office		Other Place		No Usual Place	
	Probability		Probability		Probability	
White	0.94 ***		0.02 ***		0.04 ***	
Asian	0.93 ***		0.02 ***		0.05 ***	
Hispanic	0.90 ***		0.03 ***		0.07 ***	
Black	0.90 ***		0.05 ***		0.05 ***	

*p ≤ .05. **p ≤ .01. ***p ≤ .001. ****P ≤ .0001.