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Assessment of Racial/Ethnic Differences in "Patient Satisfaction" that Impact Perceived Quality Health Care Treatment

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UNIVERSITY OF MIAMI

ASSESSMENT OF RACIAL/ETHNIC DIFFERENCES IN “PATIENT SATISFACTION” THAT IMPACT PERCEIVED QUALITY HEALTH CARE TREATMENT

By

Oshea D. Johnson

A THESIS

Submitted to the Faculty
of the University of Miami
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ASSESSMENT OF RACIAL/ETHNIC DIFFERENCES IN "PATIENT SATISFACTION" THAT IMPACT PERCEIVED QUALITY HEALTH CARE TREATMENT

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Assessment of Racial/Ethnic
Differences in “Patient Satisfaction”
that Impact Perceived Quality Health
Care Treatment

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Racial and ethnic minorities, and in particular African Americans, have had a long-standing battle of mistrust with the health care system due to previous discriminatory acts (e.g., the Tuskegee Experiment). Consequently, many minorities have lower levels of trust in physicians and the larger healthcare system, lower satisfaction with the care that they receive, and overall lower access to and utilization of health care services. The purpose of this study is to examine racial and ethnic disparities and the moderating effects of patient satisfaction on perceived quality of health care treatment among adults who recently utilized health care services. Guided by the critical race theoretical framework and cultural health capital, this study extends the literature by documenting the interrelationship between race/ethnic identity, socioeconomic status, patient satisfaction, and perceived quality of health care. Data are from a subsample (n=13,112) of adults who reported going to the doctor in the past year (2014) in the nationally representative 2015 Medical Expenditure Panel Survey (MEPS). I combine four self administered questionnaire response measures of patient satisfaction on a scale and dichotomize and reverse-code perceived quality health care for methodological purposes. A bivariate association analysis of perceived poor health care quality with all study

variables reveals the non-Hispanic whites (whom are oversampled in the study), are the only racial/ethnic group to report lower odds of perceived poor quality health care treatment. The results indicate that minorities, specifically non-Hispanic blacks and non-Hispanic others are significantly more likely to perceive poor quality health care, controlling for all socio-demographic factors. Policy implications should provide incentives for physicians to ensure they are meeting patient requirements of satisfying patients' needs while still making sure they are able to do their jobs effectively. Also, providing patients with the proper tools (pamphlets, health literacy, monitors in waiting rooms with advising cues before they see a physician) to ensure all patients, regardless of race, ethnicity or socioeconomic status receive quality health care and are prepared to ask questions and understand information more effectively.

Dedication:

I dedicate this Master's Thesis to my parents, siblings, and people who are not fortunate enough to receive the proper education and tools to speak to and challenge ruling institutions for themselves. I am a first generation college graduate and graduate student and I would not be here today without the guidance, love and support of my parents. My mother and father have consistently encouraged me, challenged me to be better, and supported my dreams even when I did not think they were possible. As the oldest of 5 other siblings, I am aware that my siblings look up to me. I would like for the hard work I put in to this thesis to inspire them to work hard for their dreams and never give up, regardless of life's inevitable obstacles. Finally, I dedicate this thesis to people who are undereducated, low income, and unemployed. I believe all health care should be equal and accessible. I want this research to affect change, not just get published in a research journal. All people should be able to receive quality health care treatment regardless of their race, socioeconomic status, or any other discriminative factor. I do not want to just write about the ills people belonging to a minority group face, but to use my scholarship to make a difference based on the research and knowledge that I continue to accrue.

Acknowledgements:

First and foremost, I would like to acknowledge my thesis committee for the guidance, advice, and support they all have offered me throughout this academic school year. My thesis chair, Dr. Kathryn Nowotny has been an extraordinary mentor and advisor throughout this Master’s Thesis project. Dr. Nowotny has consistently kept her door open for me when I needed help, guidance, and was available to answer any questions I had, regardless of how long it took to answer. I would not have gotten to the point I have without her. Dr. Marvin Dawkins has been an excellent committee member serving as the race scholar for my thesis. Taking Dr. Dawkins’ class in my second semester in the Sociology Ph.D. program is when I first learned about critical race theory. The course inspired me to explore this theoretical approach more, and ultimately use this in my master’s thesis. Dr. Dawkins has always supported, challenged, and encouraged me as a scholar, and I am very thankful to have him on my committee. Finally, Dr. Karoline Mortensen has been my dataset and statistics guru. I was very fortunate to meet Dr. Mortensen through a professor in the sociology department, Dr. Michael French, and after our first meeting, I knew that she would be an awesome mentor and professor who I could learn from as a scholar outside the realm of sociology. Thank you Dr. Mortensen for consistently meeting with me and keeping me on track as a scholar and professional. I would also like to acknowledge two fellow graduate students in the department of sociology that are also completing the Master’s Thesis. Mallory Morken and Brandon Martinez have been phenomenal support systems and colleagues to write with, express frustrations to, and share challenges with as we journey through completing this Master’s Thesis together.

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Chapter 1: Introduction

Health equity is defined as the "attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities" (US Department of Health and Human Services 2014). On the opposite end of this quality of care spectrum, disparities in health care are defined as "racial or ethnic differences in the quality of healthcare that are not due to access-related factors or clinical needs, preferences, and appropriateness intervention" (Institute of Medicine 2002). Patients' understanding of treatment options are often shaped by the quality and content of provider-patient interactions, which in turn may be influenced by factors related to the patients' race, ethnicity and culture. Discrimination in the health care setting refers to differences in care that result from biases, prejudices, stereotyping, and uncertainty in clinical communication and decision-making (Institute of Medicine 2002). There is a large body of evidence demonstrating racial bias and discrimination against minorities in the health care system.

Racial and ethnic minorities tend to receive a lower quality of healthcare than non-minorities, even when access-related factors, such as patients' insurance status and income, are controlled. The sources of these disparities are complex, rooted in historic and contemporary inequities, and involve many intersecting parts (Institute of Medicine 2003). Racial and ethnic minorities have had a long-standing battle of mistrust with the health care system due to previous discriminatory acts (e.g. the Tuskegee Experiment, legalized segregation). These injustices have caused many minorities to become distrustful of the health care system in order to avoid unfair treatment. Today, it is important to understand the quality of treatment racial/ethnic minorities receive, and if patients are satisfied with their prescribed treatment through the lens of the patient-physician interaction.

Sociologists have made principal contributions to studying racial and ethnic inequalities in health in the United States. One contribution that is expounded on in this study concerns understanding the multiples ways in which racism affects health (Williams and Sternhall 2010). This topic is important for sociologists to take seriously and the broader community to understand because health care, specifically "quality" health care, should be a basic human right for everyone, yet it varies based on health insurance, socioeconomic status, gender, religion, and race or ethnic background. Racial concordance, cultural competence, language, and cultural capital are important for patients; however, the interaction between the patient and physician varies based on these factors (Villani and Mortensen, 2012, Williams, 2010). The chronic racial disparities in health outcomes that are continually studied and discussed will not diminish if the forefront of where these disparities can be tackled (the patient-physician interaction) is not addressed. The current research extends the literature through its use of supporting theoretical perspectives (cultural health capital and critical race theory) to examine potential differences in patient satisfaction that impact perceived quality of health care treatment using recent nationally representative data on health care service utilization in the United States.

Chapter 2: Review of the Literature

2.1 *Social Stratification and a Racial Assessment of Health*

W.E.B. Du Bois in his classic book *The Philadelphia Negro* provided a detailed characterization of the "Negro problem" in America (Du Bois [1899] 1997). This analysis indicated that the higher level of poor health of blacks was one important indicator of racial inequality in the United States. Du Bois went on to further argue that the causes of racial differences in health were multifactorial, but primarily social. He further goes on to say: "the most difficult social problem in the matter of Negro health is the peculiar attitude of the nation toward the well-being of the race" (Du Bois [1899] 1997, p.163). The multifactorial characteristics of health disparities that vary by race and ethnicity are also intersectional with other statuses that contribute to differential life chances. For example, gender is an important social status category that is important for understanding how health is distributed by multiple social status categories simultaneously. The racial gap in health is large and persistent over time.

According to analyses conducted by Williams and Sternhall (2010), white men and women outlived their black counterparts by 7.4 and 9.3 years, respectively, in 1950. While there has been an increase in life expectancy for all groups over time, in 2006 white men still lived six years longer than African American men and white women had a four-year advantage over their black peers. In 2007, blacks had an overall death rate that was 30 percent higher than of whites and rates for all other groups were lower than that of whites. Moreover, African Americans had higher death rates than did whites for 0 of the 15 leading causes of death (Williams 2012). Today, black males die at a rate of 1,070 per 100,000 compared to 872 white males and 626 Hispanic males. Black females die at a rate of 731 per 100,000 compared to 644 white females and 438 Hispanic females. Notably, black women have had the largest absolute gains in life expectancy between 1950 and 2006 (Williams and Sternhall 2010).

Despite current mortality rates, African Americans have lower prevalence of some illnesses than whites, with a prognosis that is considerably worse than those of their white counterparts. Minorities get sick at younger ages and die sooner than whites (Williams 2012). An example highlighted by David Williams et al. (2007) in a national study found that, although blacks have lower current and lifetime rates of major depression than whites, the cases of depression among blacks were more likely to be persistent, severe, disabling, and untreated (Williams et al. 2007a). Previous research has shed light on structural disadvantages faced by minority populations that have been in place since blacks were forcefully brought to America and enslaved by Europeans. This has caused health disparities to persist, net of socioeconomic status, gender, and marital status.

Social structure refers to enduring patterns of social life that shape an individual's attitudes and beliefs, behaviors and actions, and material and psychological resources. Among the social structures investigated within sociology, social class, also conceptualized as socioeconomic status (SES), has proven particularly relevant for understanding racial disparities in health (Williams and Sternhall, 2010). SES is operationalized as a combination of individuals' occupation, income, and education statuses. Sociological research has found that SES is inversely associated with high quality health care, stress, exposure to social and physical toxins, social support, and healthy behaviors. Accordingly, SES remains one of the strongest known determinants of variations in health status (Williams and Collins 1995). Historical and contemporary racial discrimination created and perpetuates both racial inequalities in SES and racial inequality in health status (Williams 2012).

Williams and Collins (2001) note that racial residential segregation is a fundamental cause of racial disparities in health. The physical separation of races by enforced residence in specific areas is an institutional mechanism of racism that was originally created to protect whites from social interaction with blacks. Historically, the degree of residential segregation is distinctive for African Americans in the United States. While most immigrant groups have experienced some residential segregation in the U.S., no immigrant groups has ever lived under the high levels of segregation that currently exist for the African American population (Massey and Denton 1993). Segregation adversely affects both access to care and the quality of care. Research has linked residential segregation to an elevated risk of illness and death, and it has shown that segregation contributes to racial disparities in health (Williams and Collins 2001; Acevedo-Garcia et al. 2003). Studies have reported that perceptions of discrimination make a significant contribution to explaining racial differences in self-rated health after SES is accounted for (Williams and Collins 2001; NCHS 1998; Williams et al. 1997).

W. E.B. Du Bois ([1899] 1997) noted at the turn of the century that race is strongly intertwined with socioeconomic status. Research continues to find that SES differences among races account for a substantial component of racial-ethnic differences in health (Hayward et al. 2000; Williams and Collins 1995; Hummer 1996). To support this claim, scholars have identified socioeconomic status as a fundamental cause of the observed social inequalities in health, and in particular of racial differences in health

(House et al. 1990; Link and Phelan 1995; Williams 1997). Medical sociologists Link and Phelan (1995) have noted that flexible resources that are central to fundamental cause theory such as knowledge, power, prestige, and beneficial connections can be used as protective factors in particular circumstances to maintain a health advantage. For example, a person with greater resources has an advantage of avoiding particular hospitals that are known for bad service. Moreover, as cultural health capital theory would suggest, people with a higher SES are better suited to articulate to a physician their symptoms and understand physician orders in the doctor-patient interaction at a greater rate than person from a lower SES. At the intersection of race and SES, national data reveal that for every dollar of wealth that white individuals have, blacks have 9 cents and Hispanics have 12 cents (Orzechowski and Sepielli 2003). These disparities exist at every level of income.

Two scholars proposed the ‘double jeopardy hypothesis’ and tested it using the National Health and Nutrition Examination Survey (Ferraro and Farmer 1996). This hypothesis, as specified in the study, sought to understand if being both old and a black American creates a double disadvantage to health. They used data on age-specific life expectancy to compare black and white Americans and found that African Americans have poorer health at all three times (younger than 50 years old, between the age of 50-64, and older than 65 – all before the 15 year duration of the study) on a variety of health status measures, yet some of these differences are due to social class variables, such as education. For example, there is a five-year racial difference in life expectancy at age 25, but an even larger difference within each racial category by education status. A significant finding from this research that is relevant to the current study is that black

Americans of all ages – including black older adults -- suffered from growing disability and more negative ratings of health. Compared to whites, black adults are more likely to develop serious illness, and their ratings of health decline more rapidly than is the case for white respondents (Ferraro and Farmer 1996). While there is little support for the double jeopardy hypothesis, the authors found overwhelming evidence to show that the health of black Americans of all ages decline at a faster rate. The study also found that educational differences by race impact minorities to the point that they face a potential "double jeopardy" for being a member of a minority group who experience health risks associated with both their stigmatized racial status and low SES (Ferraro and Farmer 1996). Other sociologists have also shown that race and SES can combine with gender and other social statuses in complex ways to create patterns of interaction and intersectionality (Schulz and Mullings 2006).

Individual and institutional-level racism and health has been explored at great length in sociological literature. Research has identified multiple ways in which racism initiates and sustains health disparities (Williams and Mohammed 2009). This research explicitly draws on broader sociological literature on racism and conceptualizes it as a multilevel construct, encompassing individual and institutional discrimination, racial prejudice and stereotypes, and internalized racism (Feagin and McKinney 2003; Bonilla-Silva 1997; Massey and Denton 1993). At the individual level, exposure to racism has been shown to be associated with increased risk of a broad range of indicators of physical and mental illness. In addition, discrimination, like other measures of social stress, adversely affects patterns of health care utilization and adherence behaviors. Studies have found that, in multiple national contexts, racial discrimination makes a substantial contribution to SES in accounting for observed racial disparities in health (Williams and Mohammed 2009). The current study will draw from research on the doctor-patient interaction, health care quality, patient satisfaction, and two theoretical perspectives: cultural health capital and critical race theory in order to advance the literature on racial differences in patient satisfaction and perceived health care quality treatment.

2.2 *Doctor-Patient Communication/Relationship*

The doctor-patient relationship is a complex inter-personal one that involves interaction between individuals in non-equal positions, is often non-voluntary, concerns issues of great importance, is emotionally (laden), and requires close cooperation (Ong et al. 1995; Chaitchik et al. 1992). As doctors and patients collaborate, both parties are highly involved in the process of managing effective health care treatment. Doctors and other healthcare providers are usually under great pressure to make treatment-related decisions without accurate or complete information. Due to lack of proper information, treatment complexity, resource constraints and time-sensitivity, physicians' attitudes may shape their interpretation of this information and their expectations for treatment (Institute of Medicine 2002).

Balsa and McGuire (2001) discuss three mechanisms that may produce discriminatory patterns of healthcare from the provider's side of the exchange. The three discriminatory patterns against minorities are bias or prejudice, greater clinical uncertainty when interacting with minority patients, and beliefs or stereotypes held by the provider about the behavior or health of minorities. Based on these potential discriminatory mechanisms healthcare providers hold, patients might react to this in a way that further contributes to disparities. Inevitably so, some patients may also hold stereotypes of their doctors that may perceive the physician as arrogant or as “the white man who experiments on minority patients” (Institute of Medicine 2002, p. 162). The distrust among minority patients in doctor’s advice can also account for some part of healthcare disparities (Institute of Medicine 2002). Examining racial differences in the shared decision-making process is exemplified in a study conducted from 1996 through 1998 of 1,816 adult aged 18 to 65 years who had attended one primary care practice. Researchers found that African American patients rated their visits as significantly less participatory than whites in models adjusting for demographic characteristics (Cooper-Patrick et al. 1999). The current study adds to the literature through its examination of racial and ethnic differences in patient satisfaction based on four measures used in the dataset that encapsulate the doctor-patient interaction.

There are three different purposes of communication between doctors and patients: a good inter-personal relationship, exchanging information, and making treatment-related decisions (Ong et al 1995). An empathic doctor-patient relationship consists of: showing feelings, using silence, paraphrasing and reflecting, listening to what the patient is saying, but also to what he/she is unable to say, encouragements, and non-verbal behavior (Risko 1992; Comstock et al.1982;). The ideal medical interview integrates the patient-centered and physician-centered approaches: the patient leads in areas where he/she is the expert (symptoms, preferences, concerns), the doctor leads in his domain of expertise (details of disease, treatment) (Smith and Hoppe 1991).

The exchange of information between the doctor and patient is another critical component of the relationship (Roter et al. 1988; Inui and Carter 1985). From a medical point of view, doctors specify information to establish the correct diagnosis and treatment plan. On the other end of the spectrum, the patient has two needs that they require to be met when visiting a doctor: ‘the need to know and understand’ (to know what the problem is with them/ where the pain stems from) and ‘the need to feel known and understood’ (to know the doctor accepts him/her and takes the patient seriously) (Ong et al. 1995). In order for the needs of both parties to be fulfilled, an exchange of information-giving and information-seeking must occur. Patients must impart information about symptoms while doctors need to actively seek out relevant information. Once the diagnoses and treatment plan has been formed, physicians have to effectively relay this information to the patient. For example, cancer patients report dissatisfaction with the exchange of information stemming from a lack of concordance between the perceptions of doctors and patients (Chaitchik et al. 1992). One study showed that 47% of cancer patients reported that no information had been given about handling their disease, although the majority desired such information (Castejon et al. 1993). Research suggests physicians should allow and encourage their patients to discuss their main concerns without interruption (Simpson et al. 1991).

A final purpose of medical communication is allowing doctors and patients to make decisions about treatments. The traditional doctor-patient relationship was paternalistic, where the doctor directs the decision-making and care about treatment. Similar to cancer patients’ desire for as much information as possible surrounding their condition, one study indicated that patients suffering from various chronic diseases expressed a strong desire for medical information. However, the same patients also placed responsibility for medical decision-making on their doctor (Beisecker and Beisecker 1990). A study conducted on the behavior of 15 internal medicine residents, each with 10 patients, observed through a one-way mirror found that patients' ratings of satisfaction were strongly correlated with ratings for physician courtesy and information-giving (Comstock et al. 1982). Listening behavior also correlated with patient satisfaction. Total time and amount of physical contact between patient and physician were not found to be significant correlates of patient satisfaction. The measure used in the study by Comstock et al. (1982) are still relevant to measuring patient satisfaction 35 years later.

There are two types of interaction analysis systems that have been identified: *cure* systems and *care* systems. These systems are observational instruments that have been developed to analyze the medical encounter. Analyses are methodic identification, categorization and quantification of salient features of doctor-patient communications. 'Cure' systems are meant to capture the (task-focused) behavior that patients require when visiting the doctor: the need to know and understand, while the 'care' system measures socio-emotional behaviors such as 'the need to feel known and understood' (Bensing 1991). Based on the measurements I will be using to assess patient satisfaction using the MEPS, the current study ties together both systems of interaction analyses, which can be seen in the Roter Interaction Analysis System (RIAS). This system measures doctor-patient interaction during medical consultations specifically modified for the clinical setting and is applicable to both verbal and non-verbal communicative behaviors (Roter 1991; Ong et al. 1995).

2.3 *Health Care Quality: "Patient Satisfaction"*

While there has been an increasing role of measures regarding health care experiences, there is still no consensus among scholars that reflect a legitimate quality assessment. As physician and hospital compensation becomes increasingly tied to patient feedback, health care providers and academics are raising strong objections to the use of patient-experience surveys. However, Manary and her team of scholars (2013) believe that when designed and administered appropriately, patient-experience surveys provide robust measures of quality. These researchers also believe efforts to assess patient experiences should be revisited. Critics express three major concerns about patient-reported measures, particularly patient satisfaction (Manary et al. 2013).

First, critics argue that patient feedback is not credible because patients lack formal medical training. While patients do possess the technical medical training as doctors, if we applied this same logic to outside critics assessing the work of others to every field, these people would not have the credibility to assess anyone's work and all critique would come from people within the perspective field which has its own set of limitations. Second, critics argue that measures used to capture patient satisfaction reflect interpersonal care experiences, such as patient-provider communication, which correlate with technical care but represent a unique dimension of quality. Some observers believe patients will subjectively measure their experience of health care quality based on their health outcome regardless of the type of care they received. However, studies have shown correlations in multiple data sources in relation to disease conditions, which indicates that patient-experience measures do not only reflect clinical adherence-driven outcomes, but a different dimension of quality that is difficult to measure objectively

(Boulding et al. 2011; Glickman et al.2010). Third, it is argued that patient-experience measures reflect fulfillment of patients' a priori desires. For example, a patient who requests a certain drug, regardless of its benefit may report higher satisfaction if the doctor signs off on this request. This assumption proposes that higher satisfaction is linked to better outcomes, meaning that patients are a better judge than physicians on the best course of treatment. The research has documented that while patient satisfaction is not an "objective" indicator of technical care provided, it is an excellent subjective indicator to examine potential racialized experiences that take place in the doctor-patient interaction (Manary et al. 2013).

A study assessing whether a person's race or ethnicity is associated with low physician trust found that after adjustment for socioeconomic and other factors, minority group members reported less positive perceptions of physicians than whites based on two scales. The first scale measured respondents' perceptions of their physicians' listening skills, explanations and thoroughness. The second scale measured respondents' perceptions on trusting the physician based on referrals, performing unnecessary tests or procedures, and placing the patients' need above other considerations (Doescher et al. 2000). Other studies have found that compared to white patients, minority patients report lower quality in interactions with their physicians (Saha, Arbelaez, and Cooper 2003; Doescher et al. 2000; Cooper-Patrick et al. 1999).

2.4: *Theoretical Framework*

2.4.1 *Cultural Health Capital*

Cultural Health Capital is defined as “the culmination of cultural skills, verbal and nonverbal competencies, attitudes and behaviors, and interactional styles, cultivated by patients and clinicians alike, that, when deployed, may result in more optimal health care relationships” (Shim 2010, p 1). Cultural health capital bridges macro-social and micro-social interactions that shape how social inequalities operate in patient-provider interactions (micro-social encounters), and the content and tone of health care encounters (macro-social encounters). Cultural health capital is established in Bordeiu’s ([1980] 190, [1983] 1986) notion of cultural capital where he argues that cultural capital contributes to the accumulation and exercise of power and the maintenance of inequality. Bordeiu claims that cultural capital is context-specific, in that there are different kinds of social action, cultural skills and attributes that are constituted as valued resources. Within the context of health care, cultural health capital refers to the particular repertoire of cultural skills, verbal and nonverbal competencies, and interactional styles that can influence health care interactions at a given historical moment (Shim 2010).

Specific elements of cultural health capital may include “linguistic facility,” a proactive attitude toward accruing knowledge, the ability to understand and use biomedical information, and an instrumental approach to disease management. These kinds of cognitive, attitudinal and behavioral resources can be used by patients and possibly providers, which could result in a more successful engagement with health professionals (Smedley et al. 2003). However, based on socioeconomic conditions, holding constant race and ethnic differences, this clinical encounter will vary. Even when one introduces race and ethnicity in to the clinical encounter, there is increasing evidence that race and ethnicity remain significant predictors of the quality of health care received (Smedley et al. 2003). This could potentially be due to colorblind racism or race consciousness that physicians could knowingly or unknowingly possess. These concepts will be explored more thoroughly in the subsequent section on Critical Race Theory.

Several scholars note the potential relevance of cultural capital in understanding disparities in health status and care (Wall 1995; Malat 2006; and Lareau 2003). Wall for example defines cultural capital as "a superior ability…to keep onself well informed about where in social interactions profit can be gathered" (p.660). He hypothesizes that this capacity results in favoring the well educated and middle class who are better able to capitalize on public health prevention measures. Malat (2006) considers how cultural capital might advance studies of racial disparities in medical treatment. Following the work of Lareau (2003), Malat (2006) views cultural capital as "the knowledge and behaviors that gain an individual advantage in a particular social environment" (p.309). For the purpose of this paper, the context-specific social environment is health care, specifically, the doctor-patient interaction.

2.4.2 *Critical Race Theory*

Critical Race Theory (CRT) is useful in assessing disparate health care treatment at a macro-social and micro-social level as its origin in race-equity methodology and legal studies advocates social issues such as structural racism's contemporary influence on health, health inequities, and research. Francois Berneir, a French physician, was the first scholar to classify race as a category denoting skin color to classify human bodies. The notion of racial groupings was introduced in Carolus Linnaeus's *Natural History* in

1735 and subsequently advanced by many others (Harawa and Ford 2010). Both Linnaeus's concept of race and the subsequent racial grouping devalued and degraded those classified as non-European (West 1993). These classifications of racial groupings introduced by Linneau and Bernier have become the foundation on which many countries, including the United States, based their racial policies.

Critical Race Theory is an important conceptual contribution to this paper because its methodology helps investigators remain attentive to equity while carrying out research, scholarship, and practice. CRT offers the field of sociology a new paradigm for investigating the root causes of health disparities and encourages the development of solutions that bridge gaps in health and other factors that shape living conditions. This approach helps to illuminate and combat root causes of structural racism that manifests to the individual level. For example, *colorblindnes*s and *race consciousness* can be deployed in ways that contribute to inequities.

"Colorblindness" explicitly precludes an examination of racism's potential contributions to inequities, specifically quality of health care. Bonilla-Silva introduces this racial ideology of color-blind racism as racism without racists (2010). Moreover, he examines color-blind racism as the central ideological formation that has emerged to support and reproduce the new racial structure of the United States (Bonilla-Silva 2001). The concept of colorblindness is defined as an attitude and school of thought, which posits that nonracial factors (e.g., income, lack of evidence of discrimination, "just the way things are" rhetoric) fundamentally explain apparent racial phenomena. In the book by Eduardo Bonilla-Silva, *Racism Without Racists: Color-Blind Racism & Racial Inequality in Contemporary America* (2010), he discusses four central frames encompassing color-blind racism: abstract liberalism, naturalizaition, cultural racism, and minimization of racism. As it relates to the current study, the ideology of color-blind racism could be a potential factor that causes for varied ‘patient satisfaction’ based on race/ethnicity. Color-blind racism could be a potential mechanism that perpetuates different health care treatment based on race/ethnicity through failure to understand a priori influences that impact minorities’ health and understanding of diagnoses, discharge instructions, and perceptions of the health care system (Ford and Airhihenbuwa 2010).

“Race consciousness” is described by Bonilla-Silva as synonymous with racism (2006). Racism can come in the form of prejudice, discrimination, or antagonism directed against someone of a different race based on the belief that one’s own race is superior. Race consciousness is essential for understanding racialized constructs and mechanisms (Ford and Airhihenbuwa 2010). A study conducted from 2003 to 2005 in an urban area with high prevalence of HIV sought to understand whether racism-related factors are potential barriers to African Americans obtaining readily available and routine HIV testing as recommended by the Centers for Disease Control and Prevention. Since the factors influencing African Americans’ late diagnoses of HIV and poorer prognosis is poorly understood, these scholars employed Critical Race Theory in their design and in carrying out the research. The scholars focused on racism as a potential barrier, after finding research that reports discriminatory treatment by clinic staff might be a barrier to HIV testing (Ford et al. 2009).

Ford et al. used race consciousness to inform the development of their conceptual model for the study. They noted that race consciousness suggested that considering the racialized social context of African Americans would be germane to research on their

HIV preventive behaviors given their historical experiences with the health care system and stigma linking HIV to African Americans. These scholars assert that race is socially constructed, which suggests that different racial groups experience and are affected by the social environment differently. The authors drew from race consciousness to investigate salient aspects of contemporary racism (e.g. its ubiquity, multilevel nature) and applied these broad characteristics to Andersen's model of health service utilization. Some main findings from the study revealed that more than 90% of the sample perceived racism, which was associated with higher odds of HIV testing, after controlling for residential segregation and other covariates. Moreover, neither patient satisfaction, nor mechanisms for coping with stress explained the association (Ford et al. 2009).

Chapter 3: Study Aims

Using 2015 nationally representative data from the Medical Expenditure Panel Survey (MEPS), the aim of this study is to apply a sociological perspective to assess racial/ethnic differences in patient satisfaction that impact the perception of overall quality health care treatment drawing from two theoretical paradigms: cultural health capital and critical race theory. The present study adds to existing literature on racial health disparities, health care quality, and patient satisfaction research through its examination of racial and ethnic differences in patient satisfaction through the lens of the patient-provider interaction and assesses perceived differences in quality health care treatment. Moreover, the current study examines the moderating effects that patient satisfaction has on race and socioeconomic status among adults who recently utilized health care services. Important to note, the aim of this paper is not to accuse doctors of being racist, but to establish potential frames of "race talk" in order to capture story lines that perpetuate racial/ethnic disparities in health care.

Socioeconomic status and race/ethnic differences are discussed in previous literature. However, the application of modern theories such as cultural health capital and critical race theory provide a distinct outlook on how the interracial doctor-patient interaction can impact a patients' satisfaction with their physician, which in turn affects their perceived health care quality. I hypothesize that patients who possess a greater socioeconomic status (education status, income, and employment) will in turn have greater cultural health capital, than a patient of a lower socioeconomic status. I assert that this difference coupled with being a racial minority will impact patient satisfaction and perceived health care quality. In addition, concepts discussed in cultural health capital and critical race theory, while not directly being tested, will be applied to the current study through examination of patient satisfaction in relation to racial and ethnic differences with moderating effects of socioeconomic status. If there are no differences in patient satisfaction and perceived quality health care treatment among racial and ethnic groups, then it could be assumed that racial and ethnic factors do not shape the doctor-patient interaction, and there are other factors that are the cause for disparities in quality of health treatment. However, if patient satisfaction does vary by race/ethnicity, then this may be suggestive that health care quality is impacted due to race consciousness and/or color-blind racism possessed by physicians.

Research Question

- Is there a difference in patient satisfaction that affects the perception of health care quality treatment by race/ethnicity?
- Is there a difference in patient satisfaction that affects the perception of health care quality treatment by income, educational status, and employment status?

Chapter 4: Methodology

Study Sample and Data

The Medical Expenditure Panel Survey (MEPS) is a set of large-scale surveys of families and individuals, their medical providers, and employers across the United States. The MEPS is the most complete source of data on the cost and use of health care and health insurance coverage. MEPS collects data on the specific health services that Americans use, how frequently they use them, the cost of these services and how they are paid for, as well as data on the cost, scope, and breadth of health insurance held by and available to U.S. workers (AHRQ 2017). The current study uses the 2015 full-year consolidated data file from the Medical Expenditure Panel Survey Household Component (MEPS HC). The MEPS is a nationally representative survey of nearly 15,000 households who participated in the previous year's National Health Interview Survey (NHIS) (Villani and Mortensen 2012; Ezzati-Rice, Rohde, and Greenblat 2008). The data collected provides information of the civilian non-institutionalized population of the United States for calendar year 2015. MEPS HC data is sponsored by the Agency for Health Care Policy and Research and are collected under the authority of the Public Health Service Act and under contract with Westat, Inc. and Research Triangle Institute. The National Center for Health Statistics (NCHS) provides consultation and technical assistance (AHRQ 2017).

The dataset has a total of 35,427 people who participated in the MEPS Household Component of the Medical Expenditure Panel Survey in 2015 during rounds 3, 4 and 5 of Panel 19. The codebook provides both weighted and un-weighted frequencies for most variables in the dataset. In line with the person-level weight variable (PERWT15F) provided, data for persons with a positive person-level weight can be used to make estimates for the civilian non-institutionalized U.S. population for 2015. Most of the data for this study come from the paper-and-pencil Self-Administered Questionnaire (SAQ) which is administered to all persons in the sample aged 18 years and older (n=13,112). The Adult SAQ is a mail-back survey and includes questions from the Consumer Assessment of Health Plans (CAHPS). The survey was designed to collect a variety of health status and health care quality measures of adults. The health care quality measures in the SAQ were taken from the health plan version of CAHPS, which is an AHRQ-sponsored family of survey instruments designed to measure quality of care from the consumer's perspective (AHRQ 2017). All of the variables refer to events experienced in the last 12 months and were asked of adults age 18 and older. The questionnaires were administered in late 2015 and early 2016. Self-reported health care use is validated and verified by standard medical records extracted among a subsample of respondents (Fenton, et al. 2011). Respondents who are included in the SAQ consist of the analytic sample for this study. It is important to note that the analytic sample is significantly different from the overall MEPS sample (See Appendix Table 1).

Measures

The measures I use for this study are from the most recent data collected from the Medical Expenditure Panel Survey. All variables are collected and reported in the 2015 MEPS codebook. People who are reported in the survey must be at least 18 years of age and report having at least one physician or clinic visit in the previous year. The data file is downloadable for free from the MEPS website under the full year consolidated file.

Demographic Variables

The demographic variables in this study consist of a series of categorical variables. Age is categorized using similar categories used by previous studies that have also used the MEPS dataset (Villani and Mortensen, 2012). Four interval-level categories are used to operationalize age. The first category are respondents who range from ages 18 to 29 years old, the second age category are respondents who are 30 to 49 years old, the third category are respondents who are 50 to 64 years old, and the final age category are respondents age 65 years and older. For multivariate analyses, 65 years and older are the only age category reported and the reference category are respondents age 18-29 years old. The gender variable consists of male and female respondents. Females are the gender category used in this study, with males as the reference category. Marital status variable was recoded to contain three categories: married (reference category), widowed/divorced/separated, and never married.

Socioeconomic Status Variables

Socioeconomic status is commonly operationalized in sociology literature consisting of education, income, and occupation. I further operationalize occupational status by dichotomizing the employment status variable to include people who reported being unemployed or employed when the MEPS was administered. Employed persons are my reference group. Education status was recoded to include five ordinal categories. Those categories consist of people who have less than a high school diploma, have a high school diploma or GED, has some college or an Associate's Degree, has a Bachelor's Degree, and people with a Master's, Professional, or Doctoral degree. For multivariate analyses, I dichotomize education by creating two dummy variables. The first variable combines respondents who have a high school diploma and those who have less than a high school diploma into one category and those with some college or more into another category. People with some college or more are the reference group for multivariate analyses. Income as an ordinal-level variable is operationalized according to MEPS as family income as of % of poverty line. I used the original categories provided in the MEPS, which include: high income (reference category), middle income, low income, near poor income, and poor/negative income. For multivariate analyses, I dichotomize income by creating two dummy variables. The first variable combines respondents who report their income level as negative/ poor and near poor. The second variables, which is the reference group, combines respondents who report their income as low income, middle income, or high income

Key Independent Variables

There are several key independent variables used in this study. Race/ethnicity is the first and primary independent variable. The original race/ethnicity variable contains five categories. For the purpose of this project, I combined "non-Hispanic Asians" with "non-Hispanic other" to make four mutually exclusive racial/ethnic categories that include: "non-Hispanic white," (reference category), "non-Hispanic black," "Hispanic," and "non-Hispanic other". Health insurance coverage is another key independent variable. The categories for health insurance coverage were not recoded and were used as provided by the MEPS. The following health insurance coverage indicators are used: "any private insurance" (reference category), "public insurance", and "uninsured." The final key independent variable used in this study is perceived health status, which is included in the SAQ portion of the survey. This variable asks respondents to rate their own health. This categorical variable is categorized on an ordinal scale with response options ranging from 1 to 5 based on the following labels of perceived health: 1 “Excellent,” 2 “Very Good,” 3 “Good,” 4 “Fair,” and 5 “Poor.” In line with previous research (Xiao and Barber 2008), I dichotomized this variable to include the options of “Good,” “Very Good,” and “Excellent” to represent “Good Health Status” and combined responses of “Fair” and “Poor” to represent poor health status.

Patient Satisfaction Variables

In previous literature (Villani Mortensen 2012; Fenton et al. 2012;) patient satisfaction is measured based on four provider communication questions administered in the SAQ portion of the MEPS. If the respondent had a health care visit in the past year, they are asked the following questions:

1) In the last 12 months, how often did the doctors or other health providers listen carefully to you?

2) In the last 12 months, how often did doctors or other health providers explain things in a way you could understand?

3) In the last 12 months, how often did doctors or other health providers show respect for what you had to say?

4) In the last 12 moths, how often did doctors or other health providers spend enough time with you?

Response options are categorized on an ordinal scale of “never,” “sometimes,” usually,” or “always.” The data are highly skewed. Consistent with the literature, response are dichotomized to “always” and “not always” (Villani and Mortensen, 2012; Fenton et al. 2012; Saha, Arbelaez, and Cooper, 2003; Wallace et al. 2007; Mosen et al. 2004).

Patient satisfaction was further recoded to form a scale that has been used in previous literature (Fenton et al. 2012). In this study, I moderated these authors' scale by excluding a fifth item in the scale they used, which happens to be the dependent variable in this study, perceived quality health care. I created the 'patient satisfaction' scale by standardizing (weighting each question equally) and averaging responses to the four items (mean, 0, median=0.33, interquartile range =-0.46, 0.67, Cronbach α=0.88). For this patient satisfaction scale, higher numbers indicate greater patient satisfaction. Patient satisfaction is categorized into three quartiles consisting of high satisfaction, moderate satisfaction, and low satisfaction.

Outcome Variable: Perceived Quality Care

Health care quality is assessed from a single question based on the MEPS SAQ. The ordinal scale variable asks respondents to rate their health care from all physicians and other health care providers in the past 12 months on a scale from 0, which represents "worst care possible" through 10, which represents "best care possible" Based on previous research conducted by Carroll and Rhoades (2013), I dichotomized this response question so that the values of 0 through 6 were combined and defined as "worst care possible" and options 7 through 10 were combined and defined as "best care possible". I then reverse coded quality health care so that the outcome variable is poor quality health care.

Statistical Analysis

All analyses use MEPS survey weights for the SAQ to account for complex survey design (Villani and Mortensen 2012). A missingness analysis was also performed to ensure that no imputations were necessary for the dataset. I used Stata 13.1 (College

Station, TX) to perform all statistical analyses. In order to create an analytic sample for statistical analyses, I isolated respondents who had an interaction with a physician or health care provider in the past 12 months by creating a variable based on the SAQ variables (patient satisfaction variables and dependent variable). First, I estimated bivariate associations of perceived poor health care quality with all study variables (n=13,112) shown in table 1 using chi-square test of independence and reporting odds ratios for effect size. Next, multivariate logistic regression models estimated the independent associations of race, socioeconomic status and patient satisfaction on my outcome measure of perceived poor health care quality controlling for other demographic and health characteristics. For the multivariate logistic regression models, a base model (Table 2, Model 1) was first performed to assess the independent associations of all study variables on perceived quality health care. Then a series of interaction terms including race (non-Hispanic black), and the socioeconomic status dummy variables (poverty, less than college level education, and unemployment) were performed in subsequent models (3-5). Table 3 contains multivariate logistic regression models assessing independent associations of study variables within the black sub-population (model 1) and white sub-population (model 2). Table 3 also contains sub-population estimates for all three socioeconomic status indicators: poor (model 3) and non-poor (model 4), high school diploma or less (model 5) and some college or more (model 6), and unemployed (model 7) and employed (model 8) persons in the study sample. The appendix section includes preliminary analyses such as Table A, which compares the analytic sample to the MEPS full sample and a pairwise association matrix (Table B) to compare each pair of items among key variables.

Chapter 5: Statistical Analyses/Results

Descriptive and bivariate analyses will be used to compare all study variables by the dependent variable. Multivariate stepped (hierarchical) models will regress race and patient satisfaction on quality of health care treatment (dependent variable). I will then introduce sets of factors (demographic health, SES) to assess any moderating affects. All Statistical analyses were performed using MEPS survey weights.

Findings

Table 1 displays bivariate associations of perceived poor health care quality with all study variables (n = 13,112). People aged 65 years and older (25.3%) are the only age group to report lower rates of poor health care quality relative to the percentage of respondents who report they did not receive poor health care quality (17.0% vs. 26.3%, $p \leq 0.001$). Compared to the reference group (18-29 years old), people age 65 years and older have significantly lower odds of reporting poor health are quality (OR=0.54, $p \leq 0.001$. All other age categories are significantly more likely to report higher rates of perceived poor quality health care treatment, but the difference in percentage points is relatively small (<2%), which is reflected in the small odds ratios. Women comprise of a little over half of the sample (57.9%) and they have lower odds of reporting poor health care quality compared to men (OR=0.87, $p \leq 0.05$). Non-Hispanic whites are overrepresented in the self-administered questionnaire (see Table 1 in Appendix), representing 70.1% of the sample. Non-Hispanic whites are also the only racial/ethnic group to report significantly lower rates of poor health care quality (63.8% yes, 70.9%

no; $p \leq 0.001$). All racial/ethnic minority groups are significantly more likely than non-Hispanic whites to report higher odds of poor health care quality (non-Hispanic blacks OR=1.43, $p \leq 0.001$; Hispanics OR=1.23, $p \leq 0.05$; non-Hispanic other OR=1.56, $p \leq 0.001$).

Table 1 also suggests that there are SES-disparities in health care quality. Respondents with a high school diploma (OR=2.27, $p \leq 0.001$) or less than a high school diploma (OR=2.68, $p \leq 0.001$) report over two times higher odds of perceiving poor health care quality than someone who has a Master's Degree or higher. Compared to people who report having a high income (Note: this group is oversampled in the SAQ and making up almost half of the study sample (48%)), all other income categories are significantly more likely to report higher odds of perceived poor quality health care. Specifically, members of low income (OR=2.27, $p \leq 0.001$) and near poor/ negative income (OR=2.62, $p \leq 0.001$) report over two times higher odds of perceiving poor health care quality while those of poor income report three times higher odds of perceiving poor health care quality than someone of high income (OR=3.01, $p \leq 0.001$). Respondents who are unemployed are significantly more likely to perceive their health care quality as poor compared to employed groups of people by a relatively small margin (OR=1.18, $p \leq 0.05$).

Respondents who have public insurance (OR=1.65, $p \leq 0.001$) or who are uninsured (OR=2.49, $p \leq 0.001$) are significantly more likely to report poor perceived quality health care compared to the majority of the sample population of privately insure respondents (74%). Respondents who are married make up a little more than half of the study sample (56.7%). People who are widowed, divorced or separated (OR=1.25, $p \leq$

0.001) and never married (OR=1.49, $p \leq 0.001$) report significantly higher odds of perceiving their health care quality as poor compared to the married group. As expected, people who report their general health status as fair/poor are significantly more likely to perceive poor health care quality by a factor of almost three (OR=2.68, $p \leq 0.001$) compared to majority of people whose general health status is good/very good/excellent.

Respondents who reported high patient satisfaction consist of almost half of the study sample (47.1%). People with high patient satisfaction are significantly less likely to perceive their health care quality as poor (11.1% yes, 51.5% no; F=358.1, $p \leq 0.001$). Compared to respondents who report high patient satisfaction, respondents who reported moderate patient satisfaction (29.5%) have 3.06 higher odds of perceiving poor health care quality ($p \leq 0.001$). People with low patient satisfaction (23.4%) have 17.88 higher odds of perceiving their health care quality as poor ($p \leq 0.\ 001$).

Table 2 displays results from five multivariate logistic regression models on perceived poor health care quality that include interactions between race, socioeconomic status and patient satisfaction. All SES variables have been dichotomized so that the reference category represents the higher level for each variable. Model 1 is the baseline model and there are no interactions in this model. Respondents who are 65 years and older have significantly lower odds of perceiving their health care quality as poor compared to all other age groups (OR=0.52, $p \leq 0.001$) net of all study variables. Compared to non-Hispanic whites, non-Hispanic blacks (OR=1.24, $p \leq 0.05$) and non-Hispanic others (OR=1.35, $p \leq 0.05$) report significantly higher odds of perceived poor health care quality; controlling for SES and patient satisfaction. The significant difference between Hispanics and non-Hispanic whites documented in Table 1 is no longer significant once all study variables are controlled for.

Among the measures for socioeconomic status, the education variable has been dichotomized so that respondents with some college or more are excluded from the model and are held as the reference category for education. Respondents with a high school diploma or less report significantly higher odds of perceived poor health care quality (OR=1.24, $p \leq 0.05$). Compared to non-poor respondents (those who report low income, middle income or high income), poor respondents report significantly higher odds of perceived poor health care quality (OR=1.29, $p \leq 0.05$). There is no significant difference when examining the direct effect of employment status on perceived poor health care quality. Compared to people with private insurance, respondents with public insurance (OR=1.33, $p \leq 0.05$) and people who are uninsured (OR=1.66, $p \leq 0.05$) report significantly higher odds of perceived poor health care quality. There are no significant associations for marital status for any of the models in this regression analysis. Compared to people who have good health, people with poor health status report two times higher odds of perceived poor health care quality (OR=2.05, $p \leq 0.001$). For the patient satisfaction measure, high patient satisfaction is excluded from this model and held as the reference category. Respondents who report moderate patient satisfaction also report three times higher odds of perceived poor health care quality (OR=3.00, $p \leq 0.001$). People who report poor satisfaction also report fifteen times higher odds of perceived poor health care quality (OR=15.27, $p \leq 0.001$).

Model 2 contains an interaction between race and the moderating effects of patient satisfaction on perceived poor health care quality. The presence of an interaction between race and different levels of patient satisfaction attenuates the effect of perceived poor health care quality for non-Hispanic blacks. The significant association among non-Hispanic blacks and poor patient satisfaction reveals that non-Hispanic whites who report poor patient satisfaction compared to high patient satisfaction report significantly larger odds of perceived poor health care quality than non-Hispanic blacks who report poor patient satisfaction compared to high patient satisfaction. These findings further reveal that the effect of poor patient satisfaction is significantly greater for non-Hispanic whites than it is for non-Hispanic blacks (OR=0.53, $p \leq 0.05$). Respondents who are 65 years and older are significantly less likely to perceive their health care quality as poor (OR=0.46, $p \leq 0.001$). In this model compared to men, women report significantly lower odds of perceived poor health care quality (OR=0.85, $p \leq 0.001$). When an interaction term for race and patient satisfaction is added in to the model, non-Hispanic blacks are the only racial/ethnic group to report significantly higher odds of perceived poor health care quality (OR=1.98, $p \leq 0.01$). Moreover, the strength of the interaction term increases the significance and odds of reporting poor health care quality for non-Hispanic blacks. Respondents with a high school degree or less report significantly higher odds of perceived poor health care quality (OR=1.24, $p \leq 0.05$). Respondents who are poor report significantly higher odds of perceived poor health care quality (OR=1.28, $p \leq 0.05$). Marital status was not significant in this model. Respondents with public insurance (OR=1.34, $p \leq 0.01$) and people who are uninsured (OR=1.67, $p \leq 0.01$) report significant higher odds of perceived poor health care quality. People with poor health status report two times higher odds of perceived poor health care quality (OR=2.09, $p \leq 0.001$). Respondents who report moderate patient satisfaction also report three times higher odds of perceived poor health care quality (OR=3.38, p≤ 0.001). People who report poor satisfaction also report almost eighteen times higher odds of perceived poor health care quality (OR=17.96, p≤ 0.001).

Model 3 contains an interaction between income and patient satisfaction on perceived poor health care quality. There is not a significant interaction between poverty and patient satisfaction. Respondents who are 65 years and older are significantly less likely to perceive their health care quality as poor (OR=0.42, p≤ 0.001). Women report significantly lower odds of perceived poor health care quality (OR=0.85, p≤ 0.05). Compared to non-Hispanic whites, non-Hispanic blacks (OR=1.23, p≤ 0.05) and non-Hispanic others (OR=1.35, p≤ 0.05) report significant higher odds of perceived poor health care quality. Respondents who have a high school diploma or less are significantly more likely to report higher odds of perceived poor health care quality (OR=1.24, p≤ 0.05). The direct effect of people who are poor increases when including the interaction to little over 1.5 times more likely to perceive their health are quality as poor ((OR=1.62, p≤ 0.05). Respondents with public insurance (OR=1.33, p≤ 0.01) and people who are uninsured (OR=1.66, p≤ 0.01) report significant higher odds of perceived poor health care quality compared to people with private insurance. People with poor health status report two times higher odds of perceived poor health care quality (OR=2.08, p≤ 0.001). Respondents who report moderate patient satisfaction also report three times higher odds of perceived poor health care quality (OR=3.07, p≤ 0.001). People who report poor satisfaction also report sixteen times higher odds of perceived poor health care quality (OR=16.48, p≤ 0.001).

Model 4 contains an interaction between education and the moderating effects of patient satisfaction on perceived poor health care quality. The presence of an interaction between education and different levels of patient satisfaction attenuates the effect of perceived poor health care quality for respondents who have a high school diploma or less. The significant interaction reveals that people with some college education or more who report high patient satisfaction compared to poor patient satisfaction report significantly larger odds of perceived poor health care quality people than people with a high school diploma or less who report high patient satisfaction compared to poor patient satisfaction. This reveals that the effect of poor patient satisfaction is significantly greater for people with some college education or more than it is for people with a high school diploma or less (OR=0.46, $p \leq 0.01$). Respondents who are 65 years and older are significantly less likely to perceive their health care quality as poor (OR=0.46, $p \leq 0.001$). Women report significantly lower odds of perceived poor health care quality (OR=0.85, $p \leq 0.05$). Compared to non-Hispanic whites, non-Hispanic blacks (OR=1.24, $p \leq 0.05$) and non-Hispanic others (OR=1.34, $p \leq 0.05$) report significant higher odds of perceived poor health care quality. The direct effect of people who have a high school diploma or less when including the interaction in this model increases to a little over two times higher odds of perceived poor health care quality (OR=2.23, $p \leq 0.001$). Respondents who are poor report significantly higher odds of perceived poor health care quality (OR=1.28, $p \leq 0.05$). Respondents with public insurance (OR=1.33, $p \leq 0.01$) and people who are uninsured (OR=1.66, $p \leq 0.01$) report significant higher odds of perceived poor health care quality compared to people with private insurance. People with poor health status report two times higher odds of perceived poor health care quality (OR=2.08, $p \leq$

0.001). Respondents who report moderate patient satisfaction also report almost four times higher odds of perceived poor health care quality (OR=3.83, $p \leq 0.001$). People who report poor satisfaction also report almost twenty three times higher odds of perceived poor health care quality (OR=22.73, $p \leq 0.001$).

Model 5 contains an interaction between employment status and the moderating effects of patient satisfaction on perceived poor health care quality. The moderating effects of poor patient satisfaction attenuates the relationship between unemployed people and their perceived quality health care treatment. Employed people who report high patient satisfaction compared to poor patient satisfaction report significantly larger odds of perceived poor health care quality than unemployed people who report high patient satisfaction compared to poor patient satisfaction. This reveals that the effect of poor patient satisfaction is significantly larger for employed people than it is for unemployed people (OR=0.54, $p \leq 0.01$). Respondents who are 65 years and older are significantly less likely to perceive their health care quality as poor (OR=0.45, $p \leq 0.001$). Women report significantly lower odds of perceived poor health care quality (OR=0.85, $p \leq 0.05$). Compared to non-Hispanic whites, non-Hispanic blacks (OR=1.24, $p \leq 0.05$) and non-Hispanic others (OR=1.35, $p \leq 0.05$) report significant higher odds of perceived poor health care quality. Respondents with a high school degree or less report significant higher odds of perceived poor health care quality (OR=1.24, $p \leq 0.05$). Respondents who are poor report significant higher odds of perceived poor health care quality (OR=1.29, $p \leq 0.05$). When an interaction term of employment status and patient satisfaction is introduced in this model, people who are unemployed report significant higher odds of perceived poor health care quality compared to employed people (OR=1.54, $p \leq 0.05$).

Respondents with public insurance (OR=1.33, p≤ 0.01) and people who are uninsured (OR=1.66, p≤ 0.01) report significant higher odds of perceived poor health care quality compared to people with private insurance. People with poor health status report two times higher odds of perceived poor health care quality (OR=2.09, p≤ 0.001). Respondents who report moderate patient satisfaction also report three times higher odds of perceived poor health care quality (OR=3.38, p≤ 0.001). People who report poor satisfaction also report twenty times higher odds of perceived poor health care quality (OR=20.08, p≤ 0.001).

Table 3 contains eight multivariate logistic regression models comparing subgroup populations for race (models 1 and 2) and socioeconomic status (models 3 – 8) with perceived poor health care quality. Models 1 and 2 are multivariate logistic regressions for non-Hispanic black (n=2,359) and non-Hispanic white (n=6,333) subgroups. Neither black nor white people 65 years and older or women report significant associations with perceived poor health care quality. For the non-Hispanic black subgroup, black people with a high school diploma report over 1.5 times higher odds of perceived poor health care quality (OR=1.68, p≤ 0.01). Non-Hispanic whites of the same education status also report significant higher odds perceived poor health care quality (OR=1.28, p≤ 0.05). Compared to table 2, model 1, data in table 3 show that non-Hispanic blacks report greater odds than the overall analytic sample. There are no significant associates for blacks or whites that are poor or unemployed. For health insurance status, both blacks and whites report significantly higher odds of perceived poor health care quality relative to private insurance. Interestingly enough, while uninsured non-Hispanic blacks report almost two times higher odds of perceived poor health care quality (OR=1.88, $p \leq 0.05$), uninsured non-Hispanic whites report 2.5 times higher odds of perceived poor health care quality (OR=2.56, $p \leq 0.001$). In this model, results reveal that both uninsured subgroups report higher odds of perceived poor health care, but non-Hispanic whites that uninsured report much higher odds than non-Hispanic blacks and the analytic sample (table 2, model 1). Non-Hispanic blacks with poor health status report almost two times higher odds of perceived poor health care quality (OR=1.85, $p \leq 0.001$), while non-Hispanic whites report over two times higher odds of perceived poor health care quality (OR=2.42, $p \leq 0.001$). For patient satisfaction, compared to respondents who report high patient satisfaction, black respondents who report moderate patient satisfaction report two times higher odds of perceived poor health care quality (OR=2.09, $p \leq 0.001$), while whites report 3 times higher odds of perceived poor health care quality (OR=3.41, $p \leq 0.001$). Non-Hispanic black respondents who report poor satisfaction also report 9.5 times higher odds of perceived poor health care quality (OR=9.53, $p \leq 0.001$). Non-Hispanic whites that report poor patient satisfaction is double the odds of blacks to perceive their health care quality as poor (OR=18.06, $p \leq 0.001$). Since whites are oversampled in this analysis, we see similar odds ratios of poor patient satisfaction in table 2, model 2 (OR=17.96, $p \leq 0.001$) when the interaction term is present, reflecting the power non-Hispanic whites have in swaying the results. Moreover, the difference in odds ratios for poor patient satisfaction in both racial/ethnic subgroups support the significant association revealed in the interaction between non-Hispanic blacks and poor patient satisfaction. The effect of poor patient satisfaction is significantly larger for non-Hispanic whites than it is for non-Hispanic blacks to perceive poor health care quality.

Models 3 and 4 consist of respondents that are poor (n=2,788) and non-poor (n=10,045). Both poor (OR=0.53, $p \leq 0.01$) and non-poor (OR=0.52, $p \leq 0.001$) respondents age 65 years and older report significant lower odds of perceived poor health care quality. There are no significant associations for gender. For race/ethnicity, only non-poor blacks report significantly higher odds of perceived poor health care quality (OR=1.31, $p \leq 0.05$). Poor respondents who have a high school diploma or less report significantly higher odds of perceived poor health care quality (OR=1.37, $p \leq 0.05$). There are no significant associations for employment status. Respondents who are non-poor that have public insurance (OR=1.31, $p \leq 0.01$) or are uninsured (OR=1.82, $p \leq 0.01$) are significantly more likely to report perceived poor quality health care. There are no significant associations for marital status. Both poor (OR=1.42, $p \leq 0.05$) and non-poor respondents (OR=2.32, $p \leq 0.001$) with poor health status report significant higher odds of perceived poor health care quality. For patient satisfaction, poor respondents who report moderate patient satisfaction report almost three times higher odds of perceived poor health care quality (OR=2.87, $p \leq 0.001$), while non-poor respondents report three times higher odds of perceived poor health care quality (OR=3.07, $p \leq 0.001$). Poor respondents who report poor satisfaction also report almost twelve times higher odds of perceived poor health care quality (OR=11.82, $p \leq 0.001$). Non-poor respondents that report poor patient satisfaction report sixteen times higher odds of perceive their health care quality as poor (OR=16.38, $p \leq 0.001$). Non-poor respondents make up over 70% of the income subgroup, therefore the data reveals similar odds ratios in table 2, model 3 when the presence of an interaction between income and patient satisfaction is introduced in the model among respondents who report poor patient satisfaction (OR=16.48, $p \leq 0.001$).

Overall, these findings show that non-poor respondents are much more likely to perceive their health care quality as poor compared to poor respondents.

Models 5 and 6 consist of respondents that have a high school diploma or less (n=5,788) and some college or more (n=7,045). Respondents with a high school diploma or less (OR=0.50, $p \leq 0.001$) and some college or more (OR=0.55, $p \leq 0.001$) that are age 65 years and older report significant lower odds of perceived poor health care quality. There are no significant associations for gender. For race/ethnicity, non-Hispanic blacks with a high school diploma or less report significant higher odds of perceived poor health care quality (OR=1.29, $p \leq 0.05$). Conversely, Hispanics with a high school diploma or less report significantly lower odds of perceived poor health care quality (OR=0.65, $p \leq 0.001$). Hispanics did not report significant differences in quality health care treatment (table 2 model 4) when education status and the interaction effects of patient satisfaction were tested. Among respondents with some college degree or more, only non-Hispanic others report significantly higher odds of perceived poor health care quality (OR=1.44, $p \leq 0.01$). There are no significant associations for income, employment status, or marital status for either subgroup. Respondents with a high school diploma or less that have public insurance (OR=1.57, $p \leq 0.01$) or are uninsured (OR=1.78, $p \leq 0.001$) report significantly higher odds of perceived poor health care quality. There were no significant associations for health insurance among people with some college or more. Both subgroups with poor health status report significantly higher odds of perceived poor health care quality [high school diploma or less: (OR=1.61, $p \leq 0.001$), some college or more: (OR=2.79, $p \leq 0.001$)]. For patient satisfaction, respondents with a high school diploma or less who report moderate patient satisfaction report 2.5 times higher odds of perceived poor health care quality (OR=2.52, p≤ 0.001), while respondents with some college or more report almost four times higher odds of perceived poor health care quality (OR=3.75, p≤ 0.001). Respondents with a high school diploma or less who report poor satisfaction also report almost eleven times higher odds of perceived poor health care quality (OR=10.79, p≤ 0.001). Respondents with some college or more that report poor patient satisfaction report double the odds of people with a high school diploma or less (OR=22.21, p≤ 0.001). The poor patient satisfaction odds ratio among people with some college education or more is very similar to the odds ratio of respondents who report poor patient satisfaction in table 2, model 4, when the interaction between education and patient satisfaction is present (OR=22.73, p≤ 0.001). Moreover, the difference in odds ratios for poor patient satisfaction shown in both education subgroups support the significant association revealed in the interaction between people with a high school diploma and poor patient satisfaction. The effect of poor patient satisfaction is significantly larger for people with some college or more than it is for respondents with a high school diploma or less to perceive poor health care quality.

Models 7 and 8 consist of respondents that are unemployed (n=5,572) and employed (n=7,261). Respondents that are unemployed (OR=0.48, p≤ 0.001) and employed (OR=0.60, p≤ 0.05) that are age 65 years and older report significant lower odds of perceived poor health care quality. Unemployed women report significantly lower odds of perceived poor health care quality (OR=0.81, p≤0.01. There is no significant association for employed women. There are no significant associations for race/ethnicity, income, or marital status for either subgroup. People who are employed with a high school diploma or less report significant higher odds of perceived poor health care quality (OR=1.23, p≤ 0.05). Unemployed respondents with public insurance (OR=1.35, p≤ 0.05) or that are uninsured (OR=2.04, p≤ 0.01) report significant higher odds of perceived poor health care quality. There were no significant associations for health insurance among employed people. Both unemployed (OR=2.01, p≤ 0.001) and employed (OR=2.09, p≤ 0.001) respondents with poor health status report significant higher odds of perceived poor health care quality. For patient satisfaction, respondents that are unemployed who report moderate patient satisfaction report a little over 2.5 times higher odds of perceived poor health care quality (OR=2.64, p≤ 0.001), while respondents with some college or more report three times higher odds of perceived poor health care quality (OR=3.39, p≤ 0.001). Respondents that are unemployed who report poor satisfaction also report almost eleven times higher odds of perceived poor health care quality (OR=10.90, p≤ 0.001). Respondents that are employed who report poor patient satisfaction report double the odds of people who are unemployed (OR=20.11, p≤ 0.001). Since employed respondents make up 60% of the analytic sample, this odds ratio in table 3 model 8 for poor patient satisfaction is similar to the odds ratio reported in table 2, model 5, when the interaction between employment status and patient satisfaction is tested (OR=20.08, p≤ 0.001). Moreover, the difference in odds ratios for poor patient satisfaction in both employment subgroups support the significant association revealed in the interaction between unemployed people and poor patient satisfaction. The effect of poor patient satisfaction is significantly larger for employed people than it is for unemployed people to perceive poor health care quality.

Chapter 6: Discussion/ Conclusion

Minorities, specifically non-Hispanic blacks and non-Hispanic others are significantly more likely to perceive poor quality health care, controlling for all socio-demographic factors. Moreover, poor patient satisfaction attenuates the relationship between race and perceived poor health care quality for non-Hispanic black adults. The results also reveal that socioeconomic status (income and education status) are predictors of poor quality health care treatment, net of race, martial status, gender, age and health insurance. Poor patient satisfaction moderates the relationship between socioeconomic status and perceived quality of care, such that people with a high school degree or less and people who are unemployed are less likely to report poor perceived quality health care treatment at low levels of patient satisfaction compared to their counterparts (more than a high school diploma and employed respondents).

As the theory of cultural health capital discusses, people with greater socioeconomic status are more likely to keep themselves powerful and exploit those less powerful. As the results suggest, people with higher cultural capital, for example those with some college education or greater, those who are employed and people not in poverty are two times more likely than those of a lower socioeconomic status to perceive their health care as poor when they also receive poor patient satisfaction. Color-blind racism and race consciousness may be operating in the doctor-patient interaction. Since the dominant ideology that whites perceive themselves as the superior race continues to persist, when they receive poor patient satisfaction with their health care provider, they are much more likely to perceive their health care quality as poor compared to blacks.

Insurance status, specifically uninsured persons are more likely to perceive poor quality health care treatment compared to people with private health insurance.

There are several limitations present in this study. First, the patient satisfaction measure addresses satisfaction with the physician and not other domains of health care satisfaction, although satisfaction with physician does correlate with other satisfaction dimension and with global satisfaction (Fenton, Jerant, and Betakis 2012; Hargraves Hays, and Cleary 2003). Second, I do not provide variables of English-speaking versus Spanish-speaking Hispanics, which could account for the lack of significant findings for Hispanics and the reason why Hispanics who are less educated still report significantly lower odds of perceived poor health care treatment [Table 3 Model 5 (OR=0.65, $p \leq 0.001$). I also neglect to include provider's race in this analysis, which literature on racial concordance and the physician perspective discusses. Third, measurement bias is also an issue. It is not possible to know how many or the type of providers that respondents are rating. Therefore, responses could be generalizations of a multitude of healthcare visits, or they could be representative of the most recent heath care visit (Villani and Mortensen 2012). Finally, since SAQ is only administered to individuals who visited a health care institution in the past year, there are several minority opinions not captured since the data consists of 70% non-Hispanic whites. This may bias findings based on the oversaturated subgroup of non-Hispanic whites in the analytic sample, but not to the extreme that findings are invalid and unreliable.

The strengths of this study are plentiful. First, there has been little to no research to date using nationally representative data to address potential disparities in quality health care testing the moderating effects of patient satisfaction by race/ethnicity and socioeconomic status on perceived poor health care quality. Second, theoretical approaches such as cultural health capital and critical race theory add a unique dimension to this project that health services research has not yet provided. Third, the subgroup analysis (Table 3) provides a detailed description of race (black and white) and SES differences by comparing the variables side by side. Fourth, the addition of interaction terms adds an additional layer to the research that reveals that race and SES have direct and indirect effects on perceived quality health care treatment based on interaction effects of patient satisfaction. Finally, the creation of a patient satisfaction scale based on the four SAQ patient-provider questions administered by the MEPS is unique and was very beneficial in the analyses of this project.

W.E.B. Du Bois indicated a characterization of the Negro problem was the higher level of poor health of blacks was one important indicator of racial inequality in the United States (Du Bois [1899] 1997). The double jeopardy hypothesis posed by Ferraro and Farmer (1996) does not hold in this analysis. The hypothesis sought to understand if being both old and a black American creates a double disadvantage to health. The findings reveal that for all multivariate models, older people (age 65 and older) were significantly less likely to report higher odds of perceived poor health care quality, net of race or SES. Moreover, these scholars found that educational differences by race impact minorities to the point that they face a potential "double jeopardy" for being a member of a minority group who experience health risks associated with both their stigmatized racial status and low SES (Ferraro and Farmer 1996). The findings do support this based on the odds ration of non-Hispanic blacks who have less than a high school diploma ($OR=1.68$, $p\leq0.01$).

Williams and Collins (1995) noted that socioeconomic status remains one of the strongest known determinants of variations in health status. Findings reveal that poor health status is significantly associated with perceived poor health care quality, net of race and socioeconomic status (OR=2.05, $p \leq 0.001$). More specifically, health status varies by race, seen in table 3 models 1 and 2. Scholars have identified SES as a fundamental cause of the observed social inequalities in health, and in particular racial differences in health (House et al. 1990; Link and Phelan 1995; Williams DR 1997). Cultural health capital is a culmination of cognitive, linguistic, and materialistic resource used by patients and providers that could result in a more successful engagement with health professionals (Smedley et al 2003). Wall (1995) hypothesizes that the superior ability to keep oneself well informed about where in social interactions profit can be gathered is favored by the well educated and middle class who are better able to capitalize on public health prevention measures.

Current findings are suggestive that these scholars' reports and observations are still relevant more than fifteen years later. Findings reveal that people with a high school degree or less are more likely to perceive their health care quality as poor compared to people with a college degree or more (table 2, model 1). Also, blacks with a high school diploma or less have higher odds than whites with a high school diploma or less to report perceived poor quality health care treatment (table 3, models 1 and 2). Moreover, people who are poor or have negative income are significantly more likely to report perceived poor health care quality compared to non-poor respondents (table 2, model 1). Compared to respondents with private health insurance, people who are on public insurance or uninsured are significantly more likely to report perceived poor health care quality (table

2). Studies have found that compared to white patients, minority patients report lower quality in interactions with their physicians (Saha, Arbelaez, and Cooper 2003; Doescher MP et al 2000; Cooper-Patrick et al. 1999). Discrimination, like other measures of social stress, adversely affects patterns of health care utilization and adherence behaviors (Williams and Mohammed 2009). This could be the reason that non-Hispanic whites comprise of 70% of respondents who seen a health care provider in the past year and are more likely to report that they did not receive poor quality health care (table 1). The Institute of Medicine (2002) notes that distrust among minority patients in doctor's advice can also account for some part of healthcare disparities. This could a potential explanation for why minorities are not visiting health care providers at the rate non-Hispanic whites are.

The literature makes note that doctors and other healthcare providers usually are under great pressure to make treatment-related decisions without accurate or complete information. Due to lack of proper information, treatment complexity, resource constraints and time-sensitivity, physicians' attitudes may shape their interpretation of this information and their expectations for treatment (Institute of Medicine 2002). Time sensitivity, resource constraints and treatment complexity may be sometimes, but not always race related. The data shows that when people of a higher SES status and non-Hispanic whites are faced with this type of interaction with the doctor (e.g. poor patient satisfaction), they report two times higher odds of perceived poor health care quality than blacks and people of a lower SES (table 3, models 1-8). I would argue that these people possess greater cultural health capital and feel more disrespected and frustrated when they believe the doctor did not listen to them, show respect for what they had to say, spend enough time with them or explain things in a way they understood; which results in much higher rates of poor health care quality. Research conducted by Comstock et al. (1982) found that patients' ratings of satisfaction were strongly correlated with ratings for physician courtesy, information giving and listening behavior. Total time and amount of physical contact between patient and physician were not found to be significant correlates of patient satisfaction.

The results reveal that reporting poor patient satisfaction moderates the relationship for non-Hispanic blacks, people with less than a college education, and people who are unemployed. This means that compared to non-Hispanic whites and people who report high patient satisfaction, non-Hispanic blacks, people with a high school diploma or less, and people who are unemployed who report poor patient satisfaction are significantly less likely to report perceived poor health care quality (table 2, models 2, 4 and 5). I believe the theoretical approaches of critical race theory and cultural health capital apply to these findings. For racial minorities, I believe they are less likely to report poor health care quality even when they receive poor patient satisfaction because of the long-standing battle of mistrust with the health care system, which Du Bois constitutes as the Negro problem. Through socialization, African Americans have come to normalize mistreatment by higher-class people, white people, and health care institutions to the extent that even when they experience a poor medical encounter it is nothing so extreme where they feel that the quality of health care they received was poor; this is contrast to non-Hispanic whites.

Color-blind racism and race consciousness may be employed by physicians, which could cause persistent disparities in quality of care and patient satisfaction to persist among non-Hispanic blacks as shown in the data. As for people who are less educated and unemployed, a potential reason that they are less likely to report poor health care quality even when they report poor patient satisfaction could be because this medical encounter is the one or few times they are receiving health care in that year, so the quality of care does not matter to them as much as getting treatment. Since these results are based on if respondents visited a health care provider in the past year, for many of these respondents, this may be the first and only time within a year they visited a health care provider, which could be the reason that poor patient satisfaction as a moderating variable decreases the likelihood that these subgroup of respondents would be less likely to perceive their health care as poor. As sociologists continue to study disparities, specifically in health care, quality of care is important to continue to pay close attention to because these deficits in care have important implications for health of the American public (McGlynn et al. 2003).

Future research should capture racial concordance and English-speaking versus Spanish-speaking Hispanics in order to encapsulate a full picture of potential racial/ethnic disparities in patient satisfaction that impact perceived quality care. Moreover, including other indicators where patient satisfaction will vary with overall quality health care such as the emergency room, encounter with nurses, and discharge information. Scholars should try to gain insight to physicians’ attitudes and opinions on what they believe make for a more successful and efficient interaction with the patient. Policy implications include added incentives for physicians to ensure they are meeting patient requirements of satisfying patients’ needs while still making sure they are able to do their jobs effectively. Also, providing patients with the proper tools (pamphlets, health literacy, monitors in waiting rooms with advising cues before they see a physician) to ensure all patients, regardless of race, ethnicity or socioeconomic status receive quality health care and are prepared to ask questions and understand information more effectively. While society is trying to shift away from “not seeing color,” physicians must be aware that cultural and educational differences exist because of skin color and it is a disservice to the patient to avoid this. In addition to that, physicians must also be fair in treating all patients equally in the aspect of making sure they receive the proper time, explanation, and understanding he/she deserves; regardless of patient race/ethnicity or cultural health capital. Patients must also be aware of the daily constraints physicians face and become more proactive in the health care interaction with the physician or health care provider. Moreover, providing all people with affordable health insurance is an essential part of eliminating racial and ethnic disparities in health care (American College of Physicians 2010).

Appendices and Tables

Table A. Bivariate Association of Study Sample with all Study Variables

	% in Sample			
	% Yes	% No	f	p
Age Categories				
18-29 years old (ref.)	16.2	28.3	294.90	***
30-49 years old	29.5	38.0	105.26	***
50-64 years old	29.0	22.1	98.74	***
65 years +	25.3	11.6	343.50	***
Sex				
Male (ref.)	42.1	56.8	472.14	***
Female	57.9	43.2		
Race/Ethnicity				
Non-Hispanic White (ref.)	70.1	54.3	306.10	***
Non-Hispanic Black	10.5	13.8	44.60	***
Hispanic	11.5	21.7	255.64	***
Non-Hispanic Other	7.9	10.3	22.23	***
Education				
Master's, Professional, Doctoral Degree	14.2	7.5	117.54	***
Bachelor's Degree	20.8	15.8	43.42	***
Some College or Associate Degree	27.5	26.6	1.53	
HS Diploma	26.4	33.4	57.36	***
Less than HS Diploma	11.1	16.7	103.26	***
Income				
High Income (ref.)	47.9	37.0	105.00	***
Middle Income	26.7	30.5	18.82	***
Low Income	11.7	14.8	24.67	***
Near Poor	3.7	4.2	2.80	
Poor/Negative	10.0	13.5	42.19	***
Employment Status				
Employed (ref.)	60.0	69.0	90.41	***
Unemployed	40.0	31.0		
Health Insurance				
Any Private Insurance (ref.)	73.8	64.6	116.62	***
Public Insurance	22.1	18.6	23.82	***
Uninsured	4.1	16.8	551.81	***
Marital Status				
Married (ref.)	56.6	48.4	90.81	***
Widowed/Divorced/Separated	20.3	15.7	80.98	***
Never Married	23.1	35.9	234.32	***
General Health Status				
Good/Very Good/Excellent (ref.)	84.1	92.2	195.88	***
Fair/Poor	15.9	7.8		

All estimates are adjusted for the complex survey design. *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$

Table B. Pairwise Associations between Key Study Variables

		1		2		3		4		5		6
		OR (se)	p	OR (se)	p	OR (se)	p	OR (se)	p	OR (se)	p	OR (se)
1	Non-Hispanic Black	1.00										
		-										
2	High School Degree or less	1.58	***	1.00								
		(0.10)		-								
3	Unemployed	1.28	**	2.34	***	1.00						
		(0.07)		(0.12)		-						
4	Poor	2.27	***	3.40	***	4.86	***	1.00				
		(0.18)		(0.23)		(0.32)		-				
5	Patient Satisfaction	1.09	**	0.95		0.96		0.88	**	1.00		
		(0.04)		(0.03)		(0.03)		(0.03)		-		
6	Poor Health Care Quality	1.32	***	1.55	***	1.18	*	2.05	***	0.23	***	1.00
		(0.11)		(0.12)		(0.09)		(0.20)		(0.01)		-

All estimates are adjusted for the complex survey design. $*p \le 0.05$; $**p \le 0.01$; $***p \le 0.001$

Table 1. Bivariate Association of Perceived Poor Health Care Quality with all Study Variables (n = 13,112)

	n	% of Total Sample	Reported Poor Health Care Quality % Yes	% No	F	p	OR	se	p
Age									
18-29 years old (ref.)	2,124	16.2	18.8	15.9	4.2	*	1.00	-	
30-49 years old	3,868	29.5	32.5	29.1	4.3	*	0.95	0.11	
50-64 years old	3,802	29.0	31.7	28.7	3.9	*	0.94	0.10	
65 years +	3,317	25.3	17.0	26.3	38.4	***	0.54	0.07	***
Sex (Male ref.)									
Female	7,592	57.9	54.9	58.3	4.3	*	0.87	0.06	*
Race/Ethnicity									
Non-Hispanic White (ref.)	9,192	70.1	63.8	70.9	20.5	***	1.00	-	
Non-Hispanic Black	1,377	10.5	13.1	10.1	11.6	***	1.43	0.13	***
Hispanic	1,508	11.5	12.6	11.4	1.7		1.23	0.11	*
Non-Hispanic Other	1,036	7.9	10.5	7.5	10.4	**	1.56	0.18	***
Education									
Master's, Professional, Doctoral Degree (ref.)	1,862	14.2	8.1	15.0	30.3	***	1.00	-	
Bachelor's Degree	2,727	20.8	16.2	21.4	12.4	***	1.40	0.20	***
Some College or Associate Degree	3,619	27.6	28.8	27.4	1.0		1.94	0.26	***
HS Diploma	3,462	26.4	31.6	25.7	17.2	***	2.27	0.31	***
Less than HS Diploma	1,455	11.1	15.4	10.6	23.9	***	2.68	0.41	***
Income									
High Income (ref.)	6293.76	48.0	33.1	49.9	64.2	***	1.00	-	
Middle Income	3500.904	26.7	27.3	26.6	0.3		1.56	0.16	***
Low Income	1520.992	11.6	16.6	11.0	21.3	***	2.27	0.27	***
Near Poor	485	3.7	6.6	3.3	22.2	***	3.01	0.52	***
Poor/Negative	1311.2	10.0	16.1	9.3	46.2	***	2.62	0.30	***
Employment Status									
Employed (ref.)	7867.2	60.0	56.3	60.4	5.0	*	0.84	0.06	*

Unemployed	5244.8	40.0	43.7	39.6	5.0	*	1.18	0.09	*
Health Insurance									
Any Private Insurance (ref.)	9702.88	74.0	63.2	75.3	72.8	***	1.00	-	***
Public Insurance	2871.528	21.9	29.1	21.0	32.3	***	1.65	0.13	***
Uninsured	537.592	4.1	7.7	3.7	31.7	***	2.49	0.35	***
Marital Status									
Married (ref.)	7434.504	56.7	50.2	57.5	17.1	***	1.00	-	**
Widowed/Divorced/Separated	2661.736	20.3	22.0	20.1	2.3		1.25	0.10	***
Never Married	3015.76	23.0	27.9	22.4	14.5	***	1.42	0.12	***
General Health Status									
Good/Very Good/Excellent (ref.)	11033.748	84.2	68.4	86.1	198.7	***	0.35	0.03	***
Fair/Poor	2078.252	15.9	31.6	13.9	198.7	***	2.86	0.22	***
Patient Satisfaction									
High Satisfaction (ref.)	6175.752	47.1	11.1	51.5	355.3	***	1.00	-	
Moderate Satisfaction	3868.04	29.5	18.4	28.5	36.0	***	3.04	0.41	***
Poor Satisfaction	3068.208	23.4	70.6	20.1	773.0	***	16.50	1.93	***

All estimates are adjusted for the complex survey design. *p≤0.05; **p≤0.01; ***p≤0.001

Table 2. Results from Regressing Poor Health Care Quality on Race, Socioeconomic Status, and Patient Satisfaction (n=12,581)

	Model 1 - Baseline Model			Model 2 - Race#Patient Satisfaction			Model 3 - Poverty#Patient Satisfaction			Model 4 - Education#Patient Satisfaction			Model 5 - Employment#Patient Satisfaction		
	OR	se	p	OR	se	p	OR	se	p	OR	se	p	OR	se	p
Age (18-29 yr old ref.)															
65 years +	0.52	0.07	***	0.46	0.08	***	0.42	0.14	***	0.46	0.08	***	0.45	0.08	***
Gender (Male ref.)															
Female	0.87	0.07		0.86	0.06	*	0.85	0.06	*	0.85	0.06	*	0.85	0.06	*
Race/Ethnicity (NH-White ref.)															
Non-Hispanic Black	1.24	0.12	*	1.98	0.44	**	1.23	0.12	*	1.24	0.13	*	1.24	0.13	*
Hispanics	0.82	0.09		1.24	0.34		0.81	0.09		0.82	0.09		0.81	0.09	
Non-Hispanic Other	1.35	0.18	*	1.25	0.42		1.35	0.18	*	1.34	0.18	*	1.35	0.18	*
Education (Some College & Associates + ref.)															
High School or less	1.24	0.10	*	1.24	0.10	**	1.24	0.10	*	2.23	0.48	***	1.23	0.10	**
Income (Non-Poor ref.)															
Poor	1.29	0.16	*	1.28	0.16	*	1.62	0.37	*	1.28	0.16	*	1.29	0.16	*
Employment Status (Employed ref.)															
Unemployed	0.99	0.11		1.00	0.11		1.00	0.11		0.99	0.11		1.54	0.31	*
Health Insurance (Private Insurance ref.)															
Public Insurance	1.33	0.14	*	1.34	0.14	**	1.33	0.14	**	1.33	0.14	**	1.33	0.14	**
Uninsured	1.66	0.27	*	1.67	0.27	**	1.66	0.27	**	1.66	0.27	**	1.67	0.27	**
Marital Status (Married ref.)															
Widowed/Divorced/Separated	1.06	0.11		1.07	0.12		1.07	0.12		1.08	0.12		1.07	0.12	
Never Married	1.11	0.11		1.04	0.12		1.04	0.12		1.04	0.12		1.04	0.12	
Poor Health Status (Good Health ref.)	2.05	0.18	***	2.09	0.19	***	2.08	0.19	***	2.08	0.19	***	2.09	0.19	***
Patient Satisfaction (High ref.)															
Poor Satisfaction	15.27	1.76	***	17.96	3.00	***	16.48	2.30	***	22.73	3.97	***	20.08	3.41	***
Moderate Satisfaction	3.00	0.41	***	3.38	0.64	***	3.07	0.49	***	3.83	0.79	***	3.38	0.71	***

Table 2. Results from Regressing Poor Health Care Quality on Race, Socioeconomic Status, and Patient Satisfaction (n=12,581), *Continued*

Race#Satisfaction												
NH Black#Poor Satisfaction	0.53	0.14	*									
NH Black#Moderate Satisfaction	0.64	0.18										
Hispanic#Poor Satisfaction	0.59	0.18										
Hispanic#Moderate Satisfaction	0.68	0.23										
Other#Poor Satisfaction	1.09	0.44										
Other#Moderate Satisfaction	1.09	0.40										
Poor#Satisfaction												
Poor#Poor Satisfaction				0.71	0.18							
Poor#Moderate Satisfaction				0.93	0.28							
Education#Satisfaction												
#LessCollege#Poor Satisfaction							0.46	0.11	**			
#LessCollege#Moderate Satisfaction							0.65	0.16				
Employment Status#Satisfaction												
Unemployed#Poor Satisfaction										0.54	0.12	**
Unemployed#Moderate Satisfaction										0.78	0.21	

All estimates are adjusted for the complex survey design. *p≤0.05; **p≤0.01; ***p≤0.001

Table 3. Results from Multivariate Logistic Regression Subgroup Analysis

	Model 1 - Black (n=2,359)			Model 2 - White (n=6,333)			Model 3 - Poor (n=2,788)			Model 4 - Non-Poor (n=10,045)		
	OR	se	p	OR	se	p	OR	se	p	OR	se	p
Age (18-29 yr old ref.)												
65 years +	0.69	0.15		0.51	0.08	***	0.53	0.11	**	0.52	0.08	***
Gender												
Female	0.84	0.12		0.84	0.09		0.73	0.12		0.90	0.07	
Race/Ethnicity (NH-White ref.)												
Non-Hispanic Black	1.00			1.00			1.05	0.18		1.31	0.16	*
Hispanics	1.00			1.00			0.76	0.15		0.83	0.11	
Non-Hispanic Other	1.00			1.00			1.35	0.31		1.34	0.23	
Education (Some College & Associates + ref.)												
High School or less	1.68	0.29	**	1.28	0.13	*	1.37	0.21	*	1.19	0.12	
Income (Non-Poor ref.)												
Poor	1.10	0.23		1.32	0.24		1.00			1.00		
Employment Status (Employed ref.)												
Unemployed	0.83	0.17		0.95	0.15		0.99	0.16		0.98	0.12	
Health Insurance (Private Insurance ref.)												
Public Insurance	1.28	0.25		1.32	0.20		1.35	0.26		1.31	0.18	*
Uninsured	1.88	0.58	*	2.56	0.68	***	1.33	0.36		1.82	0.35	**
Marital Status (Married ref.)												
Widowed/Divorced/Separated	1.01	0.20		1.09	0.16		1.11	0.22		1.02	0.13	
Never Married	1.01	0.17		1.17	0.17		0.89	0.19		1.18	0.13	
Poor Health Status (Good Health ref.)	1.85	0.33	***	2.42	0.30	***	1.42	0.21	*	2.32	0.25	***
Patient Satisfaction (High ref.)												
Poor Satisfaction	9.53	1.92	***	18.06	3.01	***	11.82	2.49	***	16.38	0.25	***
Moderate Satisfaction	2.09	0.48	***	3.41	0.65	***	2.87	0.74	***	3.06	0.49	***

All estimates are adjusted for the complex survey design. *p≤0.05; **p≤0.01; ***p≤0.001

Table 3. Results from Multivariate Logistic Regression Subgroup Analysis, *Continued*

	Model 5 - HS Diploma or Less (n=5,788)			Model 6 - Some College+ (n=7,045)			Model 7 - Unemployed (n=5,572)			Model 8 - Employed (n=7,261)		
	OR	se	p	OR	se	p	OR	se	p	OR	se	p
Age (18-29 yr old ref.)												
65 years and Older	0.50	0.09	***	0.55	0.09	***	0.48	0.07	***	0.60	0.15	*
Gender (Male ref.)												
Female	0.86	0.09		0.88	0.10		0.81	0.09	**	0.97	0.10	
Race/Ethnciity (NH-White ref.)												
Non-Hispanic Black	1.29	0.15	*	1.13	0.20		1.13	0.16		1.33	0.20	
Hispanics	0.65	0.08	***	1.15	0.20		0.85	0.12		0.79	0.12	
Non-Hispanic Other	1.21	0.22		1.44	0.26	*	1.34	0.24		1.36	0.24	
Education (Some College & Associates + ref.)												
High School or less	1.00			1.00			1.27	0.16		1.23	0.13	*
Income (Non-Poor ref.)												
Poor	1.27	0.21		1.29	0.23		1.29	0.18		1.30	0.25	
Employment Status (Employed ref.)												
Unemployed	0.99	0.14		0.96	0.14		1.00			1.00		
Health Insurance (Private Insurance ref.)												
Public Insurance	1.57	0.23	**	1.04	0.16		1.35	0.18	*	1.32	0.25	
Uninsured	1.78	0.30	***	1.66	0.44		2.04	0.52	**	1.47	0.36	
Marital Status (Married ref.)												
Widowed/Divorced/Separated	1.18	0.14		0.96	0.17		1.01	0.15		1.12	0.19	
Never Married	1.12	0.16		1.11	0.14		0.97	0.15		1.20	0.15	
Poor Health Status (Good Health ref.)	1.61	0.18	***	2.79	0.40	***	2.01	0.25	***	2.09	0.29	***
Patient Satisfaction (High ref.)												
Poor Satisfaction	10.79	1.79	***	22.21	3.85	***	10.90	1.63	***	20.11	3.37	***
Moderate Satisfaction	2.52	0.41	***	3.75	0.77	***	2.64	0.45	***	3.39	0.71	***

All estimates are adjusted for the complex survey design. $^*p \leq 0.05$; $^{**}p \leq 0.01$; $^{***}p \leq 0.001$

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