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# Type 2 Diabetes And Comorbidities Among Blacks And Hispanics

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*TYPE 2 DIABETES AND COMORBIDITIES AMONG  
BLACKS AND HISPANICS*

Submitted to the Center for Public Administration Program  
Seton Hall University

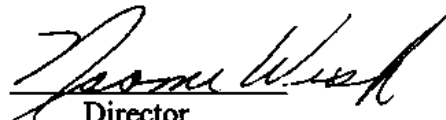
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A Research Project Submitted in Partial Fulfillment of the  
Requirements for the Degree of Master of Public Administration

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## **ABSTRACT**

The purpose of this research was to obtain a better insight into the common comorbidities among patients with type 2 diabetes and how they differ by race. The research was conducted at the Jersey City Family Health Center, located in Jersey City, New Jersey. The facility sees an average of 80 to 100 patients a daily. Data for this study was obtained by reviewing charts and selecting every tenth patient. 136 charts were selected. The sample consisted of patients with type 2 diabetes between the ages of 45 and 65 who attended Jersey City Family Health Center for Adult services between January 1999 and September 1999. The following information was collected for each subject: (1) patient comorbidities as a result of diabetes, (2) and racial background. Nephropathy was the most prevalent comorbidity between the races. These findings cannot be applied to the general population, but it is indicative of the type 2 diabetic population within the Jersey City Family Health Center, in Jersey City.

## INTRODUCTION

Diabetes is a disease or a chronic disorder that can be characterized by abnormal carbohydrate, protein and fat metabolism, with fluctuating blood glucose profile as the hallmark. When you have diabetes something goes wrong. Unfortunately, the body makes little or no insulin or insulin can't get blood sugar into the cells. Therefore, the body doesn't get the fuel it needs and as a result the blood glucose level is elevated.

According to the American Diabetes Association, 15.7 million people in the United States have diabetes. Most people with diabetes have a form known as *Type 2 diabetes*. Many people with Type 2 diabetes do not respond normally to their own insulin or to injected insulin (a condition called *insulin resistance*). Type 2 diabetes occurs more often in people over the age of 40 and many people are not even aware that they have the disease.

A less common form of diabetes is *Type 1*. Type 1 tends to occur in children and young adults. The majority of the patients with diabetes have Type 2. Only about 5% of the population have Type 1. There are many comorbidities in these patients with diabetes. Comorbidities can include lost of eyesight, kidney disease as well as amputations. Although comorbidities are prevalent in both Type 1 and Type 2 diabetes, they are more common among patients with Type 2 diabetes.

My topic is based on the question "Do comorbidities among patients with Type 2 diabetes differ by race?" This topic is important to me not only because I am a volunteer

for the American Diabetes Association, but also because I am employed by a company that specializes in diabetes. I had access to a log of patients between the ages of 45-65 that may have comorbidities.

In order to understand the data I divided them into two categories: race and comorbidities. I collected this material from various sources. Some of the sources include, Jersey City Family Health Center, American Diabetes Association, Electronic Media (Internet) as well as various medical journals.

#### **PROBLEM**

Too many patients with diabetes go undiagnosed due to a lack of education and not being able to identify the symptoms associated with diabetes. This can result in developing comorbidities or even death.

#### **PURPOSE**

The purpose of this research is to obtain better insight into the common comorbidities among patients with Type 2 diabetes and how they differ by race.

#### **SCOPE**

I focused primarily on common comorbidities of people between the ages of 45-65 with Type 2 diabetes and the relationship between comorbidities and race. I also discussed ways in which individuals can become better informed about the disease as well as some important methods to control blood glucose levels.

## LITERATURE REVIEW

In recent years there has been an increasing concern for patients who have Type 2 diabetes and the comorbidities they may encounter. Some of these comorbidities may vary based on age as well as ethnic background. Crook & Taylor (1997) explain that diabetic nephropathy is now considered a major cause to end stage renal disease (ESRD) and also an important cause of ESRD in Europe. Most of the patients with ESRD in the United States and in many European countries have Type 2 diabetes. According to Crook and Taylor most minority groups in the United States have a higher incidence of Type 2 diabetes than whites. "The prevalence rates for black persons range from 1.4 to 2.2 times that of white persons" (Crook & Taylor, 1997, p. 28). Overall the rates of complications from diabetes are much higher in the minority population, especially with those patients who have ESRD secondary to diabetic nephropathy.

Diabetic nephropathy has become so prevalent in blacks that some authors have hypothesized that the increased rate of ESRD seen in African Americans is explained by the increased rates of diabetic nephropathy (Crook & Taylor, 1997, p. 28). Almost 50% of African- American who have ESRD have a diagnosis of diabetic nephropathy (p. 34).

According to the Center for Disease Control (CDC) (1996) 285,228 adults in New Jersey have been diagnosed with diabetes. 7.2% of the NJ adult population between the age of 45-64. 4.3% of NJ white. 8.5% of NJ black. Diabetes is a very serious disease and many individuals that have diabetes suffer from diabetes- related complications or conditions.

In 1996 the CDC reported 493 new cases of blindness, 2,466 lower extremity amputations as well as 1,105 new cases of end-stage renal disease.

In 1996 there were 5,956 deaths in New Jersey that were diabetes related. More recently, The American Diabetes Association (ADA) (1999) data showed that approximately 2.3 million or 10.8% of all African Americans have diabetes and one-third of them don't even know it. African Americans are 1.7 times more likely to have diabetes, than non-Hispanic whites. One in four African American women over 55 years of age have diabetes. Twenty-five percent of African Americans between the ages of 65 and 74 have diabetes.

According to the American Diabetes Association (ADA) (1999) African Americans have a very high rate of complications due to diabetes. Some of those complications that are more prevalent in blacks are blindness, amputation and end stage renal disease (kidney failure). African Americans are twice as likely to suffer from diabetes-related blindness, 1.5 to 2.5 times more likely to suffer from lower limb amputations and 2.6 to 5.6 times more likely to suffer from kidney disease.

The prevalence of Type 2 diabetes is 2 times higher in Hispanic than non-Hispanic whites. American Diabetes Association (ADA) (1999) data also showed that 1.2 million or 10.6 % of all Mexican Americans have diabetes. Approximately 24% of Mexican Americans and 26% of Puerto Ricans between the ages of 45-74 have diabetes and nearly 16% of Cuban Americans between the ages of 45-74 have diabetes. Hispanic Americans are also faced with a high level of diabetes-related complications.



The incidence of diabetic retinopathy in Mexican Americans is about 32-40%. They are also more likely to suffer from end stage renal disease (kidney failure).

Imad M. El-Kebbi (1996) et al argues that there is an interrelationship between patients with diabetes and obesity. This has been studied extensively among black patients who have non-insulin-dependent diabetes Mellitus (NIDDM) or Type 2 (p.488).

The research done by the Center For Disease Control and the American Diabetes Association focused on the number of persons with diabetes in New Jersey, the ethnic background and age groups that have a higher rate of diabetes and also the incidence of comorbidities. In my research I had a similar focus to the ADA and CDC, but instead of gathering data on the state of New Jersey I concentrated specifically on a smaller geographical area within New Jersey. The area in which I focused is Jersey City, New Jersey. I collected data on patients between the age of 45-65 with Type 2 diabetes to find out if comorbidities differ among the races and compare them to the state data.

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## METHODOLOGY

### SETTING

The research was conducted at Jersey City Family Health Center, which is one of three health centers owned by Jersey City Medical Center located in Jersey City, New Jersey an inner city in Hudson County New Jersey. This facility is managed and operated by an Executive Director who reports to one of the Vice Presidents at Jersey City Medical Center. The facility sees an average of 80 to 100 adult patients a day. Client visits must be made by appointment because of the large demand for services. This center is described as a three-level building: 1<sup>st</sup> floor administration and 2 floors of medical clinics.

Jersey City Family Health Center offers the largest, most complete adult health services program in Hudson County. The services include internal medicine, cardiology, rheumatology, hypertension management, podiatry, diabetes, seizures, pulmonology, neurology, endocrinology and gastroenterology. Some of the additional services that are provided are nutritional counseling, health education, women's intervention service and education (W.I.S.E), social services, women, infants and children (W.I.C) and they also have an on-site laboratory for testing. Jersey City Family Health Center also serves as a site for medical students. Although, the majority of the patients are 18 and up, they also provide services for children.

### **SELECTION OF SUBJECTS**

Data for this study were obtained by reviewing patient charts and selecting every tenth patient or a total of 136. The study sample consisted of patients with type 2 diabetes between the ages of 45 and 65 who attended the Jersey City Family Health Center for adult health services between January 1999 and September 1999. The following information was collected for each subject: (1) patient comorbidities as a result of diabetes, (2) and racial background.

The purpose of this research is to obtain better insight into the common comorbidities among patients between the age of 45-65 with Type 2 diabetes and how they differ by race. I will attempt to answer these two questions: (a) Is Type 2 diabetes more prevalent in one race verses another? (b) Are comorbidities different among the races?

These are very important questions because diabetes is the seventh leading cause of death and the (sixth leading cause of death by disease) in the United States. Diabetes is a chronic disease that has no cure and hopefully by looking at a geographical area on a smaller scale perhaps recommendations can be made and possibly implemented.

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## RESULTS

This study involved 136 patients with Type 2 diabetes and their comorbidities. The participants were Hispanic and Blacks. They ranged in age from 45-65 years.

**Table 1. Percentage of Comorbidities by Race**

RACE	NEPHROPATHY	NEPHROPATHY/ NEUROPATHY	NEUROPATHY	RETINOPATHY	
<b>Black</b>	94%	2%	1%	2%	N = 84
<b>Hispanic</b>	96%	4%			N = 52

**Note.** Black: African Americans born in the U.S., the Caribbean and from the Continent of Africa;  
Hispanic: Puerto Rican, Ecuadorians, Dominicans and those of Spanish decent born in the U.S.

The racial backgrounds included Blacks and Hispanics. Of this patient sample, 84 were Black and 52 Hispanic. According to the data collected nephropathy was the most common comorbidity among both races. Of the Black population, 94% (79) had nephropathy, 1% (2) had a combination of both nephropathy and neuropathy, 1% (1) had neuropathy and 1% (1) had retinopathy. Of the Hispanic patients, 96% (50) had nephropathy and 1% (2) had a combination of both nephropathy and neuropathy. None of the Hispanic patients had neuropathy or retinopathy. Thus we see that almost all of the Black and Hispanic patients with type 2 diabetes also have nephropathy. There were too few Whites who visited the clinic for a valid comparison.

## CONCLUSION

These findings cannot be applied to the general population, but are indicative of the Type 2 diabetic population within the Jersey City Family Health Center, in Jersey City. When comparing this study to the National studies that have been conducted with Blacks, I have found that on a National level, approximately 50% of Blacks have a diagnosis of diabetic nephropathy. On the other hand, the patients at Jersey City Family Health Center had a much higher incidence (94%) of nephropathy.

These findings on a local level may involve many variables. Most of the Blacks and Hispanics who attend the Jersey City Family Health Center are of low socioeconomic status. They are either underinsured or uninsured. Many of these patients are not well educated. They are from different ethnic backgrounds with their different beliefs and practices. Therefore, most of these patients will not readily seek healthcare. In addition, when they do seek healthcare, they may be noncompliant with prescribed therapy. Either the treatment may conflict with traditional beliefs and practices, or they cannot afford it.

This population's problems are further compounded by the fact that they are unable to follow a specialized diet due to their financial status. Yet, they are at high risk for chronic diseases such as hypertension (high blood pressure) and hyperlipidemia (elevated cholesterol levels) as well as diabetes which can result in nephropathy and neuropathy. Furthermore, by the time these individuals seek healthcare they may have already developed several complications that ultimately lead to comorbidities. Blacks on

a National level, may be better insured than those at Jersey City Family Health Center. Therefore, they can readily seek healthcare. These individuals may also be more inclined to follow prescribed diets and keep appointments with their healthcare professionals. Moreover, they may be better educated and may very well have a higher socioeconomic status. Hence, they will be less prone to allow ethnic beliefs and practices to dictate their level of compliance with prescribed therapy. It can be concluded that these differences may be responsible for the differences seen in the Jersey City Family Health Center's Black population and that of the National level.

### RECOMMENDATIONS

Further research can be done using a larger sample size to determine if the incidence of nephropathy is significantly greater between Blacks and Hispanics. Because of the high rate of diabetes and diabetic nephropathy in African Americans it is recommended that aggressive screening and treatment be considered.

Some studies have suggested that early intervention can eliminate some of the complications and comorbidities with which diabetics are faced. This would require an early diagnosis which is unlikely since a great deal of these patients are either uninsured or underinsured. As a result preventive care would be difficult. U.S. Department of Health and Human Services (1995), explains that drugs used to lower blood pressure may also be used to slow down the progression of kidney disease significantly. They also suggest that low-protein diets may also benefit people with kidney disease, which can ultimately lead to nephropathy. In people with diabetes, excessive consumption of

protein could be extremely harmful. Antihypertensive drugs as well as a low protein diet may slow down kidney disease when significant nephropathy is present.

James Fitzgerald (1997) et al believes that the impact of diabetes-related dietary recommendations is likely to vary among different ethnic and cultural groups. (p. 41).

The cultural and or social functions of food should most definitely be reflected in meal plans as well as educational interventions. This will obviously require a culturally sensitive, individualized treatment plan that takes into account the attitudes and the beliefs of certain patients. This is another area of research that could can be done to determine whether early intervention with medication, exercise and medical nutrition therapy will decrease the incidence of nephropathy among Blacks and Hispanics with Type 2 diabetes.

Anne S. Williams (1999) a member of the Diabetes Education Association suggests that people with diabetes who are visually impaired are equally as capable as fully sighted people when it involves performing ordinary diabetes self-management tasks that do not depend on vision. Examples of these tasks would include planning meals, exercising, and adjusting insulin doses as well as many other tasks. (p. 23). Jerry D. Cavallerano (1999) clearly indicates that there is no method that will totally prevent diabetic retinopathy. On the other hand, he believes individuals with diabetes can certainly lower the risk of developing retinopathy by simply controlling their blood glucose levels (p. 56). Although, the incidence of retinopathy did not appear to be high in this group of subjects, intensive diabetes management would further decrease the risk of retinopathy.

Sue Rodwell Williams (1989) mentions that drug therapy with an aldose reductase inhibitor has been used in patients with chronic diabetes and painful neuropathy to improve the symptoms. "The metabolic abnormalities can be prevented or reversed with aggressive insulin therapy and blood glucose control" (Sue Rodwell Williams, 1989, p. 820).

Intensive management is another way of being able to keep blood glucose levels normal. This regimen includes frequently testing blood glucose sugar with a monitor, administering insulin on the basis of food intake and exercise, following the most appropriate diet and exercise plan, and consulting with health care professionals. Several studies have pointed to the benefits of intensive management.

Overall it appears that the rate of complications which can eventually lead to comorbidities are higher in the minority population. Considering the enormous impact of diabetes on the minority populations, more efforts need to be made towards earlier recognition and prevention of diabetes and its complications.

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