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Ethnic Difference in Healthcare Delivery

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By

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Ethnic Difference in Healthcare Delivery

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Quality in healthcare is a very important aspect; this is obtained when there is proper care provided to the patients without any discrimination. The healthcare system in the US can be improved in the fields of patient's care, the amount of money spent and proper advice, if proper responsibilities are taken. Studies have been conducted in many fields in healthcare service and still prove the existence of healthcare disparities. Quality has been improving over the years, but the median by which there is an increase is too small. The other main factor is access to the healthcare system, which has over the year, has not progressed. Studies in healthcare quality should be conducted on a regular base, so that there can be steps taken to improve the healthcare system. In this study, the main objective of this study was to identify any racial disparity in providing the healthcare within the state of Nebraska. This research is essential for health care, as well as to understand the differences that are politically sensitive and challenging, as the contentious histories of race relations in America are interrelated.

The data was collected from selected community centers. The ethnic groups that took part in the survey were African Americans, Asian, Caucasian and Hispanics. A survey questionnaire was framed to capture the effect of healthcare quality. This questionnaire was designed to contain 33 questions. The first category was to determine the general information of the patients. The rest of the six categories played a major role in determination of patient's satisfaction. The main aim of dividing the questionnaire in

the respective categories was to understand how each ethnicity felt about the ways of treatment.

This is a descriptive type of study and performed to understand the significant independent variables that were contributing significantly to the variables. An ANOVA and a multiple regression analysis were performed on the data collected from the survey. The results show that different ethnicities had different satisfaction levels in health services provided to them. The areas of focus were understanding, communication, access, reliability, responsiveness and follow-up. A regression analysis was performed to understand how each ethnicity was treated by the healthcare provider. A regression analysis was performed between the overall rating of quality and the six parameters. The results obtained from multiple regression analysis, it indicated which ethnic group was most effected due disparities in healthcare. The analysis also indicated the areas that each ethnic group felt the effects of disparities. Asians were the ethnic group that faced the most disparities followed by the Hispanic ethnicity. Accessibility and communication was one major problem that the minority groups faced.

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CHAPTER 1
INTRODUCTION

The United States is a country populated with people of diverse ethnicities. Evidence confirms that disparities exist in healthcare services provided to the minority population. Consequently, the United States has to spend more on the healthcare sector. Research has shown that most of the minority population receives inadequate services from their healthcare providers. This study was performed in the State of Nebraska with the purpose of finding the existence of healthcare disparities. Results assisted in determining the causes of service disparities and the measures required for eliminating them.

Healthcare is defined as the "prevention, treatment and management of illness and prevention of mental and physical well being through the service offered by medical and health professionals" (American Medical Heritage Dictionary, 2009). Disparities in healthcare arise due to the differences in the ways treatment, prevention and care are offered to patients with similar health problems. In the United States, several steps have already been taken to minimize disparities in healthcare. Liebhaber's et al. (2009), indicated that a large sum of money was spent by the country to reduce disparities in the health services. Ricciardelli (2009) shows that about $2.4 trillion was spent on healthcare improvement in the year 2008 and that amount is expected to double by 2020. The money spent on the improvement of care in hospitals due to disparities is about one third of the total income of the US government. The main reason for increased disparity is the lack of "care." This leads to the challenging question "Is there CARE in HEALTHCARE?"

What has led to increased disparity in healthcare? The key limitations were ethnic difference. The Institute of Medicine has defined disparities in healthcare as the differences in quality of operation of the healthcare system and difference due to discrimination. The Institute of Medicine pointed out that one of the main focuses in the healthcare service was to bridge the gap in disparities. There was a time when minority groups did not have any access to medical facilities. The way that disparities in healthcare can be minimized is by improving the quality of care in healthcare service. Research and studies have shown that minorities were not able to obtain timely quality health services. Studies were conducted by considering issues in the healthcare service, such as insurance, ethnicity, communication and procedures of treatment. Studies were performed on the existence of disparities on a particular type of illnesses, and the results were positive. The conclusion of recent studies showed the existence of disparities towards minority groups due to differential treatment. Studies done in the past have collected data in the field of healthcare for both the majority and minority groups over time. The data show the percentages of illness of minority group members have increased over time when compared to the majority population.

1.1 QUALITY METRICS IN HEALTH CARE

Quality inspections and studies in healthcare were performed primarily for a patient's satisfaction and a patient's safety. Peabody et al. (2006) reported that the healthcare attributes domains were patient safety, effectiveness, patient centeredness, timeliness, efficiency, and equity. Beal et al. (2004) indicates that a patient's perspective domains were staying healthy, getting better, living with illness, and end-of-life care. Beal et al. (2004) identified nineteen measure sets and 396 individual measures to access

quality in healthcare. The study indicates that distribution of healthcare domain was safety, 14.4%; effectiveness, 59.1%; patient-centeredness, 32.1%; and timeliness, 33.3%. The distribution of patient's perspective domain was staying healthy, 24%; getting better, 40.2%; living with illness, 17.4%; end of life, 0%; and multidimensional, 23.5%.

1.2 OVERVIEW OF THE CHAPTERS

The objective of this study was to find if there existed perceived disparities in healthcare due to ethnicity. Overall, the research intent was to find out how each ethnic group felt about the treatment received from the healthcare providers.

The second chapter begins by first reviewing the literature on the concept of "healthcare disparities". After the literature review, the chapter moves to a detailed study of the disparities in different areas like language, race and age. At the end of the literature provided examples with areas such as Asthma, infant mortality rate and obesity where disparities occurred.

The third chapter is based on the rationale of the research. The fourth chapter is the methodology which discusses the design of the survey used in the research and the subjects in the study.

The results and the discussion were covered in the last two chapters. The results chapter describes the data analysis. It mainly consists of the statistical models and the descriptive statistics, which went into capturing the data for this thesis. In the discussion chapter, a detailed discussion of the results is provided. At the end of the discussion chapter a few suggestions were also put forth. There are recommendations at the end of this chapter which will pave the way for the next level of work.

CHAPTER 2
LITERATURE REVIEW

This chapter discusses the literature on the disparities that occur in healthcare service due to the lack of care. Studies have been conducted in the past in many parts of the country that suggest the existence of disparities due to ethnicity.

2.1 THE POPULATION

"Health" is supposed to be taken care of by health service providers, but proper care is not provided due to factors like poverty, language, race and ethnicity. Disparities arise due to lack of care, and are believed to be commonly observed among minority peoples. The minority group consists of Hispanics, Black Americans, Asian Americans and American Indians; the majority group is comprised of Caucasians. There is an undue burden in the health conditions of the minority group because of the differences in ethnicity. To find the disparities of access towards healthcare service, there should be a focus on the responses of the people who receive service. There should be a focus in the standards of treatment that the healthcare providers provide for treatment of people of different ethnicities. Studies show that people with disabilities that need more care are often unable to obtain care.

"CARE" by the healthcare provider towards patients is one critical factor that can reduce disparities in healthcare. Kevin et al. (2002) indicated that disparity in healthcare service can arise is due to difference in ethnicity. Most of these studies employ different data capturing techniques such as follow-ups, questionnaires, and recording conversations while observing different scenarios during treatment.

Smith (2007) reports that healthcare providers provide treatment and care based on the patient's income and insurance type. The author recommends staff training as a possible method to overcome such disparities. The nurse educators and nurse executives should provide more training to nurses to ensure that they are able to perform primary healthcare service duties. In the United States, Medicare is costly, and health insurance is required to afford health services. Many minority populations are employed as blue-collar workers who cannot afford health insurance due to their low income. Table 1 show that about half or more of Hispanics and Asian Americans with chronic conditions were not given medication on personal assistance at their homes; this shows the lack of care towards different ethnic groups.

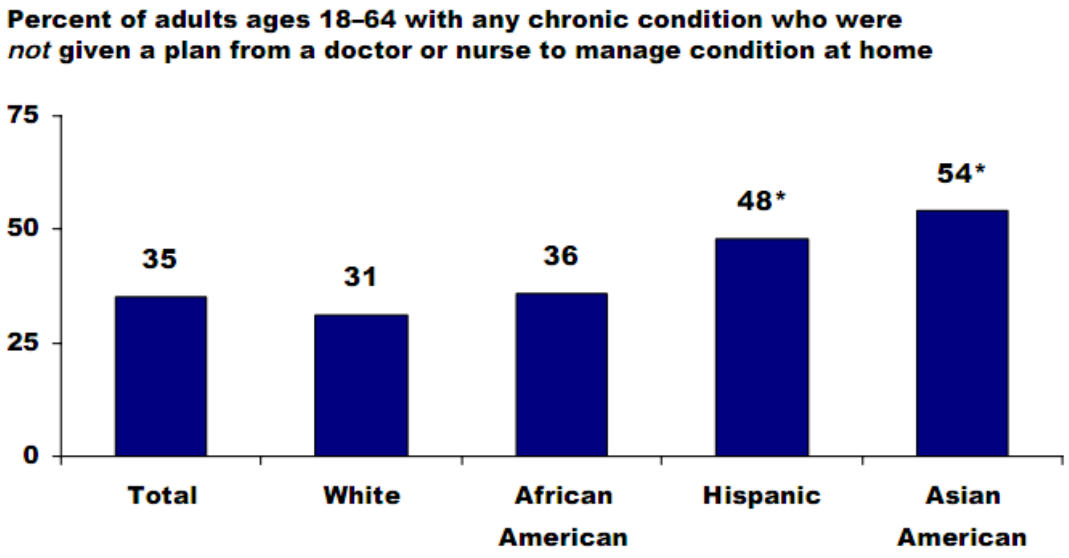


Table 1:1 Source: Commonwealth Fund 2006 Health Care Quality Survey

According to Michael Moore (2009), about 50% of personal bankruptcies arise because of medical expenses. Insurance is another aspect that keeps people out of hospitals. It was indicated that about 50 million Americans have no health insurance. Most patients are not able to afford health insurance, and as a result, they do not receive proper care and treatment.

Communication is another significant factor that leads to disparities in healthcare service towards the minority population. Treatment becomes difficult when there is no proper communication between patients and the healthcare provider. Kevin et al. (2002) performed a study to examine the role of English fluency on health care by using national data. A telephone survey method was used to collect the data. It was observed that among insured non-elderly adults disparity was due to the differences in fluency in English. In a review for disparities in healthcare due to language, which was a research project funded by the Robert Woods Johnson Foundation (2005), there were patients who did not know how to read or write English. This study focused on Spanish speakers, who account for approximately 60% of Limited English Proficiency (LEP) patients seeking health care. The solution to reduce this disparity was to provide patients with professional interpreters. However, there were problems in scheduling an appointment with the physician and the interpreter at the same time. Physicians and patients were not sure if the interpreter was providing the correct details of the patient problems to the physician and vice versa. Further research is required on the problem of communication for the healthcare providers.

Disparities arise in the nation due to the relationship between doctors and their patients. Disparities also occur due to the differences in the ways patients and physicians think. Often, physicians do not know why patients are worried. Many studies have been performed to observe the relationship between physicians and patients. Somnath et al. (2003) performed a study to observe whether there was a difference in the relationship between the physician and the patients, which leads to disparities in healthcare service. In this study, a question asked in the survey was, if the patients preferred treatment from a physician of the same race? The answer was that the patients preferred a physician of the same race. The study also showed that Asian and Hispanic patients receive inadequate services compared to African American and Caucasian patients; this was due to differences in English proficiency. There should be further research done in this area and the sample population should not be restricted to blacks and whites alone.

Bach et al. (2004), describes a disparity that may also arise in the manner the physicians examine the patients. A greater proportion of physicians who treated the minority-group patients were less knowledgeable about preventive practices and less likely to be board certified. The patients found it extremely difficult to obtain an acceptable quality of service. This makes patients feel that they are not treated properly, so patients do not prefer to visit physicians of a different race, and findings show that patients preferred physicians of the same race. The recommendations were to train health care professionals to be more culturally knowledgeable and to focus primarily on increasing physicians' knowledge of the customs, behaviors, and values of different ethnic groups.

House or family income is a feature that determines the quality of health service that patients receive. In the United States, insurance plays a significant role in quality treatment of patients. Hafner and Chris (1993) show how insurance has a role in the treatment of patients and how patients were not able to receive quality treatment. They performed a study and interviewed a group of non-elderly patients and identified a significant difference in the level of treatment received for the insured and uninsured groups. They identified that, only for people with insurance were able to receive expensive treatments and medicines. Expensive treatments and medicines are beyond the means of uninsured patients.

An interview survey by Robin et al. (2010) for the National Health conducted from January-March 2010 indicated that 46.7 million persons of all ages (15.4%) were uninsured at the time of interview, 59.1 million (19.5%) had been uninsured for at least part of the year prior to interview, and 33.9 million (11.2%) had been uninsured for more than a year at the time of interview. The statistics of the household who could afford insurance for their health analysis is shown in Table 1.2.

Selected characteristic	Uninsured[1] at the time of interview	Uninsured[1] for at least part of the past year[2]	Uninsured[1] for more than a year[2]
	Percent (standard error)		
Age			
All ages	15.4 (0.46)	19.5 (0.53)	11.2 (0.40)
Under 65 years	17.5 (0.52)	22.1 (0.59)	12.7 (0.45)
Under 18 years	7.4 (0.51)	11.7 (0.67)	4.6 (0.41)
18–64 years	21.5 (0.65)	26.2 (0.70)	16.0 (0.58)
65 years and over	0.8 (0.18)	1.4 (0.23)	0.6 (0.14)
Sex			
Male	17.7 (0.58)	21.6 (0.63)	13.5 (0.53)
Female	13.2 (0.45)	17.4 (0.54)	9.0 (0.36)
Race/ethnicity			
Hispanic or Latino	29.3 (1.14)	34.1 (1.26)	23.4 (1.12)
Non-Hispanic			
White, single race	11.1 (0.47)	14.9 (0.59)	7.6 (0.38)
Black, single race	20.1 (1.12)	24.6 (1.23)	14.8 (0.99)
Asian, single race	15.5 (1.39)	17.9 (1.50)	10.8 (1.20)
Other races and multiple races	14.9 (2.10)	22.8 (2.41)	9.3 (1.80)

Table 1:2 DATA SOURCE: CDC/NCHS, National Health Interview Survey, 2010, Family Core component. The estimates for 2010 are based on data collected from January through March. Data are based on household interviews of a sample of the civilian non-institutionalized population.

Physicians should try to instruct patients about the intake of medications. There have been studies conducted to find out if physicians are taking care of patients, without any disparities based on ethnic differences. An article by Wanda (2008) describes how the Centers for Disease Control (CDC), where continuous investigation of disparities takes place in the areas of pregnancy, reported the issue to healthcare providers and other organizations that would help in the elimination of disparities. There are many factors like her race, ethnicity, age and place of birth which affect a woman during the gestation period. Even a woman's ability to avoid unwanted pregnancy may be related to the same factors that could endanger her life from pregnancy complications. The above-mentioned factors can affect the mother's ability to maintain proper hygiene, take proper care of herself, and receive medical care during her pregnancy. The main concern observed from the survey was that pregnant women were not well informed about the complications that could occur during pregnancy.

Leigh (2009) states that alcohol consumption by pregnant women is a serious health problem. The Fetal Alcohol Syndrome disorder has cost the US about $4 billion a year and about $2 million for children diagnosed with Fetal Alcohol Syndrome. The findings also reveal that the percentage of pregnant mothers who drink has increased from 1.3% to 3.1 % from 1997-2003.

Michael et al. (1994), indicated that pregnant women consume a large amount of tobacco without realizing the after effects. They did not know the aftereffects of tobacco or alcohol consumption as they had no proper education, less income and they were not

well advised by their physicians. They also found that Black American women are getting pregnant at an unusually young age as there is no proper education and guidance. The recommendation for this problem was, to start organizations in the individual states that would inform the people who are poor and less educated of the details needed better understand their health needs. When pregnant mothers meet their physicians, the physicians give appropriate details about the different classes of drugs and the hazardous effects of drug use during pregnancy.

The research shows that in different regions of the United States physicians are not taking the proper amount of care expected by patients of the minority population. The results show that this is mainly due to the difference in ethnicities. Cooper et al. (2003) examined whether there exists a difference in the manner of treatment due to the difference in ethnicity. The collection of data was by a follow-up methodology and was to determine whether the patients were satisfied with the physicians' methods of treatment. The conclusion from the study was that the patients were more satisfied with treatment from the physicians of the same race than that of the physicians from some other race. They also suggested that physicians should be given training on communications.

Medicare is insurance for people over 65 and for people with exceptional conditions, but do people get the benefit of this insurance as promised? Arvantes (2008) informs us that many reported incidents suggest that there is a large gap between White Americans and Black Americans when it comes to treatment, and about 12% of the gap comes from the states of California and Illinois. Studies have indicated that the treatment a patient receives depends on his insurance type. Schneider, Zaslavsky, & Epstein, (2002)

executed a study that confirms that many hospitals have state-of-the-art technology for diagnosis but due to disparities in healthcare services, appropriate treatment does not reach the minority group. A study was performed in four main categories: breast cancer screening, eye examinations for patients with diabetes, blocker use after myocardial infarction, and follow-up after hospitalization for mental illness. The result of the survey shows that Black Americans did not get proper treatment. This is because the cost of using diagnostic machines is extremely high. This shows that Black Americans are not able to afford the cost of treatment as they cannot afford the medical insurance.

Trust is a crucial aspect of a patient-doctor relationship and a patient should have full confidence in his/her doctor, but do patients really trust their doctors? Trust is a qualitative measure, so the only way to determine trust is by assessing the treatment provided to patients by the physicians. Patients develop a trust when in the healthcare services when physicians show interest in patients' problems and take proper care of them. Doescher, Saver, Franks, & Fiscella, (2000) state that when patients are satisfied with their physicians' style and the effectiveness of their communication, this satisfaction leads to improved adherence and improved health results. The only way to win the confidence of patients is to listen to the patients' problems patiently and to try to understand the problems that patients are facing in their illness.

There was a study conducted by Adegbembo, Tomar, & Logan, (2006), which examines the relationship between Black Americans and White Americans to monitor the level of trust towards the physicians. Here, factors such as income, education,

employment status and the source of regular care were similar for both Whites and Blacks. The finding in this survey suggests that the elimination of racism from healthcare can remove the trust deficit between Blacks and Whites. The study concludes that the patients' experience in healthcare will determine the level of trust between physicians and patients.

Not only do healthcare disparities take place in adults of different races, it also takes place in the lives of children of the United States. Bloom B et al. (2006) Relative to White children, Latino children are 28 percent less likely, and Black children are 20 percent less likely, to be in excellent health. In total, fewer than half of all Black and Latino children today are in excellent health.

U.S. Census Bureau, (2006) that there are 9.4 million uninsured children in America – that's 1 out of every 8 children overall. But the disparities are great. 1 in 13 White children are uninsured, as compared to: 1 in 7 Black children, 1 in 4 American Indian children, 1 in 8 Asian/Pacific Islander children, 1 in 4 Hispanic children.

Studies have been conducted by selecting particular parameters to know the effect of disparities related that parameter. In this study, a few parameters like Akinbami LJ. (2006) Asthma, Y Wang & M.A. Beydou (2007) Obesity and Infant mortality rate have been considered to prove the existence of disparities. Asthma is a chronic disease and this is caused by an infection of the lungs, which causes the blockage of airflow. Obesity is also considered as a disease as people gain more weight than required. Infant mortality rate is defined as the average rate at which the children below the age of one year die.

2.2 ASTHMA

The numbers of people affected by asthma have increased continuously since the 1970s, and it is estimated that 4 to 7% of people suffer from asthma worldwide. The American Academy of Allergy, asthma and Immunology states that about 12-15 million people, which includes about 5 million children, i.e. one out of fifteen people suffer from asthma in the United States. The three categories of asthma are obstruction, inflammation and hyper-responsiveness. The main symptoms are wheezing, breathlessness, chest tightness, and coughing. The key components that trigger an asthma attack are smoke, air pollution, cold air, pollen, animals, dust, molds, perfume or bus exhaust smells, wood dust, exercise, and industrial chemicals. Physicians are not sure of the causes of asthma or what makes the cells remain gathered in the respiratory system. This is a problem that can happen to anyone at any age and a person has a high probability contacting the condition if it runs in the family. This is a problem that cannot be cured; the only way to control asthma is by following the instructions that the physicians suggest.

Asthma often coexists with allergies and when there are exposures to allergens there are also high chances of being affected by asthma. Asthma is a chronic inflammation that cannot be cured, and the only remedy for this is to follow the medication prescribed by physicians. Lyon-Callo, Boss, & Lara (2007) stated in a review that there are many policies addressing disparities of treatment of Asthma patients in healthcare. The laws are not properly implemented, and many health services do not collect racial and ethnic data due to anti- discrimination obligations, perceived legal barriers, and confidentiality. Since the patient does not receive the right treatment, asthma

victims do not have any idea of preventive measures. Disparities in the cases of asthma patients occur in areas such as housing, schools and workplaces and come into play when exposed to the environment; the victims differ by race, ethnicity, and socioeconomic status. A way that the level of disparities can be brought down is by developing asthma-friendly communities. Appropriate training for the healthcare providers can be provided so that they can impart quality healthcare services. There are improvement needed in the methods of data collection and better research practices must be implemented to minimize disparities in healthcare service.

Gergen & Nunez (2005) cite the burdens the minority group endure due to poor treatment of asthma. The treatment for asthma consists of long-term management and relief through medications. The medication depends on the type of asthma from which the victim suffers, and recommendations from the physician. The findings in the research state the burdens of asthma are high for Black Americans and Hispanic children. The rate is about 40% for the minorities visiting the emergency department. Regarding children's absence from schools, it has been found that 11 to 12 percent of Black and Hispanic children were absent from school for about one day per month due to asthma.

The quality level of asthma treatment is described by Cabana et al. (2007) "Disparities caused due to asthma occur mainly in the following areas"

•Disparities in the process of care at the health-care system level.

• Poor communication because of language.

•Sometimes it is possible that physicians feel discouraged in providing advice to patients who are less likely to follow through; they may feel discouraged from advising

and educating these patients. This lack of counseling and education may then contribute to disparities in asthma outcomes.

Cooper et al. (2001) indicates that due to low income, Black American children were admitted to the emergency room for asthma treatment. In a survey, it indicates that Black Americans and Hispanic children visiting the emergency department occurs more often than for whites, but they had fewer specialist visits. Communicating with healthcare providers was a significant problem faced by the minority group. Cooper et al. (2001) indicated that a number of community-based programs designed to improve the quality of care of childhood asthma is yet to be implemented. The combination of insurance coverage and customized clinical care is becoming recognized as an effective strategy for reducing health disparities. Training and advice for the minority group about the harmful effects of tobacco smoking at home and in other places in the presence of children suffering from asthma can be useful.

Understanding of the patient's problem by the physicians is an immensely significant aspect in healthcare. This can be the principal element to describe quality in healthcare. The best way to achieve the trust of patients is by listening to what the patient has to say about their illness. The physicians should also be able to convey their message effectively. There are studies that show that patients find it difficult to understand their physician. This is typically a problem noticed in elderly people who lack education and have a low income. Babey, Meng, & Jones (2009), report that about 13% of those who have not completed high school report problems understanding their physicians, since

they have lower education and communication difficulties. Hispanic patients are not able to express their problems caused due to asthma, as they have problems in communicating in English. The way suggested in the paper is to begin self-management education, which helps to reduce emergency department visits and hospitalization, and limits the causes that lead to Asthma. Interpreters provided during the time of treatment to convey the messages can help in lowering health care disparities. Following the appropriate medication and illness management can prevent the admission of patients.

Asthma is a problem that can lead to the death of the patient and regular medication taken properly is the only solution. With the increase in the complications of asthma, a patient will have a high probability of being admitted. Records state that most patients that belong to the minority group are admitted to the emergency room. Cabana, Lara, & Shannon (2007) found that asthma is most common among non-Hispanic blacks (9.3%), compared to non-Hispanic whites (7.6%) and Hispanics (5.0%). This report states that the qualities of healthcare factors are structure, process of care and the final outcome of care. Quality of healthcare as the structure is comprised of the policies of the government; process of care is the difference between the actual and the performance delivery according to the standard; and the final outcome of care is the differences in the health status of the patient that result from the processes of care and the structural characteristics that support them. The ways to cut down the disparities are implementing programs to increase the diversity of the healthcare workforce, to improve the evidence-based asthma clinical practice guidelines, and to develop training programs for students when they are being educated in how to deal with patients. Blacks are three times more

likely to die from asthma than whites. Table 1.3 gives an idea of the rate of death due to asthma in the United States from the 2003 to 2005.

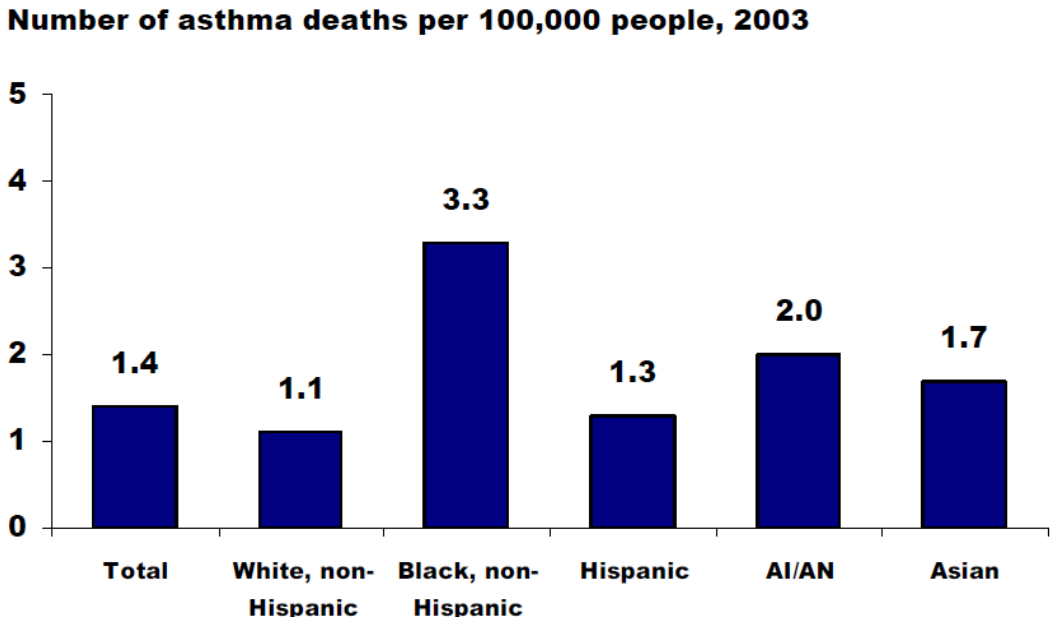


Table 1:3: AI/AN = American Indian/Alaska Native.

Note: Data are age adjusted to the 2000 United States standard population.

Source: L. Akinbami, *Asthma Prevalence, Health Care Use and Mortality: United States, 2003-05*. National Center for Health Statistics.

2.3 OBESITY

The problems of obesity are of much importance to millions of people all over the world. Obesity has also begun to be ranked as a significant risk comparable to certain diseases. Some physicians even call obesity itself a disease. Obesity occurs when there is an excessive amount of fat in one's body. A person is classified as obese if they have a Body Mass Index (BMI) of higher than 30. Obesity is a disease that affects the human body in many negative ways, leading to increased stress on the heart and other organs. People with a BMI of 25-29 are typically classified as overweight; however, they also take the risk of becoming obese if they do not change their lifestyle or seek medical treatment.

There are many areas where disparities are observed, and one such area is obesity. The comparison of weights are underweight, normal weight, overweight, obese I and obese II/III Americans. Obesity is due to being overweight. The people who suffer the effects of disparity due to obesity are last accepted into organizations or institutions. There has been evidence that people who suffer from obesity are not treated in a respectful nature and do not receive equal consideration. Puhl and Brownell (2001) say that discrimination caused due to obesity takes place mainly in areas such as healthcare, employment and education centers. The author shows that there is bias against overweight people. The disparity in healthcare towards obese people can be minimized by decreasing negative attitude towards people with weight problems. The actions like the legal methods, social actions and legislative approaches to reduce obesity disparities.

Discrimination takes place mainly in different work environments. Belluck (2010), mentions that African-American adults have the highest obesity rates of about 37 percent among men and nearly 50 percent among women. For Hispanic women, the rate is 43 percent. There have been observations that demonstrate an increase in the number of obese people over the last few years. Studies have shown that children between the ages of 6 to 19 years are extremely obese. Carr and Friedman (2005) of Rutgers University show that when people work with obese people there is a negative attitude developed in the working environment. There is significant discrimination developed towards people with obesity, such as being passed over for a job promotion and through day-to-day interpersonal discrimination such as being treated rudely. In this study, the people discriminated against due to their obesity suffered psychological problems. It has been observed from past research by Braveman (2009) that the major problem that obese people face is chronic disease. The disparities mentioned are due to more wealth that will lead to the purchase of more nutritious food and lead to more consumption. The problems such as chronic stress develop when there is an increase in obesity. Less education of obese people will prevent them from following health information. Braveman (2009) suggested that children from poor families are mainly from the minority group and have a greater obesity rate.

2.4 INFANT MORTALITY RATE

The infant mortality rate statistically plays an extremely significant role as it addresses the overall health of the nation. The infant mortality rate is divided into two categories, neonatal and post-neonatal deaths. When the death of an infant occurs at less than 28 days of age, it is known as neonatal death, and when death of an infant occurs at between 28 days and one year of life, it is a post-neonatal death (A Dictionary of Epidemiology by J.M. Last, (1988)). Over the last 60 years the rate of infant mortality has decreased by 40 percent; the disparities due to infant mortality still prevail. Most parents are not aware of the risk factors and appropriate guidance of the parents is to be provided during the first trimester, which will assist in reducing the infant mortality rate.

There have been many studies done to examine whether there is a correlation between higher infant mortality rate and ethnicity. It has been observed from the previous data that infant mortality rates are higher for the minority group when compared to the majority population. Snyder and Rivera (2005), The United States ranked 27th in the year 2000 because of its infant mortality rate. It is observed that the infant mortality rate for African Americans is twice that of Whites. Snyder and Rivera (2005) also indicated that the evidence of wide inequality between the upper and the lower strata of society. The study in Delaware indicated that infant mortality rate in 1998-2002 among African Americans was 16.7% as compared to White Americans which was 6.9%. This shows that there is a disparity rate among different ethnicities. Snyder and Rivera (2005) suggested that there was no proper attention and advice provided to mothers of the minority group by healthcare providers. Starting a statewide campaign about the infant

mortality rate can reduce this problem. There must be improved access to care for populations disproportionately impacted by infant mortality. It should be made mandatory for insurance companies to cover services including preconception, prenatal and inter-conception care.

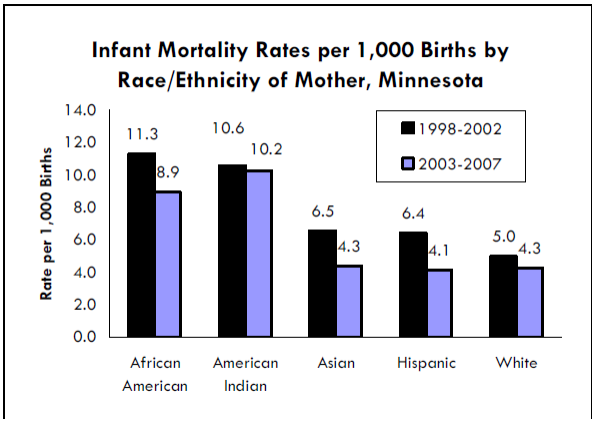
The main aim of healthcare providers is to reduce the outstanding percentage of infant mortality rates by 2010. The steps have been taken to reduce the infant mortality rate, but have these steps been effective, and has there been a decrease in the infant mortality rate? The report in the January 2009 edition of *the Minnesota Center for Health Statistics and Community and Family Health Division Maternal & Child Health Section* magazine states that the disparities in infant mortality rates still exist. According to the data collected, it shows that rates of infant death differ significantly between African Americans and Whites and American Indians and Whites. The suggestions to reduce infant mortality rates in healthcare service were; to try to establish relationships with the different community centers and to create awareness among pregnant women. The health campaigns that would address the disparities in infant mortality rates can be conducted. The service networks to address the problems of pregnant women, risk assessment, case management, health education, and better health care until the infant is two years old.

The recent reports of May 2010 collected by the Minnesota Health Department show that out of 70,000 babies born, about 400 babies die each year. The number of children dying within the minority population when compared with the majority population is greater. There has been a decline in the infant mortality rate in recent years.

Fogarty (2010) reports that focusing on reducing disparities in infant mortality rates is taking place at both state and local levels in the State of Minnesota. The Table 1.4 shows the infant mortality rate in the US and for the state of Minnesota for the year 2004- 2006.

Table 1:4: The Minnesota Department of Health (May 2010), Infant Mortality.

Infant Mortality Rates 2004-2006		
	MN	U.S.
Overall	5.0	6.8
White	4.5	5.7
African American	8.8	13.1
American Indian	9.5	8.3
Asian	4.1	4.7
Hispanic	4.3	5.5
Per 1,000 births Linked birth/death cohort		



A major step that can be considered in the future is, recognizing that making progress and setting new objectives is an ongoing process. A vision that will help to expand and develop the healthcare system in coming years. The healthcare providers provide a U.S. health care system that delivers effective, high-quality medical care not just for some, but for all. Newspapers and magazines are tools that can be used to inform consumers and healthcare providers about the innovations, plans or steps of improvement, and developments in healthcare services. Research is being performed to find the reasons for discrimination as the United States is growing more diverse ethnically overtime.

TABLE 3.1 SUMMARY OF QUESTION

Question No	Dependent Variable	Category
7	Visiting the Same Physician	**Quality and Satisfaction**
9	Consulting physician of same ethnicity	**Quality and Satisfaction**
10	Treatment in emergency room	**Quality and Satisfaction**
11	Satisfaction level by service provider	**Quality and Satisfaction**
12	Difficulty in communicating to physicians	**Communication**
13	Explanation of treatment by physicians	**Communication**
14	Communicating with the staffs	**Communication**
15	Accessing information in hospitals	**Access in hospitals**
16	Do they have a Medical insurance	**Access in hospitals**
17	Type of medical insurance	**Access in hospitals**
18	Reason of not having insurance	**Access in hospitals**
19	Prescription based on insurance	**Access in hospitals**
20	Treatment according to expectation	**Access in hospitals**
21	Not able to make regular check up	**Reliability**
22	Did Physician provide details of medicine	**Reliability**
23	Did Physician listen to healthcare concerns	**Reliability**
24	Did physicians meet when Hospitalized	**Reliability**
25	Medical errors during treatment	**Reliability**
26	Where staffs helpful in answering questions	**Responsiveness**
27	Improvements in healthcare services	**Responsiveness**
28	Appointment time with Physicians	**Responsiveness**
29	Time spent for consulting by physicians	**Responsiveness**
30	Understand of past history by physicians	**Follow-up**
31	Physicians prescribe medicine which are easily available	**Follow-up**
32	Physicians treated you with respect	**Follow-up**
33	Was there any error in the lab work	**Follow-up**

CHAPTER 3
RATIONALE OF RESEARCH

3.1 CRITIC'S OF THE LITERATURE

The studies conducted in the field of healthcare have indicated the existence of disparities in the services towards different ethnic groups. Cook, McGuire, and Miranda (2007) specify that the mental healthcare system continues to provide less care towards African Americans and Hispanics. In this article, they were not able to identify trends in disparities in mental health services. The healthcare providers can develop methodologies that adjust for health status and provide socioeconomic factors to resolve differences.

Cabana, Lara, & Shannon (2007) described the quality of healthcare in terms of structure, process of care and the final outcome of care. The development methods suggested were programs to increase the diversity of the healthcare workforce, training programs for students while they pursue their education, and provision of improved guidelines. There is more research can be performed at the patient/provider level also delineating the content and methods for distribution issues regarding cultural competency to health-care providers.

Lyon-Callo, Boss, & Lara (2007), cite the problems faced by patients with asthma, leading to disparities. The possibility of creating an asthma-friendly community throughout the country and statewide is yet to be implemented. There is a lack of evidence regarding the institutionalization of successful pilot programs into policy.

Braveman (2009) cites that obese people face problems of chronic diseases. The study states that chronic stress is developed with increased obesity in patients. Further research is required to pinpoint the causes of social disparities in healthcare services and reform the efforts of intervention.

Somnath et al. (2003) describes patients' satisfaction levels towards the medical treatment procedures of physicians. The study shows that there was a lower level of care towards Asian and Hispanic patients when compared to African American and Caucasian patients. Future research can be performed in a complex nature for racial disparities to obtain more information. The research can be expanded beyond the scope of examination between the Black and Caucasian ethnic comparisons also include Hispanics and Asians, who appeared to be least cared for.

Schneider et al. (2002) indicated significant racial disparities in the quality of care among Medicare beneficiaries enrolled in managed care. CMS obtained HEDIS data and this type of monitoring program can be expanded and extended to other types of insurance offered by the government. Future research can be performed in developing plans and finding reasons to reduce disparities due to insurance coverage within and among health plans.

Doescher, Saver, Franks, & Fiscella, (2000), gave evidence that physicians have fewer positive responses from patients of racial and ethnic minority groups on at least two fundamental dimensions. The reasons for these ethnic differences in the healthcare services can be thoroughly explored and addressed.

Bach et al. (2004) found that there is a disparity in treatment between African Americans and Caucasians. Physicians who treated African American patients had less access to essential clinical resources and were less clinically well-trained than physicians treating white patients. Further research can be conducted to address the differences which are responsible for disparities in health care.

Cooper et al. (2003) demonstrated the waiting time for a treatment visit differed according to race. Communication is not the only factor that should be considered for examination. Other factors, including the relationship between the patient and the physician should also be considered. More evidence is required regarding the relationship and the effectiveness of communication programs. Increasing ethnic diversity among physicians may be a better strategy to improve health care for ethnic minority groups.

3.2 NEED OF WORK

One significant purpose of the United States government is to reduce disparities in healthcare. The nature of healthcare disparities among different ethnic groups remains a problem. Many studies have been conducted in various parts of the country, which showed that painful and dramatic improvements were needed. In the state of Nebraska, there is remarkably little information about the existence of healthcare disparities from the data collected by government organizations. Therefore, the research is mainly conducted to find the existence of these differences in medical use and areas of ethnic disparities in health care. It is also important to understand the extent to which healthcare plans, ethnicity and hospitals affect patients for the purposes of reducing gaps in care. Understanding if patients took medication prescribed by the healthcare providers after they had knowledge about the effects of the medicine. In the study, we

tried to capture whether the health tests performed on patients were based on the ethnic group or by the type of insurance. After analyzing the data collected, a satisfactory solution may be designed to improve the quality of the quality of health care, as well as to understand what type of projects can be implemented for the reduction of healthcare disparities.

3.3 OBJECTIVE

This proposal seeks to improve healthcare quality by identifying any ethnic disparities using an assessment tool. This research is necessary for health care, as well as to determine any differences which are politically sensitive and challenging, as the causes are interrelated with the controversial history of race relations in America. The objective of this thesis is to identify any racial disparity in providing the healthcare within the state of Nebraska.

3.4 RATIONALE OF METHODOLOGY

The aim of this project is to improve patient satisfaction and patient safety. The tool designed for data collection in the proposal is a survey method. The survey method is the most popular tool used to measure quality in most fields. This instrument (questionnaire) was selected as patients are able to share their experiences. The survey methodology has stability, accuracy, and precision of measurement. This method helps in direct interaction of the principal investigator and the patients.

The survey questionnaire assisted in gathering information from individuals. The survey could be done in many ways, including mail, telephone, face-to-face interviews, handouts, or electronically. Taylor & Hermann (2000) suggest that when resources are limited and data is needed for a large sample survey, questionnaires help in obtaining the required sample size. Collected data through surveys allows the researcher to deal with qualitative aspects, such as

belief knowledge, attitudes and behavior. Privacy of participants is an immensely significant factor. Questionnaires assist in maintaining the privacy of the participants because the responses can remain anonymous or confidential. This is particularly relevant while gathering sensitive information. The survey questionnaire can be translated into different languages, which will assist in obtaining information from different ethnicities. Future studies can be performed using the old data from the survey. Comparisons can be performed on the previous and new data sets of the survey.

CHAPTER 4
METHODOLOGY

This chapter presents a description of different methods employed in the study. The review in the literature points out the factors that could lead to disparities in healthcare service. Two separate questionnaires were developed and distributed to patients and physicians in the State of Nebraska to identify ethnic differences in health care. The following chapter discusses the experimental design, experiments and procedures.

4.1 PARTICIPANTS

The participants for this study were from the United States population of different ethnic backgrounds. The different groups of participants for the study were African Americans, Asians, Caucasians and Hispanics. There are both females and males participating in the survey. A total of 80 subjects participated in the study. There were twenty participants from each group. Each group had 10 female and 10 male subjects to complete the survey questionnaire. The participants in the survey were above the age of nineteen.

The methodology details for the data collection are:

- A survey questionnaire for the patients and physicians was designed,
- Distributed the questionnaires to the respective community centers, and authorized persons distributed the questionnaire to the subjects, and
- To capture the areas of disparities by the analysis of the data and provide appropriate interventions.

4.2 PROCEDURE

4.2.1 DESIGN OF SURVEY

Since the major aim of this thesis is to find patients' satisfaction, the way to obtain the data was by creating a survey questionnaire. The questionnaire was designed at the Lincoln-Lanaster County Health Department with the help of Jean Krejci (Phd). This questionnaire was designed to contain 33 questions. There was couple of iterations performed on the questionnaire in order to correct and change the question in a more suitable way. The corrections were mainly performed to improve the structure and grammar. After the corrections were performed, the question were modified and separated into seven categories. The first category was to determine the general information of the patients. The rest of the six categories played a major role in determination of patient's satisfaction. The main aim of dividing the questionnaire in the respective categories was to understand how each ethnicity felt about the ways of treatment. After the completion of the questionnaire, it was submitted to the Institutional Review Board (IRB) at UNL for their approval. The approved survey questionnaire was used for collecting data after the consultation with community center directors and participants. The questionnaire was designed so that the selected ethnic groups could answer without any changes.

After developing the questionnaire the ethnic groups were chosen depending on the availability of subjects. Four ethnic groups were selected; they were African American, Asians, Caucasians and Hispanics. The attributes that were significant from the analyses were considered as the main determinants for measuring patient's satisfaction. The survey was administered to all concerned in a selected time window.

Some of the demographic features captured in the survey were age, ethnicity, education, gender and language. These factors played a very important role in the analysis of the collected

data. The questionnaire was used to capture the demographic parameters and how each ethnic group felt about the ways of treatments. The sample that was collected was a community sample. Announcements were made by the primary investigator to the directors of the selected community centers. The authorized informed consent form was provided to the directors. The questionnaire was supplied by the primary investigator as a package to the directors of the community centers. Each package consisted of 40 questionnaires. The informed consent form was attached with each questionnaire. Translation of the questionnaire and the informed consent form was done up on request. Verbal understanding of the questionnaire and the informed consent form was provided by the directors of the respective community center if required. The questionnaire was completed by the participants on voluntary bases. The time span for completing the questionnaire was three months.

4.2.2 PATIENT

The selected community center depended on ethnicity. In this study, the selected ethnic groups were African Americans, Asians, Caucasians and Hispanics. It was assumed that there is a difference in the manner of treatment and care of the majority group and minority groups. The majority group consists of Caucasians and the minority group consists of African Americans, Asians and Hispanics. The control group for the analysis is the majority group (Caucasians). The data for African Americans were collected from The Clyde Malone Community Center, Asians from the Asian Community and Cultural Center, Caucasians from Aging Partners, and Hispanics from the El Centro de Las Américas. The locations of these community centers were in Lincoln, Nebraska.

The participants who were interested in the survey had to read the consent form and participate in the survey. The analysis was to find if there was any difference in healthcare treatment and care. The maximum time taken to complete each survey questionnaire was 20 minutes. The questionnaire was translated to required languages for the community centers.

CHAPTER 5
RESULTS

5.1 OVERVIEW

This chapter reports the results of the survey conducted at different community centers of Lincoln, Nebraska. In this data analysis, the questions from 1 to 5 in the questionnaire (Appendix 1) discuss the subject's ethnicity, gender, age, level of education and language. Ethnicities and genders of the subjects are considered independent variables, while age, level of education and language are the considered the covariates. The dependent variables considered are questions 7 to 33 in the questionnaire (Appendix 1).

This is a descriptive type of study and performed to understand the significant independent variables that were contributing significantly to the variables. Table 5.1 is a description of the participants and Table 5.2 describes the number of participants for the survey. The significant and non-significant independent variables for individual questions are then tabulated in Tables 5.3, 5.4, 5.5 and 5.6. The study also concentrated on whether factors such as gender, age, education and language played any role in the outcome of disparities. An ANOVA was performed to observe which parameters contributed to the selected factor. The controlled variables were ethnicity and gender. Age, level of education, and language were considered as covariates as they were not controlled. An ANOVA was performed on ethnicity and gender, ethnicity and age, ethnicity and education, and language. A Turkey pairwise comparison was performed for the following: ethnicity, age, education and language. The log-it regression was performed on the questions that were categorical.

Table 5.1 Description of the participants

Number of participants for the survey	80
Number of ethnicities	4
Categories of the ethnicities	African Americans, Caucasians, Hispanics and Vietnamese.
Number of participants from each ethnicity	20

Table 5.2 Description of the number of participants for the survey

Ethnicity / Gender	African Americans	Caucasians	Hispanics	Vietnamese
Male	10	10	10	10
Female	10	10	10	10

TABLE 5.3: ANOVA SUMMARY FOR ETHNICITY AND GENDER

Question No	Dependent Variable	Ethnicity	Gender	Ethnicity*Gender
7	Visiting the Same Physician	*	NS	NS
8	Overall quality of healthcare provider	*	NS	NS
9	Consulting physician of same ethnicity	*	*	NS
10	Treatment in emergency room	*	NS	*
11	Satisfaction level by service provider	NS	NS	NS
12	Difficulty in communicating to physicians	*	NS	NS
13	Explanation of treatment by physicians	NS	NS	NS
14	Communicating with the staffs	NS	NS	NS
15	Accessing information in hospitals	NS	NS	NS
16	Do they have a Medical insurance	*	NS	NS
17	Type of medical insurance	NS	NS	NS
18	Reason of not having insurance	*	NS	*
19	Prescription based on insurance	NS	NS	*
20	Treatment according to expectation	NS	NS	NS
21	Not able to make regular check up	NS	*	NS
22	Did Physician provide details of medicine	NS	NS	*
23	Did Physician listen to healthcare concerns	NS	NS	NS
24	Did physicians meet when Hospitalized	*	NS	*
25	Medical errors during treatment	NS	NS	*
26	Where staffs helpful in answering questions	NS	NS	NS
27	Improvements in healthcare services	*	NS	NS
28	Appointment time with Physicians	*	NS	*
29	Time spent for consulting by physicians	NS	*	*
30	Understand of past history by physicians	NS	NS	*
31	Physicians prescribe medicine which are easily available	NS	*	*
32	Physicians treated you with respect	*	NS	*
33	Was there any error in the lab work	NS	NS	*

5.2 ANALYSIS ON ETHNICITY AND GENDER

An ANOVA was performed on the results of questions from 7 to 33 to understand the effects on ethnicity and gender. An ANOVA, Log-it and Turkey pairwise comparison analysis were performed on ethnicity. The statistically significant results for ethnicity in this analysis were: treatment in the emergency room, reasons for not having insurance, if prescriptions were based on insurance, did Physician provide details of medicine, appointment time with Physicians, time spent for consulting by physicians, understand of past history by physicians, physicians prescribe medicine which are easily available, physicians treated you with respect, was there any error in the lab work. The value of $\alpha = 0.1$.

The statistically significant factors for gender in the analysis were: consulting the physician of the same ethnicity, the reasons patients were not able to receive regular check-ups, and ease of availability of prescriptions. The graphical plots were of the questions that showed a significant value after analysis from Table 5.3. The graphs represent the plots between means and ethnicity for the analysis of ethnicity and gender. A Turkey pairwise comparison was not performed for the analysis of ethnicity and gender. The interpretations of the statistically significant terms were according to the ANOVA for ethnicity and gender.

The Table 5.3 is the tabulation of the result of ethnicity and gender. The table is separated into five columns. The first column is the question number used for the analysis, the second column is the brief description of the question, the third, fourth and fifth column are the results of statistical analysis. The last three columns state if the respective question was statistically significant or non significant. The fifth column signifies if the interaction between ethnicity and gender was significant for the respective question.

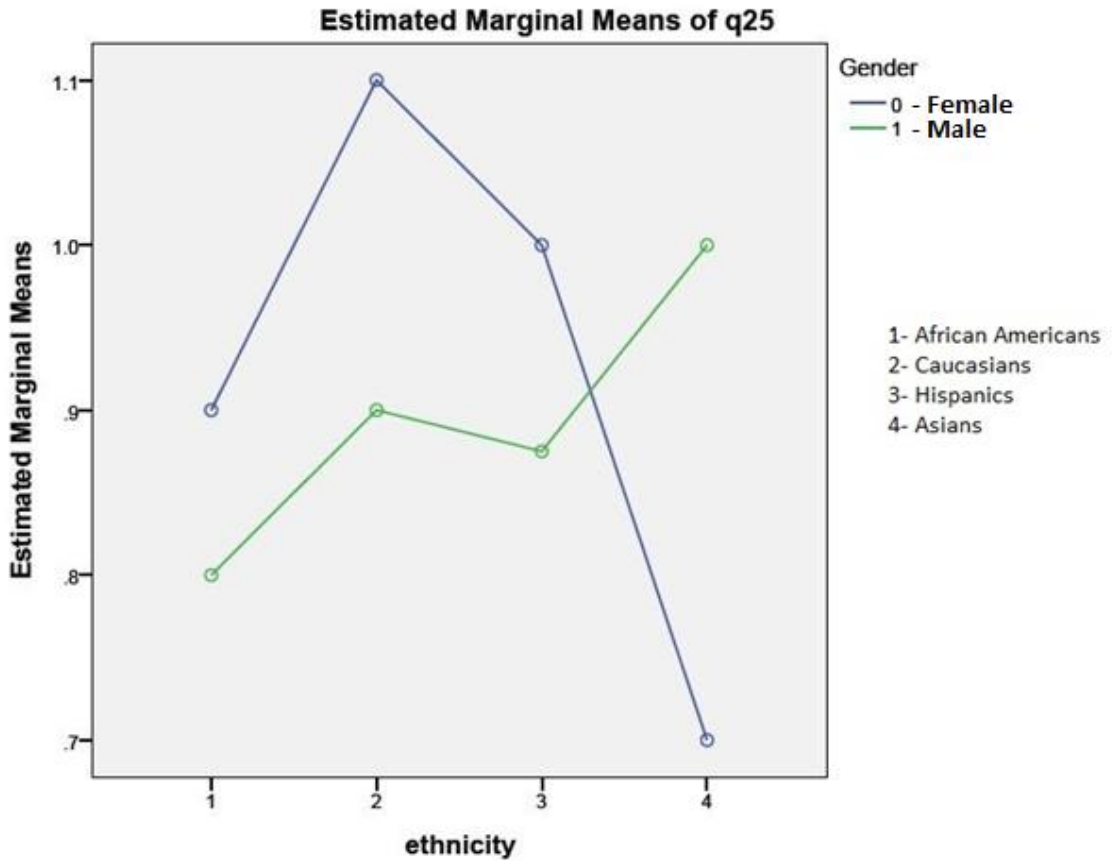


Figure 5.3 Analysis of ethnicity and gender for the presence of medical errors during treatment

Many literary works cite the existence of medical errors during treatment and that were a cause in the death of several patients. In this ANOVA, ethnicity and gender were statistically significant factors (Table 5.3) for question twenty five (Appendix 1). Question 25 was to determine whether there were any occurrences of medical errors during the time of treatment. Figure 5.7 is the graphical plot of ethnicity and means for different genders. The results interpreted from Figure 5.7 show that Caucasian males and Vietnamese females felt that medical errors did occur during patients' treatment. The other groups did not feel that there were medical errors during the time of treatment.

Few of the questions in the questionnaire cannot be analyzed using ANOVA. These questions are not quantitative by nature, and they are treated as categorical questions. These types of questions are analyzed by a method called log-it in regression. The significance of the result is analyzed by observing the results from the goodness of fit test. In the goodness of fit test we consider the questions to be statistically significant if the values are greater than 0.10. The questions that were found to be significant form the analysis using log-it were: consulting physician of same ethnicity, treatment in emergency room, reason of not having insurance, prescription based on insurance, did physician provide details of medicine, appointment time with physicians, time spent for consulting by physicians, understand of past history by physicians, physicians prescribe medicines which are easily available, physicians treated you with respect, was there any error in the lab work. The questions mentioned above were significant as there was an interaction between ethnicity and gender.

TABLE 5.4: ANOVA SUMMARY FOR ETHNICITY AND AGE

Question No	Dependent Variable	Ethnicity	Age	Ethnicity*Age
7	Visiting the Same Physician	*	*	*
8	Overall quality of healthcare provider	*	*	*
9	Consulting physician of same ethnicity	*	NS	*
10	Treatment in emergency room	*	NS	NS
11	Satisfaction level by service provider	NS	NS	NS
12	Difficulty in communicating to physicians	*	*	NS
13	Explanation of treatment by physicians	NS	NS	NS
14	Communicating with the staffs	NS	NS	NS
15	Accessing information in hospitals	NS	NS	NS
16	Do they have a Medical insurance	*	*	NS
17	Type of medical insurance	NS	*	*
18	Reason of not having insurance	*	*	NS
19	Prescription based on insurance	NS	*	NS
20	Treatment according to expectation	NS	NS	NS
21	Not able to make regular check up	*	*	NS
22	Did Physician provide details of medicine	NS	NS	NS
23	Did Physician listen to healthcare concerns	NS	*	NS
24	Did physicians meet when Hospitalized	*	*	NS
25	Medical errors during treatment	NS	NS	NS
26	Where staffs helpful in answering questions	NS	NS	NS
27	Improvements in healthcare services	*	NS	NS
28	Appointment time with Physicians	*	NS	NS
29	Time spent for consulting by physicians	NS	*	NS
30	Understand of past history by physicians	NS	NS	NS
31	Physicians prescribe medicine which are easily available	NS	NS	NS
32	Physicians treated you with respect	NS	NS	NS
33	Was there any error in the lab work	*	NS	NS

5.3 ANALYSIS ON ETHNICITY AND AGE

The literature review indicated that as the age of a person progresses they need better care. So age was one factor that determines the overall quality of healthcare services. There were citations in the literature that concluded that aged patients did not receive the right amount of care. An ANOVA and a Turkey pairwise comparison were performed on ethnicity and age, and below are independent variables that were statistically significant. The statistically significant results for ethnicity and age in this analysis were visiting the same physician, overall quality of healthcare provider and consulting physician of same ethnicity.

Table 5.4 is the tabulation of the result of ethnicity and age. The table is divided into five columns. The first column is the question number used for the analysis, the second column is the brief description of the question, the third, fourth and fifth column are the results of statistical analysis. The last three columns state if the respective question was significant or non significant. The fifth column signifies if the interaction between ethnicity and age was significant for the respective question

The results that were statistically significant in analysis with age were: visiting the same physician, overall quality of the healthcare provider, difficulty in communicating with physicians, availability of medical insurance, type of medical insurance, reason for not having medical insurance, whether the prescription of medication was based on medical insurance, inability to receive regular check-ups, whether the physician listens to the health concerns of the patient, physicians meeting patients when hospitalized, and the amount of time spent consulting with the patient. Shown below in Table 5.4 are the significant results of the ANOVA.

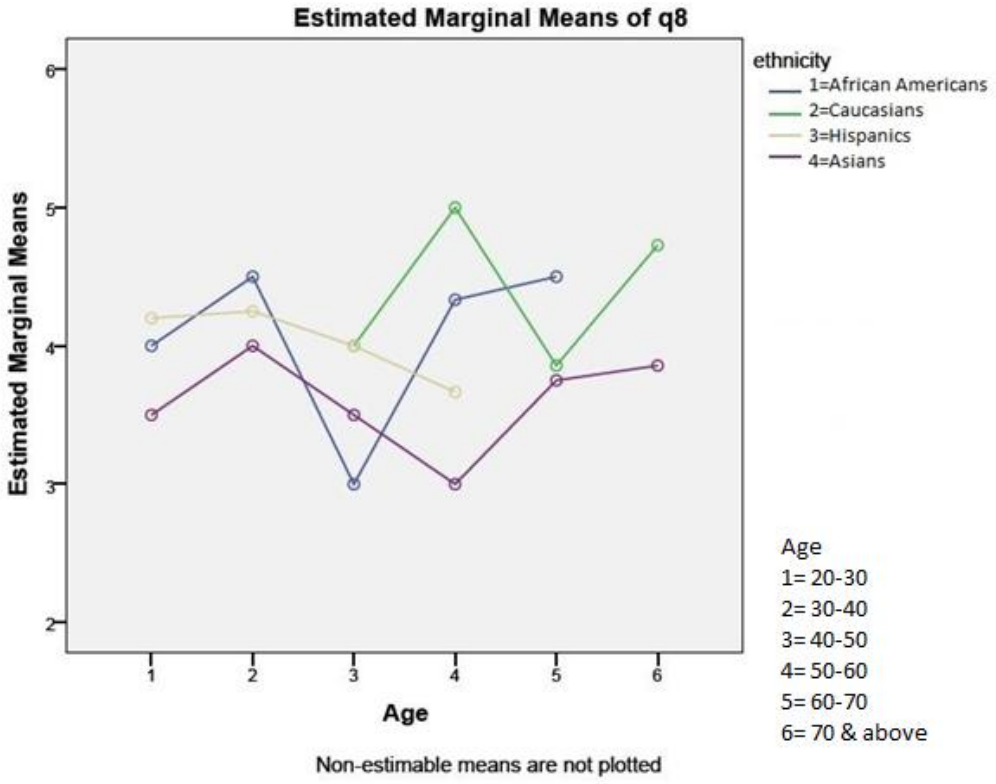


Figure 5.3 Analysis of ethnicity and age for the presence of medical errors during treatment

For the analysis of ethnicity and age, question eight (Appendix 1), whether there was any indication of medical errors during treatment (Table 5.4). Each age group was analyzed depending on their ethnicity, and results were plotted in Figure 5.3. The result from the graph indicates that there is an interaction between ethnicity and age. There are six ranges of age group in the analysis. The results of the ANOVA of ethnicity and age as plotted in the graph indicates that, the patients with the age group of 50-60, and 70 and above felt the presence of medical error when treatment was provided to them. Caucasians in the age range of 50-60 and 70 and above and Asians in the age range of 60-70 suspected the presence of medical errors.

The questions that are categorical are analyzed using the log-it regression. In that analysis of ethnicity and age it was found that questions seven and nine (Appendix 1) were statistically significant. The statistically significant terms were if patient visited the same physician ever time of the health treatment and if the patient consulted the physician of same ethnicity.

TABLE 5.5: ANOVA SUMMARY FOR ETHNICITY AND EDUCATION

Question No	Dependent Variable	Ethnicity	Education	Ethnicity*Education
7	Visiting the Same Physician	*	NS	NS
8	Overall quality of healthcare provider	*	NS	NS
9	Consulting physician of same ethnicity	*	*	NS
10	Treatment in emergency room	*	NS	NS
11	Satisfaction level by service provider	NS	NS	NS
12	Difficulty in communicating to physicians	*	*	NS
13	Explanation of treatment by physicians	NS	NS	NS
14	Communicating with the staffs	NS	NS	*
15	Accessing information in hospitals	NS	NS	NS
16	Do they have a Medical insurance	*	NS	NS
17	Type of medical insurance	NS	NS	NS
18	Reason of not having insurance	*	NS	NS
19	Prescription based on insurance	NS	NS	NS
20	Treatment according to expectation	NS	NS	NS
21	Not able to make regular check up	NS	NS	NS
22	Did Physician provide details of medicine	NS	NS	NS
23	Did Physician listen to healthcare concerns	NS	NS	NS
24	Did physicians meet when Hospitalized	*	NS	NS
25	Medical errors during treatment	NS	NS	NS
26	Where staffs helpful in answering questions	NS	NS	NS
27	Improvements in healthcare services	*	NS	NS
28	Appointment time with Physicians	*	*	NS
29	Time spent for consulting by physicians	NS	NS	NS
30	Understand of past history by physicians	NS	*	NS
31	Physicians prescribe medicine which are easily available	NS	NS	NS
32	Physicians treated you with respect	NS	NS	NS
33	Was there any error in the lab work	NS	NS	NS

5.4 ANALYSIS ON ETHNICITY AND EDUCATION

Education is an important factor as most of the participants had completed both the elementary and secondary levels of education. Education plays a role in understanding the terms that the physicians use to describe health or medication details. An ANOVA and a Turkey pairwise comparison were performed in the analysis of ethnicity and education. The observations of the ANOVA of ethnicity and education were tabulated in Table 5.5. The analysis of ethnicity and education levels in the results that was statistically significant was communicating with the staffs. The results discussed below were based on the ANOVA of ethnicity and education.

Table 5.5 is the tabulation of the result of ethnicity and education. The table is divided into five columns. The first column is the question number used for the analysis, the second column is the brief description of the question, the third, fourth and fifth column are the results of ANOVA. The last three columns state if the respective question was statistically significant or non significant. The fifth column signifies if the interaction between ethnicity and education was significant for the respective question.

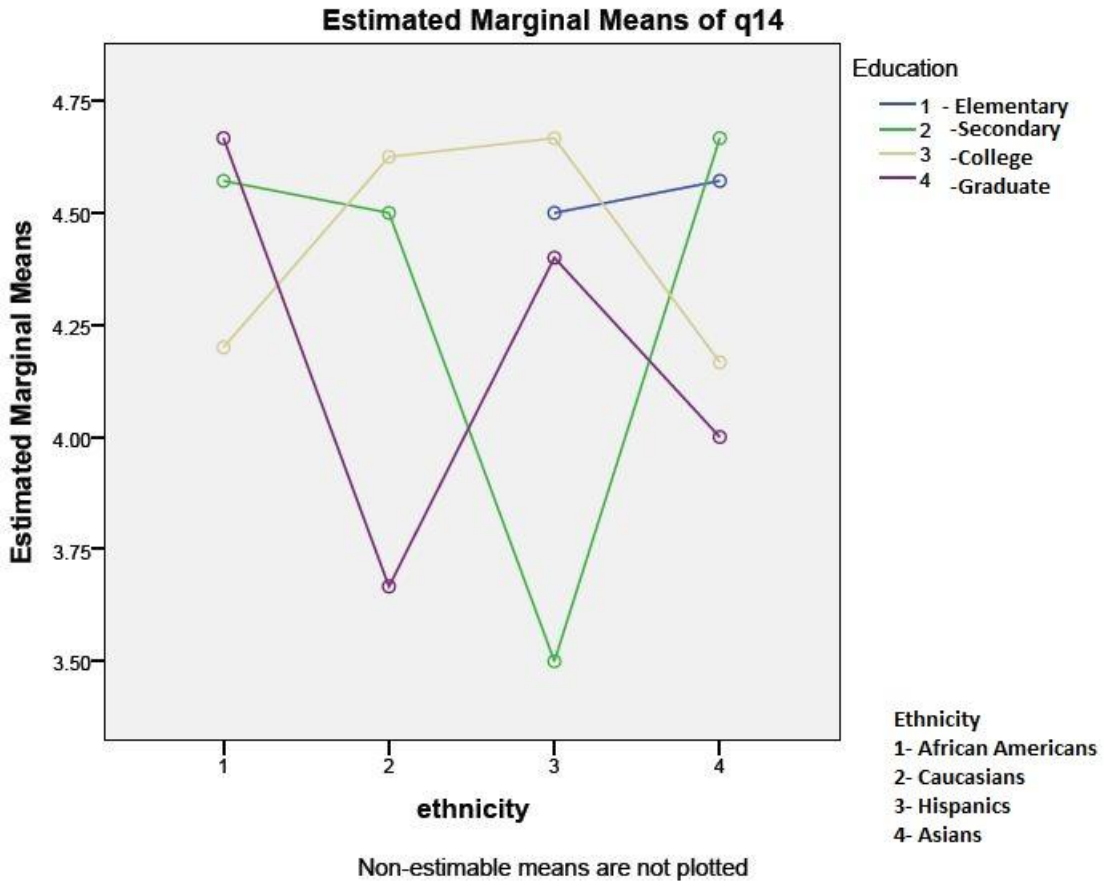


Figure 5.3 Analysis of ethnicity and education for Communicating with the staffs

In the ANOVA of ethnicity and education, results showed that question 14 (Appendix 1), whether the patients found it easy to communicate with the healthcare provider, were found to be statistically significant (Table 5.5). The ANOVA output of ethnicity and education from the analysis were plotted in Figure 5.3. According to the Figure 5.3, regarding ethnicity and means for different educational levels, it indicated that Caucasians with graduate degree and Hispanics with secondary degree were least satisfied with the way they had to communicate with the staffs. The results from the graph indicate that the patients who had higher educational qualifications were not satisfied with communicating with the staffs. The people with lower educational degree were satisfied with the ways of communication with the staffs.

The other analysis that was performed was using the log-it regression on the interaction between ethnicity and education. This was performed on the categorical type of questions. From the analysis it was found that none of the questions (Appendix 1) were statistically significant.

TABLE 5.6: ANOVA SUMMARY FOR LANGUAGE

Question No	Dependent Variable	Language
7	Visiting the Same Physician	*
8	Overall quality of healthcare provider	*
9	Consulting physician of same ethnicity	*
10	Treatment in emergency room	*
11	Satisfaction level by service provider	NS
12	Difficulty in communicating to physicians	*
13	Explanation of treatment by physicians	NS
14	Communicating with the staffs	NS
15	Accessing information in hospitals	NS
16	Do they have a Medical insurance	*
17	Type of medical insurance	*
18	Reason of not having insurance	*
19	Prescription based on insurance	NS
20	Treatment according to expectation	NS
21	Not able to make regular check up	NS
22	Did Physician provide details of medicine	NS
23	Did Physician listen to healthcare concerns	NS
24	Did physicians meet when Hospitalized	*
25	Medical errors during treatment	NS
26	Where staffs helpful in answering questions	NS
27	Improvements in healthcare services	*
28	Appointment time with Physicians	*
29	Time spent for consulting by physicians	*
30	Understand of past history by physicians	NS
31	Physicians prescribe medicine which are easily available	*
32	Physicians treated you with respect	*
33	Was there any error in the lab work	NS

5.5 ANALYSIS ON LANGUAGE

Language is a way that patients communicate with healthcare providers. The main parameters that fall under communication include the patient's health status, obtaining information on how to gain access to the hospital and understanding of prescription. Ethnicity and language were interrelated, as the ethnic group has their own language for conversation. There were people in the ethnic groups who know how to converse in English as well as their respective languages, thus if any disparities should exist it is due to the difference in ethnicities. One-way ANOVA and a Turkey pairwise comparison were performed with language to find which variables were statistically significant (Table 5.6).

According to this analysis, the first statistically significant factor was visiting the same physician every time for the patient's treatment. Most patients felt that they could communicate their health problems to physicians who were familiar to them. They expected to get better treatment from the physicians they knew. The overall quality of the healthcare provider also was a significant term in the analysis. When tested on whether a patient preferred to see a physician of the same ethnic group, the results demonstrated language to be a significant factor. Patients felt that they were able to convey their medical problems better in their native language. The question, if there were any difficulties in communicating with physicians, was found to be statistically significant. Physicians' communicating with patients in a better way was one parameter that can reduce disparities in healthcare service.

As mentioned above, insurance was directly related to language. The statistically significant results for language were: whether patients had insurance, type of health insurance, and the reason why they did not have insurance. The other significant factors in this analysis with language are, the number of visits by physicians when patients were hospitalized, any improvement in quality of healthcare service, the amount of time physicians spent with patients, the waiting time for an appointment, and whether physicians treated patients with respect and courtesy.

5.6 REGRESSION ANALYSIS

5.6.1 Discussion of the grouping of the questions in the questionnaire

The questions were grouped into six different categories. They were quality and satisfaction, communication with healthcare providers, accessibility in the hospitals, reliability, responsiveness and follow-up respectively. Questions 7 to 11 were framed to understand the quality and satisfaction level of the healthcare provider. The following class considered in the survey questionnaire was communication with the healthcare providers. Questions 12 to 14 were questions framed to understand the factors that contribute to this parameter. Questions 15 to 20 were structured to determine whether patients found it easy to navigate and obtain services in hospitals. When patients visit hospitals, it is essential that the patients find the area for their visit in a minimum amount of time. Questions 21 to 25 were designed to analyze the reliability of the healthcare providers. Questions 26 to 29 where designed to determine the responsiveness of the healthcare providers. This parameter was to analyze how helpful staff members were in guiding the patients in the healthcare service. Follow-up was the final factor of the survey. Questions 30 to 33 were designed to determine whether there was any kind of follow-up healthcare providers. This parameter was to analyze if the healthcare provider was following up with patients to ensure that patients were doing well and if the physicians studied the past medical history and analyzed the patients accordingly. In this study a formal factor of analysis was not performed on the questionnaire, as the questions were designed based on some attributes of the responses as for these questions were averaged as the mean responses for those attributes.

TABLE 5.7 REGRESSION SUMMARY TABLES

	African Americans	Caucasians	Hispanics	Vietnamese
Quality	0.3917	0.0052	0.0258	0.7485
communication	0.4299	0.5123	0.146	0.1646
Accessibility	0.9293	0.0162	0.3073	0.5028
Reliability	0.713	0.0185	0.0285	0.2783
Responsiveness	0.5139	0.4092	0.4871	0.8377
Follow-up	0.0903	0.0005	0.3937	0.5876

TABLE 5.7.1 REGRESSION OUTPUT ON PATIENTS

Dependent variable (Q. 8)	**Independent variable** (Quality & Satisfaction, Communication, Accessibility, Reliability, Responsiveness, follow-up)	**R-Squared Value**	**Significance**
Overall Quality	**All ethnic groups**	**0.3570**	*
Overall Quality	**African Americans**	**0. 4378**	**NS**
Overall Quality	**Asians**	**0. 2771**	**NS**
Overall Quality	**Caucasians**	**0. 8001**	*
Overall Quality	**Hispanics**	**0. 6027**	*

NS- Non Significant

*** - Significant**

5.7 REGRESSION ANALYSIS FOR ETHNICITY

Table 5.7 is the tabulation of the result of ethnicity and age. The table was divided into five columns. The first column is the question number used for the analysis, the second column is the brief description of the question, the third, fourth column were the results of statistical analysis. The third column signifies if the question was statistically significant or non significant when analyzed with question number 8. The fourth column indicated the means of analysis. The fifth column signifies to which category the questions belong.

A multiple regression and a stepwise regression were performed on the collected data. Questions in the questionnaire (Appendix 1) were divided in six principal categories, which are quality and satisfaction, communication with healthcare providers, accessibility in the hospitals, reliability, responsiveness and follow-up. Question eight was a question framed to understand the overall quality of the healthcare providers according to the patients. Question eight (Appendix 1) was analyzed with the six different categories in the questionnaire to understand how each ethnic group felt about the healthcare system. A multiple and a stepwise regression were performed on all ethnic groups together and for each ethnic group separately. Multiple linear regression helped us to determine which of the six categories were statistically significant for each ethnicity. The significant level used in this analysis is $\boldsymbol{p} < 0.1$. The tables shown below are the results of the multiple regression analysis.

5.7.1 REGRESSION ANALYSIS FOR THE ALL ETHNIC GROUPS

Table 5.8: Multiple regression for Ethnicity and overall quality of healthcare providers

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	0.16929	0.67765	0.25	0.8034
Quality	Quality	1	0.81924	0.21649	3.78	0.0003
Communication	Communication	1	0.14312	0.20448	0.70	0.4862
Accessibility	Accessibility	1	0.45269	0.24625	1.84	0.0701
Reliability	Reliability	1	-0.87805	0.26327	-3.34	0.0013
Responsiveness	Responsiveness	1	0.11016	0.24068	0.46	0.6485
Follow-up	Follow-up	1	1.03633	0.32661	3.17	0.0022

The observations in Table 5.8 were the results of the multiple regression of the entire ethnic group. Question eight was analyzed with the above six parameters for the entire ethnic group, and found that quality and satisfaction, accessibility in the hospitals, reliability and follow-up were the statistically significant variables. The factors like communication and responsiveness were observed to be statistically non-significant. The R-Square value for all the ethnicity is 0.3570. The regression expression is as shown below for entire ethnic group.

$$Q_8 = 0.16929 + 0.81924\ Quality + 0.14312\ Communication + 0.45269\ Accessibility - 0.87805\ Reliability + 0.11016\ Responsiveness + 1.03633\ Follow-Up + 0.42279$$

5.7.2 REGRESSION ANALYSIS FOR AFRICAN AMERICANS

Table 5.9: Multiple regression for African Americans and overall quality of healthcare providers

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	0.86975	2.43622	0.36	0.7268
Quality	Quality	1	0.95621	1.07921	0.89	0.3917
Communication	Communication	1	-0.80600	0.98927	-0.81	0.4299
Accessibility	Accessibility	1	-0.07350	0.81223	-0.09	0.9293
Reliability	Reliability	1	-0.23833	0.63388	-0.38	0.7130
Responsiveness	Responsiveness	1	0.51217	0.76321	0.67	0.5139
Follow-up	Follow-up	1	1.82907	0.99948	1.83	0.0903

A multiple regression was performed on each ethnic group, to find out which of these six factors contributed a significant role in the overall quality of health services. The first analysis was performed for the African American ethnicity. The results of the multiple regression analysis from Table 5.9 interpret that quality and satisfaction, communication with healthcare providers, accessibility in the hospitals, reliability and responsiveness were non-significant. Follow-up was only factor to be statistically significant. The R-Square value for the African American ethnicity is 0. 4378. The regression expression for African American ethnic group is as shown below.

$$Q_8 = 0.86975 + 0.95621\ Quality - 0.806\ Communication + 0.0735\ Accessibility - 0.23833\ Reliability + 0.51217 Responsiveness + 1.82907\ Follow - Up + 0.60548$$

5.7.3 REGRESSION ANALYSIS FOR ASIANS

Table 5.10: Multiple regression for Asians and overall quality of healthcare providers

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	0.38267	1.91280	0.20	0.8445
Quality	Quality	1	0.09713	0.29653	0.33	0.7485
Communication	Communication	1	0.55109	0.37415	1.47	0.1646
Accessibility	Accessibility	1	0.53803	0.78067	0.69	0.5028
Reliability	Reliability	1	-0.73803	0.65224	-1.13	0.2783
Responsiveness	Responsiveness	1	0.11385	0.54492	0.21	0.8377
Follow-up	Follow-up	1	0.48689	0.87553	0.56	0.5876

A multiple regression was conducted for the Asian ethnic group, and determined the factors that contributed to determine the overall quality of health services. The results of the multiple regression analysis as shown in Table 5.10 concluded that quality and satisfaction, communication with healthcare providers, accessibility in the hospitals, reliability, responsiveness, and follow-up were the non-significant factors. When analyzing for the Asian ethnic group, none of the factors were statistically significant. This illustrates that the Asian ethnic groups were not satisfied with any of the services provided by the healthcare providers. The R-Square value for the Asian ethnicity is 0. 2771. "The regression expression of the Asian ethnic group is as shown below".

$$Q_8 = 0.38267 + 0.09713\ Quality - 0.55109\ Communication + 0.53803\ Accessibility - 0.73803\ Reliability + 0.11385\ Responsiveness + 0.48689\ Follow - Up + 0.23355$$

5.7.4 REGRESSION ANALYSIS FOR CAUCASIANS

Table 5.11: Multiple regression for Caucasians and overall quality of healthcare providers

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	-3.15475	1.49401	-2.11	0.0546
Quality	Quality	1	1.81731	0.54246	3.35	0.0052
Communication	Communication	1	-0.22371	0.33210	-0.67	0.5123
Accessibility	Accessibility	1	1.46178	0.52946	2.76	0.0162
Reliability	Reliability	1	-1.03884	0.38586	-2.69	0.0185
Responsiveness	Responsiveness	1	-0.35705	0.41868	-0.85	0.4092
Follow-up	Follow-up	1	2.37640	0.52258	4.55	0.0005

A regression analysis was performed for the Caucasian ethnicity and the results were as shown in Table 5.11. The multiple regression shows how each of the six parameters contributed towards the Caucasian ethnicity's satisfaction with the overall quality of healthcare providers. According to the results from Table 5.11 the statistically significant factors were quality and satisfaction, accessibility in the hospitals, reliability and follow-up. Communication with healthcare providers and responsiveness were factors that were found to be non-significant. These are the two factors that were observed to be not satisfactory for the Caucasian group. The R-Square value for the Caucasian ethnicity is 0. 8001. "The regression expression is as shown below for Caucasian ethnicity".

$$Q_8 = -3.15475 + 1.81731\ Quality - 0.22371\ Communication + 1.46178\ Accessibility - 1.03884\ Reliability - 0.35705\ Responsiveness + 2.37640\ Follow - Up + 0.16606$$

5.7.5 REGRESSION ANALYSIS FOR HISPANICS

Table 5.12: Multiple regression for Hispanics and overall quality of healthcare providers

Parameter Estimates						
Variable	**Label**	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	Intercept	1	0.05473	0.97917	0.06	0.9563
Quality	Quality	1	1.49320	0.59342	2.52	0.0258
Communication	Communication	1	0.53127	0.34353	1.55	0.1460
Accessibility	Accessibility	1	0.42513	0.40013	1.06	0.3073
Reliability	Reliability	1	-1.34363	0.54551	-2.46	0.0285
Responsiveness	Responsiveness	1	0.28108	0.39302	0.72	0.4871
Follow-up	Follow-up	1	0.55120	0.62480	0.88	0.3937

In a multiple regression performed for the Hispanic ethnicity, the results were shown in Table 5.12. Question eight (Appendix 1) when analyzed with the six designed parameters revealed that quality, satisfaction, and reliability were the statistically significant factors for the Hispanic ethnicity. The factors such as communication with healthcare providers, accessibility in the hospitals, responsiveness and follow-up were observed to be statistically non-significant (Table 5:12). The statistically non-significant factors did not play a role in the healthcare service for the Hispanic ethnicity. The R-Square value for the Hispanic ethnicity is 0. 6027. "The regression expression is shown below for the Hispanic ethnicity".

$$Q_8 = 0.05473 + 1.4932\ Quality + 0.53127\ Communication + 0.42513\ Accessibility - 1.34363 Reliability + 0.28108\ Responsiveness + 0.5512\ Follow - Up + 0.42179$$

CHAPTER 6
DISCUSSION AND CONCLUSION

6.1. DISCUSSIONS

The objective of this study was to investigate the effect of the healthcare service provided to the different ethnic groups in the state of Nebraska, Lincoln. This chapter discusses the results, recommendations, and conclusions of this study. The limitations and the future research are addressed in the final section.

6.2 PATIENTS SATISFACTION SURVEY

The study was the result of a survey of patients in the healthcare services sector. The results show that different ethnicities had different satisfaction levels in health services provided to them. The other area of concern was to discover which disparities affected the patients. The areas of focus were understanding, communication, access, reliability, responsiveness and follow-up. For this study, the four ethnic groups selected were Asians, African Americans, Caucasians and Hispanics. The above mentioned ethnic groups completed the questionnaire used for the data set.

The results of the questionnaire were interpreted with the help of an ANOVA, Tukey, Log-it and regression analysis. An ANOVA, Log-it and a Turkey pairwise comparison were conducted for ethnicity and age, nationality and education, and language. An ANOVA was only performed for ethnicity and gender as they were controlled independent variables. The log-it analysis was performed with the questions that were categorical. Questions 7 to 33 were considered for the ANOVA, Log-it and Turkey pairwise comparisonanalysis.

The result of an ANOVA and the log-it analysis on ethnicity and gender contradicted the hypothesis that visiting the same physician, overall quality of a healthcare provider, insurance, type of insurance, care by the physician when patients where admitted and medical errors during treatment were the principal concerns by patients when treated. When considering genders it illustrated that gender had a statistically significant effect on the establishment of healthcare quality. Asian males and Hispanic males preferred visiting the same physician for treatment as they could experience better care. Caucasian males, Caucasian females and Hispanic females felt that improvements were necessary in healthcare quality.

Insurance and the type of insurance limit patients to different treatments. The physicians prescribed the tests and treatment methods depending on the insurance. It was observed that the minority groups were not able to afford insurance and unhappy with the level of insurance available to them. Patients, when admitted to the hospitals, expected the physician to visit on a regular schedule. This helped the physicians to gain the trust of the patients, but Caucasian males and African American females were unhappy about the physicians' visits. Caucasian males and Asian females felt that there were medical errors occurring while treatment took place.

The data collected for the other parameters was not performed in a controlled basis, so an ANOVA, Log-it and a Turkey pairwise comparison were the analysis methods. When we analyze the results for education and age, the patients of age 50 and above were not satisfied with the methods of treatment. They were not able to get the care they were expecting. African Americans and Hispanics above the age of 70 did not receive treatment with respect and courtesy. Caucasians of age group of 70 and above felt the presence of errors in lab work. The observation from the ANOVA and Log-it of ethnicity and age was that there was less care for elderly patients.

Education is essential for people, as it helps people to understand the terms and conditions of any approach. In this study, patient education was the parameter notification in finding if there was a difference in treatments. The results portrayed that patients with education levels like college and graduate degrees were satisfied with the methods of treatment. The patients with education levels like elementary and high school diplomas were not satisfied even after treatment by physicians of the same ethnicity. The patients with higher education levels were able to recognize the existence of medical errors in the lab work. The patients with less education were not able to understand the existence of any errors in lab work. They were not able to interpret the results obtained from the labs as they lacked knowledge.

Consider that in the United States there are people of all kinds of ethnicities. Language plays an extremely significant role in healthcare and is considered a quality measure. Patients expect treatment with care and this can be achieved when the patient understands what physicians communicate, and vice versa. This was one reason why patients choose to visit physicians of the same ethnicity and the same physician for treatment. There is a perception that language and ethnicity were interrelated. Mostly the minority patients were not able to afford insurance, and they were least satisfied with the different insurance types. Patients felt that the amount of time spent by physicians during treatment was not adequate.

A regression analysis was performed to understand how each ethnicity was treated by the healthcare provider. Question 8 helped in understanding the overall quality of the healthcare system. A regression analysis was performed between question eight (rating the overall quality) and the six parameters. In the analysis of the overall quality and the six parameters of ethnicity it showed that communication and responsiveness were not satisfactory. Patients found difficulties in communicating with healthcare providers. The patients were not able to understand the

treatment procedures that the healthcare providers suggested. Patients were not satisfied with the way the hospitals' staffs communicated.

Response towards the patients was another variable that was cited as a problem. Patients were not satisfied with the waiting time for meeting the physicians. Most patients in the questionnaire responded that they had to wait for a long time in order to have an appointment with the physician. There were cases where patients had to wait several hours, and a few patients reported they had to wait for one to two months. Patients' felt that physicians were not spending sufficient time with the patients during the time of treatment.

When comparing the four ethnicities individually, it was found that the minority ethnicities face more disparities in health care than the majority population. African Americans and Asians felt that understanding and quality were not statistically significant. Consulting a physician with the same ethnicity also did not improve the ways African Americans and Asians received treatment. They were not satisfied with the services provided from the hospitals such as treatment in the emergency room.

Obtaining information to navigate in hospitals is essential for patients. African Americans, Asians and Hispanics found difficulties in navigating in hospitals. This is because they were not able to understand the scripts or the symbols used the hospitals. They probably did not get help in accessing in hospitals. Health insurance is one of the key parameters to determine the methods of treatment provided to patients. This mainly affected the minority population the most. The minority population was not happy with the different kinds of insurances. The minority patients even felt that most of the treatment and prescriptions were provided based on the level of insurance the patient possessed. This shows that the minority group was not able to receive treatment that met their expectations.

Most patients preferred to have health check-ups on a regular basis. Most of the patients were not able to afford routine check-ups. African Americans and Asians were not satisfied with the reliability of the healthcare providers. The reasons were either that they did not have health insurance, or their health insurance did not include check-ups. They felt that physicians explained about the medications well for the patients. Most patients also felt that the physicians listened enthusiastically to their health concerns. African Americans and Asians were not satisfied with the number of visits by the physicians when patients were admitted to the hospital.

Follow-up is a variable that makes patients believe that proper care is taken by healthcare providers. Asians and Hispanics were not satisfied with follow-up by the healthcare providers. After patients received treatment, they felt the physician did not look at or understand the history of treatment. Patients felt that the physician could have treated them with more respect and courtesy. Asians and Hispanics felt that medicines prescribed by the physician were expensive, which they were not able to afford.

6.3 CONCLUSIONS AND RECOMMENDATIONS

In this study, it is clear that among the four ethnic groups that were selected for the survey, the minority population experienced disparities in healthcare. There are many rules set to minimize disparities in healthcare; the question is, are these rules followed? The healthcare professionals can readdress these disparities and provide high quality service regardless of the ethnicity of the patient. Asians were the ethnic group that faced the most disparities. In this study, most of patients from the Asian community were age 50 and above, and it seems that they were not provided with better treatment. This shows that as age increased, less proper care was given to patients. Transport for minorities is one of the obstacles of healthcare services. Therefore, developing and improving transportation options would be advised, as the minority is

not able to afford transportation due to low income. Transportation improvements are not only to take patients to hospitals but also to bring them to areas that provide education about healthcare.

Health literacy is one common factor that the minority group lacks. The American Medical Association indicates that poor literacy in health care is worse than age, income, education level, race and employment status. A focus on patient-centered care is an excellent tool in the efforts to achieve equality in health care. This helps in treating patients with respect to treatment, providing appropriate treatment and coordination of services, and understanding their expectations and preferences. Community center classes about healthcare and that offer tips on health literacy should be developed. Implementation of programs for patient education to increase awareness of how best to access care and participate in treatment decisions would be advisable as well. There should be an intercultural education program directed primarily to educate all current and future healthcare service providers.

A commission which understands and helps to end health disparity by recognizing that healthcare disparities exist due to several factors, including race and ethnicity can be formed. Awareness of physicians and health care professionals can be raised, provide the physicians with sources to learn to use evidence-based and other strategies, and implement policies, including government policies, to eliminate differences in health care and strengthen the health care system. Research should be conducted in a few areas that led to the cultural and ethnic differences. Appropriate intervention strategies should be found to eliminate disparities for these few problems, then proceed to research for the next set of sources.

6.4 RESEARCH LIMITATIONS

This study validates the assumption that exercise quality influences product quality in health care domains with a few limitations. To understand and interpret the differences that occur due to ethnic disparities is always a challenge. There were several potential problems in the missing values in the response; even a small sample size created uncertainty in respondents' levels of satisfaction. The study to understand the satisfaction level of physicians was also considered in this work, but because the study lacked data this could not be completed.

6.5 FUTURE RESEARCH

1. Studies should be conducted on behavioral healthcare services like access to hospitals and the delivery to the patients.

2. Research on how healthcare literacy is carried out throughout the country should be fully understood. Suggestions should be given to improve literacy among the minority groups.

3. Communication was one serious problem faced by all the ethnic groups. Studies must be carried out to understand how relations between the healthcare providers and patients can be improved.

4. Insurance coverage plans which are a factor that leads to provide limited treatment for patients. More research should be performed to get better plans depending on the incomes of the individuals.

5. Further studies and surveys should be conducted to understand the quality of training provided for the healthcare service providers. Different assessment instruments can be

used to administer the surveys such as implementing Six Sigma. The surveys can be used in the development of different areas of the hospital and to gain better healthcare quality.

6. Research should be conducted in understanding how the income of a family plays a significant role in the reduction of disparities in healthcare service. Access to affordable and quality health care is affecting minority populations.

7. Studies should be conducted to identify how age is a variable that governs disparities in healthcare. This is to understand if patients are getting better treatment or not as age increases.

Notes:

- **The above study was conducted mainly with four ethnic groups. They are African Americans, Asians, Caucasians and Hispanics.**
- **The aim of the study was to understand the effect of disparities on the different ethnic groups.**
- **From the analysis of the data using ANOVA and multiple regression it was found that Asians was the ethnic group that felt the presence of disparities.**
- **Followed by the Hispanics and the African Americans ethnicities.**
- **Communication and responsiveness were the two areas that the entire ethnic groups were not satisfied.**
- **Accessibility was one area which was a common among the minority group.**

APPENDIX 1 **PATIENT'S QUESTIONNAIRE**

General

1. Gender
   a. Male b. Female
2. Age?
   a. 20-30 b. 30-40 c. 40-50 d. 50-60 e. 60-70 f. 70 and above
3. Ethnicity?
   a. African Americans b. Caucasians c. Hispanics d. Vietnamese e. If none of the above please specify(_____)
4. Your family language/ native language?
   a. English b. Spanish c. Vietnamese d. Chinese
   e. If none of the above please specify(_____)
5. What is the highest level of education that you have earned?
   a. Elementary b. Secondary c. College d. Graduate
6. How often do you go to healthcare provider (Doctor/Physicians, Nurse, Others) for treatment?
   a. Please specify(_____) b. NA

Understanding and Quality

7. Do you see the same doctor every time?
   a. Yes b. No c. NA
8. How would you describe the overall quality of the healthcare provider?
   a. Excellent b. Good c. Ok d. Fair e. Poor
9. Do you think consulting with the physician of the same ethnicity as you is more beneficial?
   a. Agree b. Disagree c. NA
10. Have you been treated in the emergency room at any time?
    a. Yes b. No
    10 (a). If "YES" how many times have you been treated in the emergency room?
    Please specify: _____
11. What is the satisfaction level with the services provided at this hospital?
    a. Completely satisfied b. Somewhat satisfied c. Neutral d. Somewhat dissatisfied e. Completely dissatisfied

Communication

12. Do you have any difficulty communicating with the physician during treatment?
    a. Yes b. Somewhat c. No
    If "NO" skip to question 13

12(a). If you had any difficulty was an interpreter provided?

a. Yes b. No

12(b). How well did you think that the interpreter was able to convey your message to the healthcare provider?

a. Excellent b. Good c. Inadequate

13. Did the physician explain the details of your treatment in a way you could understand?

a. Yes b. Sometimes c. Usually d. No

14. How satisfied did you feel communicating with the staffs?

a. Completely satisfied b. Somewhat satisfied c. Neutral d. Somewhat dissatisfied e. Completely dissatisfied

Access

15. It was easy to get around or access information in the hospital?

a. Never b. Sometimes c. Usually d. Always e. NA

16. Do you have medical insurance?

a. Yes b. No (If "NO" skip question 17)

17. What kind of medical insurance do you have?

a. None b. Private c. Employer sponsored d. Medicare

e. Others please specify (_____)

18. What is the MAIN reason you do not have health insurance?

a. Employer does not provide health insurance b. Cannot afford to purchase health insurance c. Cannot afford dependent coverage d. Others please specify _____ e. NA

19. Do you think the physician prescribed tests based on your medical insurance?

a. Yes b. No c. I do not know

20. Do you think treatment provided to you satisfied your expectations?

a. Completely Agree b. Agree c. Neutral d. Somewhat disagree e. Completely Disagree

Reliability

21. If you prefer to have regular check up what is the MAIN reason you do not receive regular physical examinations?

a. No insurance coverage b. Insurance does not cover routine physical exams

c. No doctor d. Not needed. I'm healthy e. Others Please specify_____

22. When the physician was prescribing a medicine did he/she give a detailed description of the medicine?

a. Yes b. No

23. The physicians always listen to all your health concerns?

a. Completely Agree b. Agree c. Neutral d. Disagree

e. Completely Disagree

24. When you were hospitalized, how often did the physician meet you?
    a. Please specify: _____ b. NA
25. Did you feel there was any medical error during the treatment?
    a. Yes b. No
    If "YES", Please specify: _____

Responsiveness

26. The medical/nursing staffs were helpful and willing to answer your questions.
    a. Completely Agree b. Agree c. Neutral d. Disagree
    e. Completely Disagree
27. Do you think there should be an improvement in the quality of healthcare service?
    a. Yes b. No c. Not sure
    If "YES", Please specify suggestion: _____
28. You waited a long time for an appointment with the doctor?
    a. Yes b. No
    If "YES", Please specify how long: _____
29. Did you feel that the physician provided enough time with you?
    a. Yes b. Somewhat c. No

Follow-up

30. Did you feel that the physician understood your past medical history before treatment?
    a. Completely b. Somewhat c. Not at all
31. Physicians always prescribed medicines that were easily available (Cost, Distance and Rare).
    a. Yes b. No
32. Did you feel that the physicians treated you with respect and courtesy?
    a. Yes b. Usually c. Sometimes d. No
33. Was there any error in the lab work that was done?
    a. Yes b. No c. Please Indicate: _____

APPENDIX 2 PHYSICIAN'S QUESTIONNAIRE

1. What is your field of specialty?
   Specify (_____)
2. How many years of experience do you have?
   a. 0 – 5 years b. 5 – 10 years c. 10-20 years d. 20 years >
3. Do you think there is a good relationship between the administration and the physicians?
   a. Strongly agree b. Somewhat agree c. Neutral d. Somewhat disagree e. Strongly disagree f. Not sure e. N.A
4. Do you think Hospital administrators behave consistently in front of physicians of all ethnic backgrounds?
   a. Strongly agree b. Somewhat agree c. Neutral d. Somewhat disagree e. Strongly disagree f. Not sure e. N.A
5. Do hospital authorities behave consistently towards physicians of different genders?
   a. Strongly agree b. Somewhat agree c. Neutral d. Somewhat disagree e. Strongly disagree f. Not sure e. N.A
6. Do your patients cooperate well during the treatment period?
   a. Strongly agree b. Somewhat agree c. Neutral d. Somewhat disagree e. Strongly disagree f. Not sure e. N.A
7. Do you feel that some physicians think themselves better skilled because of their ethnicity?
   a. Strongly agree b. Somewhat agree c. Neutral d. Somewhat disagree e. Strongly disagree f. Not sure e. N.A
8. Are interpreters provided for patients who are not fluent in English?
   a. Always b. Some times c. Not at all e. N.A
9. Do you think that interpreters are able to convey the patient's problem effectively/ properly?
   a. Always b. Some times c. Neutral d. Not at all e. N.A
10. Do you think that insurance affects the treatment towards patient?
    a. Strongly agree b. Somewhat agree c. Neutral d. Somewhat disagree e. Strongly disagree f. Not sure g. N.A

11. Do you feel that there is an improvement in the way treatment is provided to the Minority population over time?

    a. Improved b. Remains the same c. Not improved e. N.A

12. Are there steps or provisions that are taken by the hospital authorities to bring down the incidents of medical errors?

    a. Often b. Some time c. Neutral d. Not at all e. N.A

13. What do you think is the main area that leads to healthcare disparities?

    a. Race b. Language c. Insurance d. Gender e. Age

    f. Some of the above g. Indicate (_____)

14. Do you think you receive the same services and access to resources that are needed for treatment compared to the Non- Minority physicians?

    a. Yes b. No c. Neutral d. N.A

15. Does the Hospital authority prevent you from recommending a drug that you think would be helpful for the patients?

    a. Strongly agree b. Somewhat agree c. Neutral d. Somewhat disagree e. Strongly disagree f. Not sure e. N.A

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