Wake Forest University

Not What the Doctor Ordered:

Racial Differences in Hospital Discharges Against Medical Advice

by

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Sociology Honors Thesis

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*Not What the Doctor Ordered: Racial Differences in Hospital Discharges Against Medical Advice***ABSTRACT**

Although a large literature exists on racial disparities in healthcare, the topic of racial differences in hospital discharges against medical advice (AMA) is relatively unexplored. Data obtained from the 2008 National Hospital Discharge Survey indicate that black patients leave the hospital against their physician's advice nearly twice as often as white patients. This is alarming, as discharges AMA are associated with increased rates of both readmission and post-discharge mortality. In this thesis, I identify if there are racial differences in discharges AMA and examine factors that may explain these racial disparities. I find that black patients are significantly more likely than white patients to be discharged from hospitals AMA but that this relationship is largely the product of other underlying factors such as racial differences in sociodemographic characteristics, health insurance coverage, and the type of hospital visited. Additional factors explored include institutionalized racism, perceptions of physicians' negative bias, social and cultural health capital, patient-provider communication, trust in caregivers and healthcare institutions, and utilization of preventative care. Future studies should focus on implementing policy changes in order to alleviate the disproportionate rate of discharges AMA in non-white patients and the associated health risks.

KEYWORDS

race, health insurance, hospital, discharge, against medical advice, institutionalized racism, bias

*Not What the Doctor Ordered: Racial Differences in Hospital Discharges Against Medical Advice***INTRODUCTION**

It is generally accepted that despite equality movements and the huge gains of those who took part in them over the past decades, racism and racial disparities are still ingrained in nearly all modern institutions. This is especially the case in the healthcare industry, where the majority of doctors and nurses tend to be white. This and many other factors contribute to institutionalized racism—which Peek et al. (2010) refer to as differential access to goods, services, and opportunities as a result of race—being evident in a variety of ways inside the walls of American hospitals. From satisfaction with care to quality of health insurance coverage, people of racial minorities are not always guaranteed equal access to or outcomes from medical care.

In this paper, I examine whether or not there is a racial difference in rates of discharges AMA and what social factors help to explain this racial disparity if one is indeed found. One study conducted by Ibrahim, Kwoh, and Krishnan (2007) found that being black was a slight predictor of discharges AMA in acute-care hospitals in the United States, but otherwise the topic is relatively unexplored. However, a breadth of medical and sociological literature exists on the many factors that influence patients' healthcare experiences and lead to discharges AMA. Among these are the causes and effects of institutionalized racism, communication and trust issues between physicians and patients of difference races, health insurance status and how this relates to the type of hospital that a patient can go to for care, and utilization of preventative care. Further factors to be explored include the patient's social and cultural health

capital, socioeconomic status (SES), and even differential access to care facilities as a result of historical neighborhood segregation by race.

Although countless studies have been done to examine the interplay of race and healthcare, very few have looked at discharges against medical advice in American hospitals through the lens of race as this thesis aims to. In doing so, this gap in the literature will begin to be filled by a general understanding of the many factors at play in addition to just racial differences. With the help of future studies, it is hoped that a newfound understanding of the issues at hand will allow for policy changes to one day be enacted that would be effective in alleviating racial disparities in discharges against medical advice and healthcare in general. Ultimately, this would lead to more effective healthcare and better health outcomes for all patients, regardless of race, while working towards true equality within the confines of the American medical system and its institutions.

BACKGROUND

There are numerous health risks associated with discharging AMA and these, coupled with the added strain placed on hospitals by patients who chronically discharge and readmit, push it to the forefront of topics that must be urgently addressed in both medicine and sociology. Sadly, while leaders in both fields have been aware of the vast chasm between the health of whites and blacks since W. E. B. Du Bois's writings at the turn of the twentieth century, efforts to reach equality have consistently fallen short and the gap persists even today (Williams and Sternthal 2010). Leaders in the past might, in the context of their era, be forgiven for associating racial health disparities with assumed biological differences and deficiencies and

thus seeing them as unavoidable (Williams and Sternthal 2010). However, modern thinkers have thoroughly debunked this theory through the NIH's Human Genome Project and shown that race (Bell 2009) and the associated health disparities are largely the product of social factors (Shim 2010).

In addition to the many studies that examine lower utilization of and satisfaction with healthcare among blacks, specific examples of health disparities are not hard to find. In fact, whites lived an average of four to six years longer than blacks did in 2006 (Williams and Sternthal 2010) and blacks have higher rates of morbidity and mortality for nearly every disease when compared to whites (Biello et al. 2010; Brooks-Carthon et al. 2011; Pappas et al. 1997). For example, Williams and Jackson (2005) found that death rates for both cancer and heart disease in 2000 were 30% higher for blacks when compared to those of whites, and black patients experience higher rates of complications and deaths during medical procedures than white patients do (Brooks-Carthon et al. 2011). Likewise, black patients undergo preventable hospitalizations an average of five or more years earlier in life than their white counterparts for conditions such as hypertension, diabetes, heart failure, pulmonary disease, pneumonia, and so on (Biello et al. 2010). Disparities even permeate the way that patients are diagnosed, as evidenced by Bao, Fisher, and Studnicki's (2008) finding that black patients admitted to psychiatric inpatient care were twice as likely as whites to be labeled with a psychiatric disorder instead of a behavioral or substance-abuse diagnosis.

Inequalities of this magnitude do not just manifest out of thin air. Clearly, many social forces are constantly at work producing them, as evidenced by Williams and Jackson's (2005) finding that the relative difference between blacks and whites in cancer and heart disease

death rates actually increased between 1950 and 2000. Based on current research, it is clear that racial differences in SES, neighborhood segregation, hospital and preventative care utilization, insurance status, healthcare knowledge, trust in physicians, and various other socially-colored factors are widely responsible for the striking health disparities seen today.

Institutionalized Racism and Access to Healthcare Facilities in Minority Communities

Institutionalized racism comes in many shapes and sizes, some obvious and some only apparent to the closest of observers. Defined as differential access to goods, services, and opportunities as a result of race by Peek et al. (2010), this particular brand of racism is not as blatant and in-your-face as the more visible varieties like slurs or hate crimes. However, its damages are broad, systematic, and just as harmful to minorities as any other type of racism. Furthermore, the ingrained nature of this type of racism makes it particularly problematic, as many are not even aware of its presence and when they are, enacting change often involves uprooting entire infrastructures that may have been in place for tens or hundreds of years.

Black patients have had a long history of disadvantage. As Bell's (2009) research recounts, black patients were denied care in white, Southern hospitals during the 1940's and often had to resort to home remedies. In the 1960's, illegal abortionists were notorious for systematically sterilizing their female black patients without their knowledge or consent. While atrocities of this magnitude no longer occur, medicine is still far from colorblind.

Johnstone and Kanitsaki (2008) propose that racial discrimination in healthcare is allowed to persist mainly because of widespread beliefs, both among healthcare professionals and the population in general, that racism is no longer present in an industry as regulated as

modern medicine. This illusion ultimately diverts attention away from institutional factors that systematically disadvantage black and minority patients, allowing them to perpetuate as “normal” parts of an “unbiased” system. As a result, unconscious practices of personal bias, such as white nurses giving friendlier care to white patients than they do minority patients, are either not noticed or just seen as normal variances in care and not associated with racism (Johnstone and Kanitsaki 2008). Additionally, studies have shown that black patients are less likely to be prescribed cholesterol testing, glycosylated hemoglobin testing, or given influenza vaccinations (Peek et al. 2010). Bao et al. (2008) also found significant differences in how physicians diagnosed black and white patients, with black patients being given more stigmatized psychiatric diagnoses twice as often. On a macro scale, these subtle, isolated incidents of bias combine to form an institutional, systematic barrier to equality in healthcare.

Outside of the hospital, institutionalized racism can be found in nearly every facet of society. One example that is particularly relevant to healthcare inequalities is neighborhood segregation. Massey (2004) notes that people tend to move residences as they climb the socioeconomic ladder in order to gain access to advantages such as better schools, safer areas, more useful social networks, and lower insurance rates. Blacks, however, have never had equal access to upward mobility due to a long history of intense discrimination and prejudice that began during slavery and has never truly disappeared. In 2000, the degree of black-white segregation in Detroit was 86/100, a figure that is startlingly close to the 90/100 observed in South African metro areas under apartheid (Massey 2004).

Although this is just one extreme example, residential segregation is widespread all across the country, with affluent blacks making over \$50,000 annually still experiencing higher

segregation than poor Latinos with incomes under \$15,000 (Williams and Jackson 2005). This claim is supported by Massey's (2004) study data, from which he concludes that socioeconomic differences, while a factor, are not the only force behind racial neighborhood segregation.

Massey cites institutionalized discrimination in the housing industry as a large contributor, with middle class white males gaining access to housing 76% of the time compared to just 38% for lower class black females. In addition, personal preferences on the part of the resident play a role, with 20.3% of whites preferring to live in areas with no black residents and 24.7% preferring no blacks but allowing other minorities (Massey 2004). Massey's study (2004) claims that blacks do not share this sentiment, but the findings of Williams and Jackson (2005) and Clarke, Davis, and Nailon (2007) were both contradictory to this. Both studies stated that blacks also prefer to live among their own race, possibly as a result of historical segregation and as an attempt to avoid discrimination. If this is indeed the case, it clearly points to how residential segregation among blacks both came to be and continues to be perpetuated. According to Williams and Jackson (2005), in all of the 171 largest cities in the country not one includes an area where whites live in socioeconomic conditions that are equally as bad as those of blacks.

Regardless of inconsistencies in how it was generated, support is clearly widespread for the presence of residential segregation and its elevated levels among blacks. Clarke et al. (2007) note that highly segregated and often low income areas tend to have health risks such as poor air quality and a lack of resources that would promote good health, such as retailers that stock fresh produce. Williams and Jackson (2005) add that segregation both creates and reinforces drastic poverty inequalities and almost singlehandedly accounts for black-white differences in earnings, employment, and high school graduation rates. It also disproportionately exposes

blacks to dangerous environments and high levels of violence, in part as a result of the nearly nonexistent social control among the neighborhood's youth. Clarke et al. (2007) point to studies that have shown heightened mortality, in both infants and adults, and higher rates of infectious diseases in racially segregated neighborhoods. This is in addition to significantly higher levels of chronic stress experienced by black residents in segregated areas (Massey 2004) which, over time, can put severe strain on the circulatory, endocrine, and immune systems via elevated cortisol levels. This can lead to everything from a heart attack to memory impairments and is often seen as a major force behind the findings that blacks are hospitalized for preventable conditions about five years earlier in life than whites (Biello et al. 2010) and life expectancies four to six years lower than those of whites (Williams and Sternthal 2010).

Despite the health risks associated with the communities that many blacks are concentrated in, they utilize healthcare services, especially routine checkups and procedures, less often than whites do (Biello et al. 2010; Schnittker, Pescosolido, and Croghan 2005). Specifically, the rate of ambulatory, or preventative, care utilization among blacks in all socioeconomic brackets is low compared to that of whites (Bell 2009; Biello et al. 2010; Musa et al. 2009; Pappas et al. 1997; Schnittker et al. 2005). This is troublesome, as it leads to earlier and more frequent preventable hospitalizations in black patients (Biello et al. 2010), which puts undue stress on both the patients and healthcare facilities involved (Pappas et al. 1997).

Even when black patients do make the effort to access care, their options are often very limited. Numerous studies have shown that black patients are more likely to get their primary care from a hospital emergency department (Bao et al. 2008; Bell 2009), a practice that makes routine procedures more difficult to obtain and also stresses the resources of the hospital.

Mattingly (2010) remarks that urban hospitals tend to be underfunded, understaffed, and overcrowded, especially in their already bustling emergency departments. Additionally, the small subset of physicians that do operate in low-income areas provide medical services for the majority of black patients in the area and are themselves less likely to be board certified, to offer high-quality care, and to refer patients to specialty treatments (Williams and Jackson 2005). Williams and Jackson (2005) also note that the pharmacies in segregated minority communities are not as likely to have the same level of medical supplies as pharmacies in middle class areas. Furthermore, these communities foster fewer medical facilities in general (Bell 2009) and those that are there generally offer inferior services and are more likely to close than those in higher SES areas (Bell 2009; Williams and Jackson 2005).

Racial segregation extends to hospitals as well, with 50% of black patients receiving their care in a subset of hospitals that only 14% of white patients utilized (Brooks-Carthon et al. 2010). Clarke (2007) adds that the average black patient is treated in a hospital where 41%-47% of the other patients with that medical condition are also black. According to Brooks-Carthon et al. (2010), hospitals with the highest concentrations of black patients were significantly more likely to be large, urban, teaching hospitals that are generally under nonprofit ownership, a claim backed up by Bao et al. (2008) who also add government owned facilities to that list. This is consistent with numerous findings that nonprofit hospitals are located in less insured areas while for-profit hospitals intentionally avoid these areas in favor of seeking out more affluent and more insured patients (Clark 2012; Norton and Staiger 1994).

As both hospital types are required to service needy patients regardless of their ability to pay, this serves as a mechanism for for-profit facilities to increase margins while still

adhering to the law. Furthermore, only 52% of for-profit hospitals have obstetrics departments compared to over 80% of nonprofit and teaching hospitals. This suggests that for-profit facilities further avoid patients without health insurance by intentionally choosing to not offer certain unprofitable services (Horwitz 2005; Norton and Staiger 1994). Horwitz (2005) also finds evidence that for-profits simultaneously choose to offer highly lucrative open-heart services at much higher rates than nonprofit and government owned facilities. Compounding this issue, Clarke (2007) found that black patients in Pennsylvania traveled much shorter distances than whites to receive medical care, which reflects heavy usage of inner-city hospitals that tend to be inferior nonprofit facilities.

These mechanisms produce some very interesting trends in healthcare outcomes and patient satisfaction, especially with the relative proportion of for-profit centers rapidly increasing in recent decades (Norton and Staiger 1994). In hospitals with large concentrations of black patients, Brooks-Carthon et al. (2011) found that nurses had less faith in their patients' abilities to manage their care after discharge, patients reported more frequent complaints and lower satisfaction with care, and patients were also less likely to recommend the facility to friends and family. On the other hand, the for-profit centers that are often out of reach to black patients typically offer higher quality care and have lower mortality rates when compared to other ownership types (McClellan and Staiger 2000). Indeed, in hospitals with a large concentration of black patients, mortality risks can be up to 88% higher for patients of all races (Clarke 2007), suggesting problems at the institutional level based on the location of the hospital and not necessarily the characteristics of the patient in question.

These disparities in the quality of care provided are exacerbated and perpetuated by the segregation of patients. Urban nonprofit and government owned hospitals are more likely to offer unprofitable services and admit patients that do not have the means to pay in full or even at all, while for-profit facilities rake in high profits from affluent, insured patients utilizing lucrative treatments (Bao et al. 2008; Brooks-Carthon et al. 2010; Clark 2012, Clarke 2007; Horwitz 2005; Norton and Staiger 1994). The hospitals treating a disproportionate amount of black patients cannot afford to provide them with adequate care while the hospitals treating mostly white patients have an excess of cash that is used to bring about better health outcomes. Thus, at the core of racial health disparities on the institutional level lies the issue of inequalities in health insurance coverage and the ability to pay for needed care.

Socioeconomic Status and Health Insurance Coverage

Inequalities in income and wealth between blacks and whites in the United States have been well documented for many years. Both median and mean incomes in black families are significantly lower than those of white families at a ratio that has remained relatively stable from 1968 up through 2008 (Bloome 2014). Bloome (2014) notes that blacks composed a highly disproportionate share of the poorest 20% of adults in the United States in 1968 and this percentage has only improved by 10%, from 40% of all blacks to 30% of all blacks falling into the lowest income quintile, over the past 40 years. Furthermore, Killewald (2013) reports that white households had a median wealth 20 times that of black households in 2009, with the gap increasing over the past 25 years. Despite the finding that, within each quintile of income, the average income of blacks is lower than that of whites (Bloome 2014), sources find that the

income gap alone is not entirely responsible for the observed racial disparities in wealth (Bloome 2014; Killewald 2013). Indeed, many studies find that it is the history of discrimination and opportunity denial among blacks and the disadvantaged family backgrounds that result that serve to propagate socioeconomic disparities across multiple generations (Bloome 2014; Killewald 2013; Kuebler 2013).

Bloome (2014) notes the profound impact of parents' resources on their children's ability to earn high incomes and accumulate wealth later in life, a phenomenon that is central to the reproduction of racial inequality that has been recorded. Further widening the gap across generations is the fact that whites are more likely to receive inheritances from their predecessors, and any inheritances received are larger on average than those received by blacks (Killewald 2013). Kuebler (2013) examines home ownership and finds that minorities have historically had less access to owning homes compared to whites. This perpetuates inequality across generations because residents that do not own homes find themselves in areas with worse schools and higher crime while also having one less large asset to pass on to their offspring (Kuebler 2013). Kuebler (2013) also finds that minorities are much less likely than whites to diversify their wealth into other avenues such as stocks, which may further contribute to the gap in wealth. Killewald (2013) also finds that blacks are more likely to be in debt than whites, and even those blacks that have a positive net worth still have fewer assets than their white peers. Bloome (2014) notes that middle class black children are actually about three times more prone to downward socioeconomic mobility compared to white children. In a country that prides itself upon opportunity for improvement and working one's way up the social ladder, this is a particularly troubling statistic.

In relation to healthcare, studies such as one carried out by Pappas et al. (1997) have concluded that the cohort of uninsured patients in the United States is largely composed of the poor, with 59% of the uninsured in 1990 living with incomes between one and four times the federal poverty line. Specifically, the largest concentration of the uninsured is in those living above but still very near the poverty line as these families often consist of adults that do have regular, paying jobs but are not offered health insurance by their employers and do not make enough to purchase individual plans (Pappas et al. 1997). Biello et al. (2010) notes that black patients in general are less likely to possess health insurance coverage, a finding that is likely the result of the persistent income disparities previously mentioned. The study also finds that black patients are more likely to self-pay for their medical care, most likely as a result of a disproportionate lack of health insurance.

Alfandre (2009) finds that low SES and having no insurance coverage, or only having Medicaid, are significant predictors of discharges AMA. Alfandre (2009) also notes that studies regularly find personal financial issues to be one of the most frequent reasons given by patients that discharge AMA. Furthermore, Eze, Agu, and Nwosu (2010) find similar patterns of a lack of insurance predicting discharges AMA in Nigerian hospitals, with the leading reason, at 37.2% of all discharges AMA, also being financial constraints. While this statistic may not mirror that of American hospitals, it is interesting to note that the leading cause of discharges AMA consistently transcends countries, continents, and even hemispheres. According to Williams and Jackson (2005), racial differences in SES directly contribute to the lower levels of insurance coverage among black patients, and this in turn directly limits access to healthcare. Thus, it is clear that insurance status differences between blacks and whites are likely to be significant

factors in any racial disparities observed in discharges AMA and it is also likely that personal financial troubles play a key role in leading blacks to pursue such drastic measures.

Trust and Communication

The history of black slavery and exploitation that still contributes to lasting disadvantage and neighborhood segregation also comes into play with black's trust of healthcare institutions and providers. Tales of "night doctors" that kidnapped blacks and used them as unwilling research subjects have existed in black culture since the 1800s, and unfortunately they were not always fictional (Skloot 2010). Slaves were used to test new drugs and procedures, often without any form of anesthesia, and an underground economy existed where black corpses were removed from their graves to be sold to medical schools and dissected in anatomy labs (Skloot 2010). These notions persisted into the mid-1950s, with black residents of Baltimore's poor neighborhoods believing that Johns Hopkins was built among them so that scientists could have easier access to black research subjects (Skloot 2010). Furthermore, Skloot (2010) notes that many firmly believed that Hopkins doctors regularly kidnapped blacks right off of the streets in order to experiment on them. While this might be purely urban legend, it is true that many doctors at the time, both at Hopkins and other hospitals, believed that the free treatment that low income blacks received in public wards justified their use as research subjects as a form of repayment (Skloot 2010). In most cases at the time this research was done without any form of informed consent, such as in the case of 7,000 mostly black Hopkins area children used in a blood sample study or the now-famous immortal cells originating from a black Hopkins patient named Henrietta Lacks (Skloot 2010).

Perhaps the most well-known example of immoral research that victimized blacks and ultimately contributed to their distrust in physicians and healthcare institutions in general is the Tuskegee Syphilis Experiment. This study, carried out by the U.S. Public Health Service in partnership with the Tuskegee Institute, followed a group of 399 black males with syphilis over a period of 40 years (Centers for Disease Control and Prevention 2013). Informed consent was not included at any point and subjects were even lied to and made to believe that they were being treated when in reality the researchers were merely observing their health as it deteriorated (Centers for Disease Control and Prevention 2013; Wasserman, Flannery, and Clair 2007). While some of these practices were arguably within the loose ethical guidelines of the time, the fact that it continued in this form for so long against a background of rapid change in medical ethics is both startling and appalling. Most agree that the study's largest atrocity is that it continued for nearly 30 years after penicillin, a drug that effectively treats syphilis, became widely available (Centers for Disease Control and Prevention 2013; Wasserman, Flannery, and Clair 2007). Thus, for nearly 30 years a study that was sanctioned by the federal government intentionally denied an affordable and effective treatment to hundreds of black males suffering from a deadly disease, all the while closely observing their severe, preventable degeneration (Skloot 2010). With studies like this at the forefront of their minds, it is no wonder that blacks tend to distrust medicine, physicians, and even government institutions far more than their white peers (Wasserman, Flannery, and Clair 2007). In addition, the fact that the information that blacks have about these unethical medical practices is often inaccurate, with 76% holding false beliefs about the Tuskegee Syphilis Experiment in one study, only furthers the problem (Wasserman, Flannery, and Clair 2007).

Subjects interviewed in Bell's (2009) study echoed these concerns, even going so far as to say that in many cases distrust of doctors and subsequent avoidance of medical care are part of black culture. Many studies have had similar findings, with blacks and other members of low SES groups exhibiting lower levels of trust in physicians compared to whites (Musa et al. 2009; Schnittker 2004; Southern et al 2012). Schnittker (2004) finds that trust among blacks increases with higher education and SES, suggesting that some of this distrust is likely the result of lacking or false information, such as in the case of the Tuskegee Syphilis Experiment statistic given above. Musa et al. (2009) found that trust in one's physician is associated with utilization of preventative care, a conclusion can reasonably be extended to suggest that distrust might also play a role in causing discharges AMA.

In addition to distrust of physicians in general, black patients are more likely to pick black physicians over white ones when given the choice (Laveist and Nuru-Jeter 2002; Malat and Hamilton 2006). Specifically, Malat and Hamilton (2006) note that 20% of blacks prefer same-race healthcare providers, a choice that is in part due to a generally held belief that discrimination frequently occurs when race concordance is not present in the doctor-patient dyad. However, while many studies note this theory according to Malat and Hamilton (2006), it has not yet been fully tested. Interestingly, Laveist and Nuru-Jeter (2002) found that black patients working with black physicians reported greater satisfaction compared to patients in discordant dyads. One reason for this, according to Laveist and Nuru-Jeter (2002), is that patients are more likely to attribute qualities such as being knowledgeable, interested in their patient's concerns, spending time with patients, and having good communication skills to

physicians of their own race. Conveniently, these are also the criteria that one bases the decision off of when choosing a caregiver, creating a self-fulfilling prophecy of sorts.

Furthermore, this preference may also be due to internalization of broader racism present in society or even simply an in-group feeling of greater connectedness with a physician of one's own race (Laveist and Nuru-Jeter 2002). Regardless of the exact mechanism, one study showed that patients in a race-concordant patient-provider relationship were more likely to adhere to their physician's instructions, a finding that is particularly relevant to the occurrence of discharges AMA (Gupta and Carr 2008). Interestingly, Schnittker and Liang (2006) add that several studies have found that patients of all races exhibit higher satisfaction when they have choice in their physician, suggesting that the benefits associated with choosing a physician of one's own race might just reflect the underlying benefits of being able to make a choice in the first place.

General perceptions of discrimination due to race or SES have been shown to be negatively associated with health, a finding that explains some of the racial disparities present in healthcare and health outcomes (Ren 1999). More specifically, patients that are from racial minorities or have low SES have an elevated risk of less effective communication with their physicians (Epstein, Taylor, and Seage III 1985). Part of this is related to discriminatory views held by the care provider and actions taken, consciously or unconsciously, as a result such as differing levels of thoroughness, attention, listening, and explaining (Schnittker 2004; van Ryn 2002). However, many authors (Bell 2009; Epstein et al. 1985; Peek et al. 2010) have attributed deficiencies in communication to a group of factors that make up what Shim (2010) has dubbed cultural health capital (CHC).

Shim (2010) defines CHC as “the repertoire 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.” It has many facets, including linguistic ability and knowledge of medical vocabulary, having an inclination towards taking an active role in one’s own health instead of remaining passive, being proactive in accumulating knowledge, and having the ability to understand and use complex knowledge from the medical and scientific realms (Shim 2010). Bell’s (2009) study comments on how the accumulation of these elements associated with CHC is much easier and much more prevalent among high SES groups, especially whites, a finding that is corroborated in Epstein et al.’s work (1985). Shim (2010) concludes that possessing a high level of any one or more flavors of CHC often results in more attentive, satisfying, and ultimately successful interactions with physicians and other healthcare personnel. Specifically, she notes that CHC helps a patient to accomplish the desirable aspects of a patient-provider interaction such as effective rapport, efficient exchange of information, empathy, and trust (Shim 2010). Black patients, who Shim (2010) notes as often having inferior amounts of CHC as a result of higher levels of poverty and systematic disadvantage, tend to take a more passive role in physician interactions compared to whites (Peek et al. 2010). In addition to the intertwined SES and CHC factors in this phenomena, simple cultural differences can also play a part and combine with the other two to inhibit shared decision making between the patient and the provider and ultimately lower the effectiveness of any care given (Peek et al. 2010).

Another mechanism leading to inferior healthcare outcomes is social distance. As the levels of CHC and SES of a patient decrease compared to the relatively high levels associated

with physicians, social distance between the two and the overall asymmetry of the relationship increases (Schnittker 2004). This results in increased skepticism of the medical encounter and healthcare institutions in general on the part of the patient while inhibiting the physician from collecting accurate information and providing the most effective care (Schnittker 2004). The resultant skepticism may function to discredit the instructions of the physician, causing the patient to rely more on prior, mostly negative, beliefs in their interpretation of the prescribed treatment (Schnittker 2004). Furthermore, this also limits the quality and amount of information that physicians are able to collect, causing them to base medical decisions more heavily on stereotypes and preconceived notions that are not always correct, such as the assumption that black patients are less likely to follow treatment regimens in the prescribed manner (Schnittker 2004).

Ultimately, these mechanisms combine to inhibit trust, communication, the effectiveness of care given, and overall health outcomes. Thus, it is very possible that racial disparities in trust and communication as a result of SES, CHC, and social distance factor into the decision that a disproportionate amount of black patients make to leave the hospital AMA. However, no study yet has addressed this specific relationship so a definitive ruling on this theory cannot be made.

Health Risks Associated with Discharges Against Medical Advice

Reducing the rates of discharges AMA is an issue of the utmost importance, as these discharges are associated with a number of negative consequences for the patient's health. Most notably, a number of studies have found that discharges AMA are associated with higher

mortality rates when compared to other types of discharge (MacReady 2013; Southern, Nahvi, and Arnsten 2012; Yong et al. 2013). Southern et al. (2012) and Yong et al. (2013) both found that 30 day mortality rates more than doubled, while MacReady (2013) found the same for 90 day mortality rates. All three reported significantly higher 30-day readmission rates for patients that discharged AMA. Additionally, Yong et al. (2013) found that the risk of readmission remained significantly elevated for a period of at least one year and increased mortality risk remained significantly higher for up to nine years. MacReady (2013) also notes that the adverse effects of discharging AMA begin to show as early as one week after the initial discharge. Findings from all three studies suggest that, while health risks decrease over time, discharging AMA can adversely affect the patient for nearly a decade after leaving the hospital. Furthermore, these risks are known to transcend national boundaries and permeate much different types of healthcare systems, as shown by the Canadian and Nigerian origins of the MacReady (2013) and Eze et al. (2010) papers, respectively.

Many studies also find that the patient's average length of stay is much shorter when discharging AMA compared to other types of discharges (Baile et al. 1979; Southern et al. 2012; Yong et al. 2013). Specifically, Yong et al. (2013) found that over half of patients that discharged AMA stayed less than three days, with 64% of these patients doing so within the first 24 hours. Baile's paper (1979), while potentially outdated, found that patients who did not discharge AMA stayed 4.5 times longer on average than those who did. Less drastically, Southern et al. (2012) found that the length of stay when a discharge AMA occurred was about 20% shorter than for other types of discharges.

Based on their data, Southern et al. (2012) concluded that the health risks observed with discharges AMA are primarily attributable to the circumstances surrounding premature discharge, such as incomplete treatments. This theory is further corroborated by the findings about increased readmission rates which may indicate that patients with worsening health conditions after a discharge AMA returned in order to complete previously interrupted treatments (MacReady 2013; Southern et al. 2012; Yong et al. 2013). When the risks associated with discharges AMA are combined with the racial disparities in access and outcomes known to exist within healthcare (Biello et al. 2010; Brooks-Carthon et al. 2011; Pappas et al. 1997; Williams and Sternthal 2010), a truly dangerous environment emerges for modern black patients.

Purpose and Aims

In this thesis I examine, for the first time to my knowledge, racial differences in hospital discharges against medical advice. The topic is largely unexplored, with only one source identified (Ibrahim et al. 2007) that finds being black to be a significant predictor of discharges AMA. However, this is just one of many factors discussed in the paper and it only just scratches the surface of the topic. Thus, a much more thorough examination is warranted. Based on the literature previously discussed, I expect to find discharges AMA are significantly more likely for black patients. Furthermore, I expect to find differences in the types of payment used and types of hospitals frequented by blacks and whites. Specifically, I expect that blacks will be more likely to be uninsured or on government insurance plans and more likely to visit the large nonprofit and government owned hospitals that are typically located in urban environments. In

accordance with Ibrahim et al.'s (2007) findings, I do expect race to remain a significant predictor of discharges AMA after the inclusion of these and the sociodemographic variables, however I expect that the significance level and/or odds ratio will decrease. Lastly, data for patients of other races were also included in the analysis, however these findings are not the focus point of this thesis.

DATA AND METHODS

Data

Data used in this analysis came from the 2008 National Hospital Discharge Survey (NHDS), the most recent year available, and was obtained via the Interuniversity Consortium for Political and Social Research (ICPSR). This national probability study was implemented by the National Center for Health Statistics (NCHS) in 1965 in order to meet a pressing need for medical and demographic information about patients in American hospitals. Studies performed using NHDS data were intended to help guide decision makers tackling important issues in health policy and public health. Specifically, NHDS data pertain to inpatients discharged from non-Federal, short-stay (average length of stay is less than 30 days) and general hospitals in the United States. Thus, excluded hospitals include those associated with the military or veterans, institutions such as prisons, and those with five or less beds available for patient use.

A two-stage method was used to select a sample of eligible hospitals in the 50 states and the District of Columbia. Of the 238 eligible hospitals in the sample, 207 responded to the survey for an unweighted response rate of 87%. In a third stage of the method, systematic random sampling was used to select individual patient discharge records from the previously

chosen set of hospitals. In 53% of these hospitals, data was transferred by hand from the hospital's records to a NHDS abstract form (see Appendix A). The other 47% of the hospitals had machine-readable medical record data that was purchased and then systematically sampled. Sixteen percent of the workers doing manual transfers were employed by their respective hospital, while U.S. Census personnel performed the task in all other cases. A private contractor handled coding and data entry from the abstract forms before they were finally handed over to the NCHS for final adjustments. In total, the 2008 NHDS consists of a sample of 165,630 unique discharge abstracts.

It is important to note that the unit of observation in the NHDS is discharges, not patients, and therefore two unique hospital discharge abstract forms could theoretically pertain to a single patient's multiple hospital visits. However, this is highly unlikely due to the complex sampling methods utilized by the NHDS and therefore the terms "patient" and "discharge" will be used interchangeably throughout the remainder of this thesis to refer to a single entry in the dataset.

Variables

The variables used in this thesis's analyses were limited by what was included in the original discharge abstracts collected as part of the NHDS. Appendix B includes an excerpt from the 2008 NHDS codebook that lists and explains each of the original variables and their categories. All variables from this table referenced in the text will have their item numbers listed in parentheses in "IN #" format for clarity. Many of these initial variables were recoded

for the purposes of the specific analyses of the thesis and these processing steps are described below in the Analysis Sample section.

The race variable (IN 6) was used to create the independent variables and originally contained eight categories: white, black/African American, American Indian/Alaskan native, Asian, native Hawaiian/other Pacific islander, other, multiple race indicated, and not stated. As with all data in the NHDS, race data was transferred from hospital records to the NHDS abstract and it cannot be definitively stated if the racial categorization was based on what the patient explicitly indicated or merely what a hospital admitting clerk observed. Blustein (1994) notes that no formal rules for assigning race to a patient existed at the time of her study, and even if regulations were in place it is unlikely that these would be congruent across all hospitals in the NHDS. Thus, it is important to note that some error may be present in race data.

The discharge status variable (IN 9) was used to create the dependent variable and it originally contained seven categories. These were routine/discharged home, left against medical advice, discharged/transferred to short-term facility, discharged/transferred to long-term care institution, alive but disposition not stated, dead, and not stated or not reported. The category of interest for this thesis was left against medical advice.

Three demographic variables—age, sex, and marital status—were also used to create a set of controls. Age (IN 4) was an interval level variable consisting of numerical data points from 0-90 and could stand for age in years, months, or days. This was made sense of with a units for age variable (IN 3) with three categories for years, months, or days. In combination, these two variables coded for the patient's age at the time of discharge. Patients over the age of 90 were all recoded to 90, resulting in a spike of patients at this age compared to other values near the

top of the range. Sex (IN 5) was a standard binary variable with categories for males and females. Finally, marital status (IN 7) contained six categories: married, single, widowed, divorced, separated, and not stated.

More controls were created from the hospital ownership (IN 14) and principal expected source of payment (ESOP) (IN 28) variables. Hospital ownership included three types: proprietary, government, and nonprofit including church. Proprietary is just another word for for-profit ownership while government ownership refers to nonprofit hospitals that receive government funding. For payment types, principal ESOP contained 11 categories: worker's compensation, Medicare, Medicaid, other government, Blue Cross/Blue Shield, HMO/PPO, other private insurance, self-pay, no charge, other, and not stated. It is important to note that data for this variable merely indicates what the patient expected to use to pay their bill at the time of discharge and what they ended up using may have changed by the time of actual payment.

Analysis Sample

The original 2008 NHDS dataset contained 165,630 cases. I used IBM's SPSS Statistics 21 to restrict the original dataset for the purposes of this thesis, resulting in a final analysis sample size of 44,647 cases. To begin, newborns and all other patients under the age of 18 were excluded, as well as those with a discharge status of dead or alive but status not stated. Next, all patients with an unstated marital status were excluded from the sample. Additionally, the expected source of payment variable was modified to better fit the purposes of this study. This involved excluding patients that utilized worker's compensation and cases where there was no

charge for the hospital stay. Cases where the source of payment was unknown, denoted by the other category in the original variable, were also excluded from the sample. The original dataset contained two payment variables, principal and secondary ESOP, but only the former was considered in this study as over 50% of entries in the latter were missing data. This is likely the result of cases where payment methods were known with certainty so only the field corresponding to principal ESOP was filled out at the time of discharge. Finally, all discharges with missing data for one of the variables being utilized in this study were excluded, resulting in the final analysis sample size of 44,547 valid discharges.

Next, some of the variables were recoded to prepare the analysis sample for the models created below. Appendix B includes an excerpt from the 2008 NHDS codebook that lays out each original variable and its categories, which may be useful in understanding the recoded variables used in the models below. All variables from this table referenced in the text will have their item numbers listed in parentheses in “IN #” format for clarity. For example, the three recoded independent variables white (yes=1), black (yes=1), and other race (yes=1) were created from the original race variable’s (IN 6) seven valid categories. By referencing Appendix B, one can see that the recoded other race variable contains patients from the Asian, American Indian/Alaskan Native, Native Hawaiian/Other Pacific Islander, multiple race, and other categories. Likewise, the binary dependent variable for discharges against medical advice (yes=1) was recoded from the original discharge status variable (IN 9) and includes only those patients who were discharged AMA.

The age variable (IN 4) in the original dataset did not need to be recoded, but measures had to be taken to limit it to patients 18 and older. Originally, a numerical value in this variable

could stand for days, months or years, so a patient with 13 in this field could be 13 days, 13 months, or 13 years old. A second corresponding variable had been included to make sense of this, but for the purposes of this thesis all cases where the number represented days or months were excluded as well as any cases where the patient was under age 18. It is important to note that the original researchers capped the variable at 90 years. Thus, a 97-year-old patient discharged from a hospital in the NHDS sample would be recorded as being only 90 years old in the dataset. For the other demographic variables, the recodes female (yes=1), from the original sex variable (IN 5), and married (yes=1), from the original marital status variable (IN 7), were created. The married variable only included those patients who explicitly stated it, all others such as single, widowed, divorced, and separated patients were coded as zeroes.

Three recoded binary variables were created from the principal ESOP variable (IN 28). The first, private insurance (yes=1), contained patients that paid their hospital bill with Blue Cross/Blue Shield, an HMO/PPO insurance plan, or another type of private insurance plan. Next, government insurance (yes=1) included patients utilizing Medicare, Medicaid, or another form of government assistance to pay their bill. Finally, the personal finances (yes=1) variable included only those patients that paid out of pocket with their own funds, referred to as self-pay in the original ESOP variable. Patients that did not incur any charges during their stay were excluded. It is important to note the term “expected” in the original variable’s name. No explanation of this is given anywhere in the NHDS codebook, but outside sources suggest that it is likely present to account for patients that indicate their payment plans at the time of discharge but actually complete them after the fact, such as with some private insurance plans. For most discharges this is not the case and no deviations from the expected source will occur,

but it is possible that some patients paid with means other than what they originally indicated. Therefore, possible error in this variable must be taken into consideration. For example, one source cites a hypothetical example of a car accident victim indicating that he expects to use Blue Cross/Blue Shield but actually ends up having his bill paid by a car insurance company (Graves 1992).

Lastly, three recoded binary variables were created from the original hospital ownership variable (IN 14). For-profit (yes=1) included hospitals under proprietary ownership, meaning that they are essentially run like businesses and privately owned by investors, a corporation, or a group of physicians. Nonprofit (yes=1) included those hospitals organized as nonprofit corporations, often with charitable purposes and/or religious affiliations. They enjoy large tax benefits and over 60% of hospitals fall into this category (Walker 2005). The last category, government owned (yes=1), included public hospitals that receive funding from the local, state, or federal government. Thanks to this, they are often associated with medical schools and are the most likely to offer unprofitable medical services and admit patients without the means to pay for care (Baumgardner et al. 2006; Walker 2005).

Methods

Prior to performing the regression models, descriptive statistics were compiled for the entire dataset and for each of the three recoded race categories within it. These can be seen in Table 1 in the Results section below. Independent samples t-tests (equal variances not assumed) were performed to determine whether or not the average patient age for black and other race patients differed significantly from that of white patients. Chi-square tests were used

to determine whether or not the percentages for all other variables in Table 1 differed significantly for black or other race patients compared to white patients. Phi and Cramer's V were also calculated to measure the strength of any significant associations.

Five models were created using binary logistic regressions, and these can be found in Table 2. The first model contained only the race independent variables and the AMA discharge status dependent variable. The reference group for race in this and all other models was white patients. The rest of the models built on Model 1, with Models 2-4 each adding in one piece of the puzzle and Model 5 putting it all together. Model 2 added the demographic variables for gender, age, and marital status. Model 3 added in just the ESOP variables, with patients that expected to pay with personal finances serving as the reference group. Model 4 added just the hospital ownership variables, with patients in for-profit hospitals serving as the reference group. The three demographic variables were not included in Models 3 and 4. Finally, Model 5 included all of the demographic, ESOP, and hospital ownership variables in addition to the race independent variables and discharge status dependent variable. A Nagelkerke R^2 value was calculated for each model as well as an odds ratio for each variable in the model. Unstandardized coefficients and standard errors were also reported.

RESULTS

Patient Demographics

Table 1 shows the sociodemographic characteristics of the analysis sample in total and by race. Of the 44,647 patients in the analysis sample, 74.3% were white ($n = 33,188$), 17.3% were black ($n = 7,722$), and 8.4% were from other races ($n = 3,737$). Compared to U.S. Census

Table 1. Sociodemographic Characteristics of Discharged Patients by Race.

Respondents' Characteristics	Total (N=44,647)	White (n=33,188)	Black [†] (n=7,722)	Other Race [†] (n=3,737)
Discharged Against Medical Advice (%)	1.3	1.2	1.9***	1.6*
Female (%)	60.4	59.3	63.5***	63.5***
Age (years)	58.6	60.6	52.8***	53.2***
Married (%)	48.6	52.6	30.3***	51.6
Paid With Private Insurance (%)	34.8	35.9	29.8***	35.7
Paid With Government Insurance (%)	59.8	59.3	63.2***	57.1**
Paid With Personal Finances (%)	5.4	4.8	7.1***	7.2***
For Profit Hospital (%)	32.7	29.4	35.1***	57.8***
Nonprofit Hospital (%)	58.5	61.6	54.5***	38.9***
Government Owned Hospital (%)	8.8	9.1	10.4***	3.3***
P values: p < .001***; p < .01**; p < .05* are based on Chi-square and two-tailed tests. [†] compared to white patients.				

population estimates from 2008, whites are slightly underrepresented while black and other race patients are slightly overrepresented in this analysis sample. The U.S. Census estimates were 79.8%, 13.1%, and 7.1%, respectively (U.S. Census Bureau 2008). Black patients differed significantly from white patients at the highest level ($p < .001$) in all characteristics. Most notably, they were discharged AMA over 50% more often than white patients. Additionally, they were more likely to be younger, female, and not in a functional marriage. Furthermore, black patients were more likely to have expected to pay with government insurance or personal finances and less likely to have expected to pay with private insurance. Lastly, they were more

likely to have discharged from for-profit and government owned hospitals and less likely to have discharged from nonprofit hospitals.

Patients of other races were also more likely than white patients to discharge AMA, albeit at a lower significance level ($p < .05$) than black patients. Similarly to blacks, they were more likely to be younger ($p < .001$) and female ($p < .001$) compared to whites but no significant difference was found regarding marital status. Like black patients, they were more likely than white patients to have an ESOP of personal finances ($p < .001$), however they were less likely to expect to use government insurance ($p < .01$) and no significant difference was found for private insurance. The hospital discharged from differed significantly at the highest level ($p < .001$) compared to white patients for all three types, with patients of other races much more likely to utilize private hospitals and much less likely to utilize nonprofit and government owned facilities. The sizeable variations in these characteristics compared to black and white patients might be due to the large number of diverse races grouped into the other race variable, however this thesis does not explore that research question.

Factors Influencing Discharges Against Medical Advice

Table 2 presents the results of regressing the likelihood of discharging AMA on race and the other predicting variables. Unstandardized coefficients are reported with standard errors and the calculated odds ratios. Model 1 includes just the independent and dependent variables of race and discharge status, with white patients as the reference group. Black patients were 1.639 times as likely as white patients to leave the hospital AMA ($p < .001$) while patients of

Table 2. Unstandardized Coefficients from Regressions of Variables Predicting Patients' Likelihood to Discharge Against Medical Advice.[†]

Variable	Model 1			Model 2			Model 3			Model 4			Model 5		
	b	Odds Ratio		b	Odds Ratio		b	Odds Ratio		b	Odds Ratio		b	Odds Ratio	
Black (yes=1)	.494*** (.098)	1.639		.267** (.101)	1.306		.215* (.102)	1.240		.209* (.101)	1.232		.160 (.102)	1.174	
Other Race (yes=1)	.335* (.140)	1.398		.233 (.141)	1.263		.185 (.142)	1.204		-.046 (.144)	.955		-.125 (.145)	.882	
Female (yes=1)	—			-1.078*** (.086)	.340		-1.002*** (.088)	.367		-1.064*** (.087)	.345		-.983*** (.088)	.374	
Age (years)	—			-.020*** (.002)	.980		-.022*** (.002)	.978		-.022*** (.002)	.978		-.024*** (.002)	.976	
Married (yes=1)	—			-.590*** (.089)	.554		-.381*** (.093)	.683		-.559*** (.090)	.572		-.351*** (.093)	.704	
Private Insurance (yes=1)	—			—			-1.266*** (.139)	.282		—			-1.350*** (.140)	.259	
Government Insurance (yes=1)	—			—			-.564*** (.123)	.569		—			-.654*** (.124)	.520	
Government Owned (yes=1)	—			—			—			-1.000*** (.179)	.368		-1.161*** (.180)	.313	
Nonprofit (yes=1)	—			—			—			-.894*** (.088)	.409		-.899*** (.089)	.407	
Constant	-4.450*** (.051)	.012		-2.492*** (.134)	.083		-1.774*** (.147)	.170		-1.847*** (.144)	.158		-1.042*** (.159)	.353	
R ²	.004			.050			.065			.070			.086		

Note: N = 44,647. Standard errors are in parentheses.

P values: p < .001***; p < .01**; p < .05* are based on two-tailed tests.

[†]The excluded category for patient race is White (yes=1), for patient payment method is Personal Finances (yes=1), and for hospital ownership type is For-Profit (yes=1).

other races were slightly less likely at 1.398 times the rate of white patients ($p < .05$). The R^2 value for this model was .004.

Turning to Model 2, it can be seen that the inclusion of demographic variables as controls, all of which were significantly associated with discharges AMA at the highest level ($p < .001$), reduced the size and significance of the coefficients for both black and other race patients and were associated with the racial differences observed in Model 1. In this model, the likelihood of discharging AMA for a black patient was 1.306 times that of a white patient ($p < .01$). Belonging to the other race category was no longer a significant predictor, although these patients were still 1.263 times as likely as white patients to discharge AMA. Being female and being married both had very strong negative associations with discharging AMA for reasons that are thoroughly discussed in sociological literature but unfortunately beyond the scope of this thesis. Specifically, females were only .340 times as likely as males to discharge AMA while married patients were only .554 times as likely as patients of other marital statuses. Also, for every one-year increase in age a 2% decrease in the likelihood of a discharge AMA was observed. The R^2 value for Model 2 was .050 and of all three models containing a single set of potentially explanatory variables (Models 2-4), this one was the most influential in explaining the racial disparity in discharges AMA observed in Model 1.

Model 3 builds upon Model 2, adding the three payment type variables into the mix alongside the demographic controls and race independent variables. Being black was still a significant predictor of discharges AMA in this model ($p < .05$) but the level of significance decreased with blacks only 1.240 times as likely as whites. Once again, belonging to the other race category was not a significant predictor, however patients in this category were still 1.204

times as likely as whites to discharge AMA. The three demographic control variables were also still significant at the highest level ($p < .001$) with coefficients and odds ratios similar to those discussed in Model 2 above. Having private ($p < .001$) and government ($p < .001$) insurance both had a very strong negative association with discharging AMA compared to the reference group of patients that paid with personal finances. In fact, patients that expected to pay with private insurance were just .282 times as likely to discharge AMA as patients utilizing personal finances. This figure was slightly higher at .589 as likely for patients expecting to use government insurance to pay their medical bills. The R^2 value for this model was .065, indicating that the addition of ESOP variables, and therefore insurance status, helped to further explain the relationship between race and discharges AMA. Insurance status is associated with racial differences in discharges AMA, and patients that possessed private insurance plans were the least likely to discharge AMA while patients with no insurance were the most likely.

Next, Model 4 omits the payment variables and instead adds hospital ownership type variables to the demographic controls and race variables seen in Model 2. Once again, being black was still a significant predictor of discharges AMA ($p < .005$) at the same level seen in Model 3 while being in the other race category was not. This represents a decrease in significance for the black independent variable compared to Model 2, which included only the demographic controls. Thus, while black patients were 1.232 times as likely as whites to discharge AMA, a figure similar to that in Model 3, other race patients were actually only .955 times as likely as whites. Although not significant, this result is interesting as it marks the first model in which white patients did not have the lowest rate of discharges AMA. The demographic controls all remained significant at the highest level ($p < .001$) with coefficients

and odds ratios similar to those found in the previous two models. The hospital ownership type variables were also significant at the highest level ($p < .001$). Compared to the reference group of patients in for-profit hospitals, patients in government owned and nonprofit hospitals were only .368 and .409 times as likely to discharge AMA, respectively. The R^2 value for this model was .070, indicating that the inclusion of hospital ownership variables was slightly more explanatory than the inclusion of payment variables in Model 3. Model 4 shows that hospital ownership type is associated with racial differences in discharges AMA, with patients in government owned hospitals the least likely to discharge AMA while patients in for-profit hospitals were the most likely.

Finally, a complete regression of all the aforementioned variables is presented in Model 5. In addition to the independent and dependent variables regressed in Model 1, the demographic, payment, and hospital ownership variables are also included. As hypothesized, neither race category remained a significant predictor of discharges AMA. Specifically, black patients were only 1.174 times as likely as white patients to discharge AMA, with other race patients at an intriguing .882 times as likely. All demographic, payment, and hospital ownership variables were significant at the highest level ($p < .001$) as in previous models, with coefficients and odds ratios very similar to those in previous models. The R^2 value for this model was .086. Thus, it appears that, when taken together, these three sets of variables are able to explain the disparity between black and white patients in discharges AMA to the point where being black is no longer a significant predictor.

Unfortunately, the models presented in this thesis were limited by the original variables included in the 2008 NHDS dataset and many of the analyses that would have been performed

in an ideal study were simply not possible. For example, information such as the patient's education level, employment status, occupational category, and income is not collected in the NHDS and therefore these variables could not be incorporated into the models. Furthermore, although a discussion of trust and patient-provider communication was included in the literature review above, no measure of these variables exists in the NHDS and thus the ideas explored could not be evaluated by this study. Another major limitation is that the insurance status variables were created from a NHDS variables that recorded the patient's expected source of payment, not the payment form they actually ended up using. While the form was very unlikely to change, the uncertainty here still makes it a limitation. However, a published and peer-reviewed study by Biello et al. (2010) used the ESOP data from the NHDS as a proxy for SES so the insurance status variables created in this study are most likely reliable. Finally, conclusions drawn from the other race category may not be valid as the variable contained patients of all the diverse racial categories that were neither black nor white.

In light of these limitations, the five models presented in Table 2 merely provide clues as to the true nature of and mechanisms behind the racial disparities in discharges AMA that were observed in Model 1. Still, these models provide strong support for the notion that there are many other social and economic factors at work that are producing racial disparities yet are hidden behind a façade of racism and discrimination. While racism and discrimination are certainly ever-present in current medical institutions and the social world in general, they are only one small piece of the puzzle when it comes to discharges AMA.

DISCUSSION

Given the vast amount of knowledge of and studies examining racial disparities, both in healthcare and social life in general, it is no surprise that black patients were found to discharge AMA at a higher rate than white patients. Still, with the well documented adverse health effects of discharging AMA, it is shocking that no previous study has examined the topic of racial disparities in discharges AMA in as great of depth as this thesis. In this thesis, I attempted to examine the roles that insurance status and hospital ownership type play in contributing to fact that black patients are discharged from the hospital, on average, more than 1.6 times as often as white patients.

Trends with patients' insurance status in the data largely aligned with prior expectations based on the literature explored above. As expected, Table 1 shows that a larger proportion of whites had the more expensive and more effective private insurance plans while a larger proportion of blacks had less desirable government coverage plans such as Medicare or Medicaid. Furthermore, the ratio of patients with no insurance at all was nearly 50% higher within black patients compared to within white patients. In light of the body of literature discussed previously and the results of this thesis's analyses, these results provide a very straightforward explanation for why blacks are significantly more likely to discharge AMA. As seen in Table 2, having no insurance coverage is very strongly associated with discharging AMA and with so many black patients in this category it is no wonder they exhibit significantly higher rates of discharges AMA. Furthermore, when compared to patients with private insurance, even possessing government coverage makes one more likely to discharge AMA. With so many more whites in SES brackets that provide them access to these premium coverage plans

compared to blacks, as evidenced by the data in Table 1, it is no wonder that they discharge AMA at a comparably lower rate.

The trends observed in this data for the ownership type of the hospital that patients were treated at, however, were somewhat at odds with the majority of previous studies on this topic. Data collected in Table 1 indicated that, while the majority of black patients were treated at nonprofit hospitals, a larger proportion of blacks were treated at for-profit facilities when compared to whites. These findings are similar in some regards but also conflict with those in most other studies. For example, the work by Brooks-Carthon et al. (2010) and Bao et al. (2008) discussed previously found that most blacks seek treatment in large, urban, teaching hospitals that are predominantly under nonprofit and government ownership. While this thesis's findings do mirror those aforementioned in that over 50% of black patients seek treatment at nonprofit facilities, it was expected that this would also be a larger percentage than that of white patients. However, over 60% of white patients in this study were discharged from nonprofit facilities, a finding that challenges the notions discussed heavily above regarding hospital location and neighborhood segregation.

Furthermore, the proportion of black patients discharged from for-profit hospitals was 6% higher than that of white patients, a finding that conflicts with expectations based on other studies reviewed. Specifically, Clarke et al. (2012) and Norton and Staiger's (1994) work found that for-profit hospitals intentionally avoid being built in areas with less insured populations, while nonprofit hospitals are most likely to be found there. For-profit hospitals also intentionally neglect to offer many unprofitable medical services in lieu of more expensive, luxury procedures in order to both boost profits and discourage uninsured patients from

entering (Clarke et al. 2012; Norton and Staiger 1994). Thus, the conflicting findings in this thesis may in part be due to sampling error and may indicate that the sample selected is not representative of the larger United States population of patients. Percentages for patients at government owned hospitals were as expected, with rates of usage higher among blacks than whites.

The literature surrounding for-profit hospitals indicates that they provide higher levels of care and generate better health outcomes while simultaneously catering to a population of patients that is more likely to be white, privately insured, and of a higher SES bracket (McClellan and Staiger 2000). Thus, it was expected that rates of discharges AMA would be lowest in these facilities but the exact opposite was found to be true in this sample of patients. In fact, the odds of discharging AMA were nearly double in for-profit hospitals compared to nonprofit and government facilities. While this may be the result of sampling error, it is much more likely that the for-profit motive mechanism was significantly underestimated when formulating the initial expectations and assumptions. Likewise, the geographic and neighborhood selectivity of for-profit hospitals discussed above might not exist in practice to the extent that it is described on paper. Thus, it seems that low SES, minority patients with government or no insurance coverage are utilizing for-profit care facilities and are most likely being presented with bills and potential fees that they either cannot or do not want to pay. This likely leads to an elevated rate of discharges AMA simply for financial reasons, which Eze et al. (2010) found to be the overwhelming leader amongst reasons for choosing to leave AMA.

Lastly, there were some interesting trends in the demographic categories that were unfortunately beyond the scope of this thesis and thus could not be discussed. However, they

may be central elements of future studies and are still important to be aware of. For example, married patients were only half as likely to discharge AMA and only 30.3% of black patients reported being married, compared to 52.6% of white patients. A large literature exists on this marital disparity between the races and the absence of black males in minority communities due to high rates of incarceration and other factors. This difference alone may be highly explanatory in looking at the gap between blacks and whites in discharges AMA. Furthermore, black patients in this sample were found to be, on average, about eight years younger than white patients at the time of discharge. This difference could mean that more white patients were retired at the time of their hospitalization, while more black patients were still members of the full-time workforce thus requiring them to leave the hospital sooner to get back to a steady source of income. Finally, discharges AMA were about three times as likely in male patients, suggesting that this is a gendered phenomenon, although not enough on this facet of the issue was found in the literature to make any further conclusions.

When considering the results of this thesis's analyses, it is important to be aware of inconsistencies in the data collection process that may have skewed the results. Although the sampling process employed by the NHDS is very sophisticated and trustworthy, all is for naught if the original data collected by the hospitals in the study is faulty or unreliable. Indeed, a study by Blustein (1994) found that racial classifications, which are often assigned by a hospital's clerical workers at the time of a patient's admittance, were often based on looks alone or other observations that could easily be skewed by stereotypes, bias, and preconceived assumptions. Blustein's (1994) study looked at the hospital discharge records of 767 patients that had been admitted to New York hospitals twice and found that the racial classifications assigned were

only congruent across both visits for 93.7% of the patients. However, Blustein (1994) also found that these discrepancies were highest for non-white, non-black patients so the effects of these errors might be localized predominately in the other race category of patients in this thesis's analyses. Still, Blustein (1994) concludes that misclassification of the patient's race is non-differential in relation to other variables in the discharge data, causing a statistical bias towards the null value. In plain English, this means that the racial discrepancies in variables looked at, such as discharges AMA, will actually be larger in reality than what is seen on paper. This is a shocking statement, as the notion that the already large gap between black and white patients discharging AMA observed in this thesis is actually smaller than what exists in reality amongst the larger population only further exacerbates the need for additional studies and policy interventions.

With a racial disparity as drastic as the one observed in discharges AMA and the subsequent health risks and consequences for black patients, it is clear that policy changes must be put into effect in order to help alleviate the problem. While it is much too soon to concretely evaluate the potential effectiveness of any specific changes, many authors have put forward ideas that should be looked into in the near future. For example, Eze et al. (2010) concludes that the causes of discharges AMA are largely preventable and that initiatives to improve doctor-patient communication and hospital infrastructures would go a long way towards this goal. Furthermore, they suggest that a more explicit set of guidelines surrounding discharges AMA be put into place while also strengthening the government insurance plans offered to those without private coverage (Eze et al. 2010).

Furthermore, Williams and Jackson (2005) lay out a handful of promising initiatives that they believe would help to reduce the racial inequality in discharges AMA. First, they recommend that a major investment of economic capital be made in disadvantaged communities in order to improve the social, physical, and economic infrastructures there and ultimately alleviate the rampant neighborhood segregation present in American communities (Williams and Jackson 2005). Next, they advocate for more studies into how government initiatives at local, state, and federal levels can help to narrow the income gap between blacks and whites, as the widening of this gap in the 1980s was associated with a simultaneous widening of the black-white gap in both adult and infant mortality rates (Williams and Jackson 2005). Finally, Williams and Jackson (2005) also advocate for improving access to care for vulnerable populations, incentivizing physicians to ensure that they are following the national standards for care, and increasing the number of blacks in the health professions. In summary, they call for a complete rethinking of health policy, primarily at the regional and local levels, that more heavily focuses on the often-overlooked social determinants of health (Williams and Jackson 2005).

As noted, the causes of discharges AMA are preventable and the mechanisms behind the racial disparities in these types of discharges are widely studied. Still, more work needs to be done in the fields of medicine, healthcare policy, and sociology in order to chisel out a more concrete understanding of what needs to be fixed and how to best go about it. Future studies should look more closely than this thesis was able to at social factors such as income level, occupation status, type of employment, and educational attainment, among others. Furthermore, a study that measures patient-provider interactions, communication, and trust

with a particular focus on discharges AMA is urgently needed in order to start hashing out policy changes in this realm that might help to discourage discharges AMA. Future studies should also look more closely at the various non-white, non-black racial minorities that were all lumped into the other race category in this thesis for the sake of convenience. These results indicate that racial disparities in discharges AMA are not unique to just black patients, and neither are the risks and adverse health outcomes associated with leaving the hospital prematurely. Finally, potential policy interventions aimed at regulating discharges AMA, alleviating neighborhood segregation, narrowing the income gap, and improving medical care as a whole need to be studied further in order to determine how effective they might be and how best to go about implementing them.

CONCLUSION

Discharges against medical advice are known to be associated with radical health risks and much worse healthcare outcomes, and their elevated rate among minority groups such as blacks who are already disadvantaged by worse overall health is very troubling. Only through extensive further research can this disparity be fully understood to a level where the effectiveness of necessary policy changes can be accurately evaluated. Unfortunately, this problem will not be alleviated overnight. However, as many studies have noted, there is hope for the eradication of this particular health disparity and through diligent study and a joint effort between medical, political, and social scientists it seems likely that significant progress will be made in the coming decades.

APPENDIX A

NHDS Abstraction Form

OMB No. 0920-0212

<p>FORM HDS-1 (4-11-2009)</p> <p style="text-align: center;">U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. CENSUS BUREAU ACTING AS COLLECTING AGENT FOR DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR DISEASE CONTROL AND PREVENTION NATIONAL CENTER FOR HEALTH STATISTICS</p> <p style="text-align: center; font-size: 1.2em; font-weight: bold;">MEDICAL ABSTRACT NATIONAL HOSPITAL DISCHARGE SURVEY</p>		<p>Notice – All information which would permit identification of an individual or an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to other persons or used for any other purpose. Public reporting burden of this collection of information is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer, 1600 Clifton Road, MS D-74, Atlanta, GA 30333, ATTN: PRA (0920-0212).</p>																																								
A. PATIENT IDENTIFICATION																																										
<p>1. Hospital number <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>2. HDS number <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>3. (Item deleted)</p>		<p>4. Date of admission <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>5. Date of discharge <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>6. Residence ZIP Code <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p>																																								
B. PATIENT CHARACTERISTICS																																										
<p>7. Date of birth Month Day Year</p> <p style="text-align: center;"><input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>8. Age – Complete only if date of birth not given Units</p> <p style="text-align: center;"><input type="text"/> <input type="text"/> <input type="text"/> { 1 ☐ Years 2 ☐ Months 3 ☐ Days</p> <p>9. Sex – Mark (X) one</p> <p>1 ☐ Male 2 ☐ Female 3 ☐ Not stated</p> <p>10. Ethnicity – Mark (X) one</p> <p>1 ☐ Hispanic or Latino 2 ☐ Not Hispanic or Latino 3 ☐ Not stated</p>		<p>11. Race – Mark all that apply</p> <p>1 ☐ White 6 ☐ Other – Specify <input style="width: 100px;" type="text"/></p> <p>2 ☐ Black or African American</p> <p>3 ☐ American Indian or Alaska Native</p> <p>4 ☐ Asian</p> <p>5 ☐ Native Hawaiian or Other Pacific Islander 7 ☐ Not stated</p> <p>12. Marital status – Mark (X) one</p> <p>1 ☐ Married 3 ☐ Widowed 5 ☐ Separated</p> <p>2 ☐ Single 4 ☐ Divorced 6 ☐ Not stated</p>																																								
C. ADMINISTRATIVE INFORMATION																																										
<p>13. Type of Admission – Mark (X) one</p> <p>1 ☐ Emergency 3 ☐ Elective 5 ☐ Items not available/unknown</p> <p>2 ☐ Urgent 4 ☐ Newborn</p> <p>14. Source of Admission – Mark (X) one</p> <p>1 ☐ Physician referral 7 ☐ Emergency room</p> <p>2 ☐ Clinical referral 8 ☐ Court/Law enforcement</p> <p>3 ☐ HMO referral 9 ☐ Other – Specify <input style="width: 100px;" type="text"/></p> <p>4 ☐ Transfer from a hospital</p> <p>5 ☐ Transfer from SNF</p> <p>6 ☐ Transfer from other health facility 10 ☐ Item not available</p> <p>15. Status/Disposition of patient – Mark (X) appropriate box(es)</p> <p>Status Disposition</p> <p>1 ☐ Alive → a. ☐ Routine discharge/discharged home b. ☐ Left against medical advice c. ☐ Discharged, transferred to another short-term hospital d. ☐ Discharged, transferred to long-term care institution e. ☐ Other disposition/not stated</p> <p>2 ☐ Died</p> <p>3 ☐ Status not stated</p>		<p>16. Expected source(s) of payment</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Principal Mark one only</th> <th style="text-align: center;">Other additional sources Mark all that apply</th> </tr> </thead> <tbody> <tr><td>1. Worker's compensation</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>2. Medicare</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>3. Medicaid</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>4. Other government payments</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>5. Blue Cross/Blue Shield</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>6. HMO/PPO</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>7. Other private or commercial insurance</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>8. Self pay</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>9. No charge</td><td style="text-align: center;">☐</td><td style="text-align: center;">☐</td></tr> <tr><td>10. Other – Specify <input style="width: 100px;" type="text"/></td><td></td><td></td></tr> <tr><td colspan="3" style="height: 40px;"></td></tr> <tr><td colspan="3" style="text-align: center;">No source of payment indicated</td></tr> </tbody> </table>			Principal Mark one only	Other additional sources Mark all that apply	1. Worker's compensation	☐	☐	2. Medicare	☐	☐	3. Medicaid	☐	☐	4. Other government payments	☐	☐	5. Blue Cross/Blue Shield	☐	☐	6. HMO/PPO	☐	☐	7. Other private or commercial insurance	☐	☐	8. Self pay	☐	☐	9. No charge	☐	☐	10. Other – Specify <input style="width: 100px;" type="text"/>						No source of payment indicated		
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10. Other – Specify <input style="width: 100px;" type="text"/>																																										
No source of payment indicated																																										

(Over)

D. MEDICAL INFORMATION									
17. Admitting Diagnosis									
Admitting diagnosis	ICD-9-CM Code	Description							
18. Final diagnoses (up to 7 diagnoses including E-codes) (Enter ICD-9-CM codes as well as narrative if available.)									
Diagnosis	ICD-9-CM Code	Description	Present on admission						
Principal diagnosis			1 ☐ Yes 2 ☐ No						
			3 ☐ Unknown						
			4 ☐ Clinically undetermined						
			5 ☐ No information on face sheet						
Diagnosis 2			1 ☐ Yes 2 ☐ No						
			3 ☐ Unknown						
			4 ☐ Clinically undetermined						
			5 ☐ No information on face sheet						
Diagnosis 3			1 ☐ Yes 2 ☐ No						
			3 ☐ Unknown						
			4 ☐ Clinically undetermined						
			5 ☐ No information on face sheet						
Diagnosis 4			1 ☐ Yes 2 ☐ No						
			3 ☐ Unknown						
			4 ☐ Clinically undetermined						
			5 ☐ No information on face sheet						
Diagnosis 5			1 ☐ Yes 2 ☐ No						
			3 ☐ Unknown						
			4 ☐ Clinically undetermined						
			5 ☐ No information on face sheet						
Diagnosis 6			1 ☐ Yes 2 ☐ No						
			3 ☐ Unknown						
			4 ☐ Clinically undetermined						
			5 ☐ No information on face sheet						
Diagnosis 7			1 ☐ Yes 2 ☐ No						
			3 ☐ Unknown						
			4 ☐ Clinically undetermined						
			5 ☐ No information on face sheet						
19. Surgical and Diagnostic Procedures (up to 4 procedures) (Enter ICD-9-CM codes as well as narrative if available.)									
Procedure	ICD-9-CM Code	Description	Date of Procedure(s)						
			Month	Day	Year				
Principal procedure									
Procedure 2									
Procedure 3									
Procedure 4									
☐ No procedures									
Comments									
Completed by								Date	

APPENDIX B NHDS Codebook Excerpt

Item Number	Location	Number of Positions	Item description	Code description
1	1-2	2	Survey Year	08
2	3	1	Newborn status	1=Newborn 2=Not newborn
3	4	1	Units for age	1=Years 2=Months 3=Days
4	5-6	2	Age in years, months, or days	If units=years: 00-90* If units=months: 01-11 If units=days: 00-28 *Ages 100 and over were recoded to 90
5	7	1	Sex	1=Male 2=Female
6	8	1	Race	1=White 2=Black/African American 3=American Indian/Alaskan Native 4=Asian 5=Native Hawaiian/Other Pacific Islander 6=Other 8=Multiple race indicated 9=Not stated
7	9	1	Marital status	1=Married 2=Single 3=Widowed 4=Divorced 5=Separated 9=Not stated
8	10-11	2	Discharge month	01-12=January to December
9	12	1	Discharge Status	1=Routine/discharged home 2=Left against medical advice 3=Discharged/transferred to short-term facility 4=Discharged/transferred to long-term care institution 5=Alive, disposition not stated 6=Dead 9=Not stated or not reported
10	13-16	4	Days of care	Use to calculate number of days of care. Values of zero generated by the computer from admission and discharge dates were changed to one. (Discharges for which dates of admission and discharge are the same are identified in Item Number 11)

Item Number	Location	Number of Positions	Item description	Code description
11	17	1	Length of stay flag	0=Less than 1 day 1=One day or more
12	18	1	Geographic region	1=Northeast 2=Midwest 3=South 4=West
13	19	1	Number of beds, recode	1=6-99 2=100-199 3=200-299 4=300-499 5=500 and over
14	20	1	Hospital ownership	1=Proprietary 2=Government 3=Nonprofit, including church
15	21-25	5	Analysis weight	Use to obtain weighted estimates
16	26-27	2	First two digits of survey year	20
17	28-32	5	Diagnosis code #1	*
18	33-37	5	Diagnosis code #2	*
19	38-42	5	Diagnosis code #3	*
20	43-47	5	Diagnosis code #4	*
21	48-52	5	Diagnosis code #5	*
22	53-57	5	Diagnosis code #6	*
23	58-62	5	Diagnosis code #7	*
24	63-66	4	Procedure code#1	*
25	67-70	4	Procedure code#2	*
26	71-74	4	Procedure code#3	*
27	75-78	4	Procedure code#4	*

28	79-80	2	Principal expected source of payment	01=Worker's compensation 02=Medicare 03=Medicaid 04=Other government 05=Blue Cross/Blue Shield 06=HMO/PPO 07=Other private insurance 08=Self-pay 09=No charge 10=Other 99=Not stated
29	81-82	2	Secondary expected source of payment	Same coding as item 28 above, except Not Stated left blank (not coded to 99)
30	83-85	3	Diagnosis-Related Groups (DRG)	Grouper version 25.0
31	86	1	Type of Admission	1 = Emergency 2 = Urgent 3 = Elective 4 = Newborn 9 = Not available
32	87-88	2	Source of Admission	01 = Physician referral 02 = Clinical referral 03 = HMO referral 04 = Transfer from a hospital 05 = Transfer from skilled nursing facility 06 = Transfer from other health facility 07 = Emergency room 08 = Court/law enforcement 09 = Other 99 = Not available
33	89-93	5	Admitting Diagnosis	*

*Diagnosis and procedure codes are in compliance with the *International Classification of Diseases, 9th Revision, Clinical Modification, and (ICD-9-CM)*. For **diagnosis** codes, there is an implied decimal between positions 3 and 4. For E-codes, the implied decimal is between the 4th and 5th position. For inapplicable 4th or 5th digits, a dash is inserted. For **procedure** codes, there is an implied decimal between positions 2 and 3. For inapplicable 3rd or 4th digits, a dash is inserted.

REFERENCES

- Alfandre, David J. 2009. "'I'm Going Home': Discharges Against Medical Advice." *Mayo Clinic Proceedings* 84 (3):255-260.
- Baile, W. F.; Brinker, J. A.; Wachspress, J. D.; and B. T. Engel. 1979. "Signouts Against Medical Advice from a Coronary Care Unit." *Journal of Behavioral Medicine* 2 (1):85-92.
- Bao, Yuhua; Fisher, John; and James Studnicki. 2008. "Racial Differences in Behavioral Inpatient Diagnosis: Examining the Mechanisms Using the 2004 Florida Inpatient Discharge Data." *The Journal of Behavioral Health Services & Research* 35 (3):347-357.
- Baumgardner, James; Vavrich, Bruce; White, Chapin; Nguyen, Robert; and Alshadye Yemane. 2006. *Nonprofit Hospitals and the Provision of Community Benefits*. Congressional Budget Office, Pub. No. 2707. Washington, D.C.: Government Printing Office.
- Biello, Katie B.; Rawlings, James; Carroll-Scott, Amy; Browne, Rosa; and Jeannette R. Ickovics. 2010. "Racial Disparities in Age at Preventable Hospitalization Among U.S. Adults." *American Journal of Preventative Medicine* 38 (1):54-60.
- Bell, Brandi L. 2009. "African American Women's Perceptions of Race, Gender, Socioeconomics, and Stress on Health Outcomes." Ph.D. dissertation, Department of Psychology, Saybrook University, San Francisco, CA.
- Bloome, Deirdre. 2014. "Racial Inequality Trends and the Intergenerational Persistence of Income and Family Structure." *American Sociological Review* 79 (6):1196-1225.
- Blustein, Jan. 1994. "The Reliability of Racial Classifications in Hospital Discharge Abstract Data." *American Journal of Public Health* 84 (6):1018-1021.
- Brooks-Carthon, J. Margo; Kutney-Lee, Ann; Sloane, Douglas M.; Cimiotti, Jeanie P.; and Linda H. Aiken. 2011. "Quality of Care and Patient Satisfaction in Hospitals with High Concentrations of Black Patients." *Journal of Nursing Scholarship* 43 (3):301-310.
- Centers for Disease Control and Prevention. 2013. "U.S. Public Health Service Syphilis Study at Tuskegee." Atlanta, GA: Centers for Disease Control and Prevention. Retrieved April 18, 2015 (<http://www.cdc.gov/tuskegee/timeline.htm>).
- Clark, Anita. 2012. "Separate But Equal? A Look at For-Profit vs. Nonprofit Hospitals on a Local Level." *SouthCoastToday.com*, May 10. Retrieved April 5, 2015 <<http://www.southcoasttoday.com/apps/pbcs.dll/article?AID=/20120510/LIFE/205100305>>.

- Clarke, Sean P.; Davis, Berth L.; and Regina E. Nailon. 2007. "Racial Segregation and Differential Outcomes in Hospital Care." *Western Journal of Nursing Research* 29 (6):739-757.
- Epstein, Arnold M.; Taylor, William C.; and George R. Seage III. 1985. "Effects of Patient's Socioeconomic Status and Physicians' Training and Practice on Patient-Doctor Communication." *The American Journal of Medicine* 78 (1):101-106.
- Eze, Boniface; Agu, Kenneth; and Jones Nwosu. 2010. "Discharge Against Medical Advice at a Tertiary Center in Southeastern Nigeria: Sociodemographic and Clinical Dimensions." *Patient Intelligence* (2):27-31.
- Gupta, Nidhi and Nicole T. Carr. 2008. "Understanding the Patient-Physician Interaction: Potential for Reducing Health Disparities." *Journal of Applied Social Sciences* 2 (2):54-65.
- Horwitz, Jill R. 2005. "Making Profits and Providing Care: Comparing Nonprofit, For-Profit, and Government Hospitals." *Health Affairs* 24 (3):790-801.
- Ibrahim, Said A.; Kwoh, C. Kent; and Eswar Krishnan. 2007. "Factors Associated with Patients Who Leave Acute-Care Hospitals Against Medical Advice." *American Journal of Public Health* 97 (12):2204-2208.
- Johnstone, Megan-Jane and Olga Kanitsaki. 2009. "The Spectrum of 'New Racism' and Discrimination in Hospital Contexts: A Reappraisal." *Collegian* 16 (2):63-69.
- Killewald, Alexandra. 2013. "Return to *Being Black, Living in the Red*: A Race Gap in Wealth That Goes Beyond Social Origins." *Demography* 50 (4):1177-1195.
- Kuebler, Meghan. 2013. "Closing the Wealth Gap: A Review of Racial and Ethnic Inequalities in Homeownership." *Sociology Compass* 7 (8):670-685.
- Laveist, Thomas A. and Amani Nuru-Jeter. 2002. "Is Doctor-Patient Race Concordance Associated with Greater Satisfaction with Care?" *Journal of Health and Social Behavior* 43 (3):296-306.
- MacReady, Norra. 2013. "Leaving Hospital Against Medical Advice Increases Death Risk." *Medscape*, August 26 (<http://www.medscape.com/viewarticle/810011>).
- Malat, Jennifer and Mary Ann Hamilton. 2006. "Preference for Same-Race Health Care Providers and Perceptions of Interpersonal Discrimination in Health Care." *Journal of Health and Social Behavior* 47 (2):173-187.

- Massey, Douglas S. 2004. "Segregation and Stratification: A Biosocial Perspective." *Du Bois Review: Social Science Research on Race* 1 (1):7-25.
- Mattingly, Cheryl. 2010. *The Paradox of Hope: Journeys through a Clinical Borderland*. Berkely, CA: University of California Press.
- McClellan, Mark B. and Douglas O. Staiger. 2000. "Comparing Hospital Quality at For-Profit and Not-for-Profit Hospitals. Pp. 93-112 in *The Changing Hospital Industry: Comparing For-Profit and Not-for-Profit Institutions*, edited by David M. Cutler. Chicago IL: University of Chicago Press.
- Musa, Donald; Schulz, Richard; Harris, Roderick; Silverman, Myrna; and Stephen B. Thomas. 2009. "Trust in the Health Care System and the Use of Preventative Health Services by Older Black and White Adults." *American Journal of Public Health* 99 (7):1293-1299.
- Norton, Edward C. and Douglas O. Staiger. 1994. "How Hospital Ownership Affects Access to Care for the Uninsured." *The RAND Journal of Economics* 25 (1):171-185.
- Pappas, Gregory; Hadden, Wilbur C.; Kozak, Lola J.; and Gail F. Fisher. 1997. "Potentially Avoidable Hospitalizations: Inequalities in Rates Between US Socioeconomic Groups." *American Journal of Public Health* 87 (5):811-816.
- Peek, Monica E.; Odoms-Young, Angela; Quinn, Michael T.; Gorawara-Bhat, Rita; Wilson, Shannon C.; and Marshall H. Chin. 2010. "Racism in Healthcare: Its Relationship to Shared Decision-Making and Health Disparities: A Response to Bradby." *Social Science & Medicine* 71 (1):13-17.
- Ren, Xinhua S.; Amick, Benjamin C.; and David R. Williams. 1999. "Racial/Ethnic Disparities in Health: The Interplay Between Discrimination and Socioeconomic Status." *Ethnicity & Disease* 9 (2):151-165.
- Schnittker, Jason; Pescosolido, Bernice A.; and Thomas W. Croghan. 2005. "Are African Americans Really Less Willing to Use Health Care?" *Social Problems* 52 (2):255-271.
- Shim, Janet K. 2010. "Cultural Health Capital: A Theoretical Approach to Understanding Health Care Interactions and the Dynamics of Unequal Treatment." *Journal of Health and Social Behavior* 51 (1):1-15.
- Skloot, Rebecca. 2010. *The Immortal Life of Henrietta Lacks*. New York: Broadway Paperbacks.
- Southern, William N.; Nahvi, Shadi; and Julia H. Arnsten. 2012. "Increased Risk of Mortality and Readmission Among Patients Discharged Against Medical Advice." *The American Journal of Medicine* 125 (6):594-602.

- U.S. Census Bureau. 2008. "Annual Population Estimates 2000 – 2008." Table NST-EST2008-01 in *Population Estimates - Vintage 2008: National Tables*. Washington, D.C.: Government Printing Office. (http://www.census.gov/popest/data/historical/2000s/vintage_2008/).
- United States Department of Health and Human Services. Centers for Disease Control and Prevention. National Center for Health Statistics. National Hospital Discharge Survey, 2008. ICPSR30182-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2011-02-01. (<http://doi.org/10.3886/ICPSR30182.v1>).
- van Ryn, Michelle. 2002. "Research on the Provider Contribution to Race/Ethnicity Disparities in Medical Care." *Medical Care* 40 (1):1140-1151.
- Walker, David M. 2005. *Nonprofit, For-profit, and Government Hospitals: Uncompensated Care and Other Community Benefits*. United States Government Accountability Office, GAO-05-743T. Washington, D.C.: Government Printing Office.
- Wasserman, J.; Flannery, M. A.; and J. M. Clair. 2007. "Raising the Ivory Tower: The Production of Knowledge and Distrust of Medicine among African Americans." *Journal of Medical Ethics* 33 (3):177-180.
- Williams, David R. and Michelle Sternthal. 2010. "Understanding Racial-ethnic Disparities in Health: Sociological Contributions." *Journal of Health and Social Behavior* 51 (5):515-527.
- Williams, David R. and Pamela B. Jackson. 2005. "Social Sources of Racial Disparities in Health." *Health Affairs* 24 (2):325-334.
- Yong, T. Y.; Fok, J. S.; Hakendorf, P.; Ben-Tovim, D.; Thompson, C. H.; and J. Y. Li. 2013. "Characteristics and Outcomes of Discharges Against Medical Advice Among Hospitalised Patients." *Internal Medicine Journal* 43 (7):798-802.

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