

# Diabetes Awareness among African Americans in Rural North Carolina

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## Abstract

**Objective:** To evaluate the extent of diabetes unawareness in rural North Carolina.

**Methods:** Randomly administered an eight-question survey to African Americans age 15-74 living in Halifax County, North Carolina.

**Results:** Ninety-five out of 116 eligible participants completed the survey (82% response rate). Most (67%) of the participants reported having two or more major risk factors for Type II diabetes (diabetes mellitus). More than half (51.6%) of the participants were obese. Most (96.8%) of the participants reported having been tested for diabetes at some point in their lives (10% tested positive, only 8.4% of the remaining 90% reported ever having a second test).

**Conclusion:** Diabetes mellitus is a very prevalent problem among the African American population of Halifax County, North Carolina. Our study underscores the fact that patients are not systematically screened and followed-up for diabetes mellitus. More healthcare and community programs need to be adapted to fight this serious public health problem.

## Introduction

Diabetes mellitus is one of the most serious health problems facing the more than 35 million African Americans living in the United States—1.8 million of whom live in North Carolina.<sup>9</sup> Diabetes mellitus, a condition in which the body produces little or no insulin or is unable to utilize insulin properly, results in dangerously high blood sugar levels; this can lead to coma, death, or a myriad of other health complications including blindness, kidney failure, foot or leg amputations, stroke, and heart disease. Diabetes impairs lives of countless African Americans is the seventh leading cause of death of African Americans in the United States.<sup>8</sup>

There are two major categories of diabetes, Type I and Type II. With Type I diabetes, the body produces almost no insulin at all so the afflicted individual must take exogenous insulin to survive. In Type II diabetes, also known as adult onset diabetes mellitus (AODM), the body either produces insufficient amounts of insulin or experiences insulin resistance, a condition in which the body cannot properly utilize insulin. Type II diabetes accounts for 90-95% of all diabetes cases.

Over the last 30 years, the number of African Americans diagnosed with diabetes nationwide has more than tripled. Presently, over 2.8 million African Americans are plagued with this serious disease.<sup>1</sup> Studies show that in North Carolina,

African Americans are three times more likely to develop diabetes than whites of a similar age. Compared to white Americans, African Americans experience higher rates of three serious diabetes complications: blindness, kidney failure, and amputations. In addition, African Americans also experience greater disabilities from these complications.<sup>9</sup> However, despite the staggering statistics, diabetes awareness within the African American communities of North Carolina is alarmingly low. In fact, diabetes awareness is such a problem that more than half of African Americans with diabetes are totally unaware of their medical condition. This means that for every African American diagnosed with diabetes, there is at least one undiagnosed case.<sup>3</sup>

This study was conducted to investigate the level of diabetes awareness within the African American population of rural North Carolina. In this study, the targeted population was that of Halifax County where African Americans comprise over 53% of the total population.<sup>9</sup> Research found that many of the African Americans in Halifax County fell into the high-risk category and exhibited several of the genetic, medical, and lifestyle risk factors characteristic of diabetes.<sup>5</sup> However, many of these individuals had not been tested for diabetes, and of the few who had been tested, the majority had not gone back for a second testing. This study was conducted in Halifax County with the hope that it would encourage similar studies elsewhere in rural North Carolina, thereby aiding in the imperative task

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**Figure 1.**  
**Diabetes Survey**

1. **Please specify your age group:**  
 0-20  20-39  40-49  50-59  60-74  75+
2. **What is your sex?**  Male  Female
3. **What is your race/origin?**  
 Caucasian  African American  Hispanic  
 Asian/Pacific Islander  Other: \_\_\_\_\_
4. **Do you visit a doctor regularly?**  
 Yes  No
5. **When was the last time you visited a doctor?**  
 last week  last month  last year  1-2 years ago  
 more than 2 years ago
6. **What is your height and weight?**  
Height: \_\_\_feet \_\_\_inches Weight: \_\_\_lbs
7. **Which of the following describe you? (please mark all that apply):**  
 I have been diagnosed with obesity.  
 I have an immediate family member with diabetes.  
 I exercise regularly. (at least three times a week)  
 I am a woman who has delivered a baby weighing over 9 pounds.  
 I have high blood pressure or hypertension.
8. **Have you ever been tested for diabetes?** If yes, please circle your test result.  
 Yes (positive /negative)  No  
**If you answered yes and positive, are you being treated for diabetes?**  Yes  No  
**If you answered yes and negative, have you been tested again for diabetes since?**  Yes  No

of increasing diabetes awareness throughout the African American population of North Carolina.

A questionnaire was developed to evaluate how much the rural African American population understood about the various risk factors of Type II diabetes mellitus. We categorized the risk factors of Type II diabetes into three groups: genetic, medical, and lifestyle. Genetic risk factors include inherited traits and family ancestry; medical risk factors include obesity, hyperinsulinemia, insulin resistance, and impaired glucose tolerance; lifestyle risk factors include diet and physical activity. Included in the questionnaire was a survey (See Figure 1), which assessed the risk level of each individual and inquired whether the individual had been tested or treated for diabetes. Our survey responses were analyzed to determine the number of people unaware that they were at high risk for diabetes. A presentation and lecture on diabetes risk factors and prevention was given to the participants after they completed the survey. Our study was aimed at evaluating the severity of diabetes unawareness in rural North Carolina, which would ideally generate interest in how to deal with this issue and increase awareness in the African American community.

## Methods

Before embarking on our campaign to research diabetes awareness, we first assessed the current diabetes knowledge of the African American population in question. The five members of the survey research team were Dr. Walid Baaklini; North Carolina School for Science and Mathematics Senior Angela Antony; registered nurse and diabetes educator Susan Liverman; and two local volunteers. We devised a survey (See Figure 1) on diabetes awareness and risk factors and distributed it randomly to citizens in several African American concentrated areas of Halifax County, North Carolina. Out of 116 eligible participants, 95 individuals participated in the study yielding a response rate of about 82%. The survey included questions that identified the individual risk factors of diabetes such as age, physical activity level, family history, and other genetic, medical, and lifestyle factors. Individuals who were at high risk for diabetes based on their answers to the risk factor questions were then asked additional questions assessing their awareness of this high-risk condition. In addition, we asked individuals if they had ever been tested for diabetes. If they had and were found to be non-diabetic, we inquired whether they had gone back for a second testing. Finally, we requested the height and weight of each person surveyed and used a Body Mass Index Chart to assess whether these individuals could be at risk because of their weight since obesity is another major risk factor for diabetes.

## Results

African Americans between the ages of 15 and 74 completed the survey. Upon analysis of the data, we found that 67% of the studied population had two or more of the major risk factors for Type II diabetes, which classified them as "high risk." However, only three of these high-risk individuals had visited a doctor within the last year. Fortunately, the findings also showed that 96.8% of the surveyed population had been tested for diabetes at some point in their lives, and 10% of those tested were found positive for the disease and were given treatment. However, of the 90% that had tested negative, only 8.4% had gone back for a second testing. This is unfortunate, given Halifax County's high-risk reputation and the wide range of ages in which diabetes can develop.

Another of the major risk factors of diabetes is heredity, and the survey found that 10% of the population had an immediate family member with Type II diabetes. Those taking the survey were also asked whether they exercised regularly, because research has proven that exercising at least three times a week can significantly reduce the risk of developing diabetes.<sup>3</sup> Unfortunately, only 3.3% of the surveyed population reported regular exercise—a group that included less than 6.7% of the female population. One other major risk factor of diabetes is obesity, which was also inquired about in the survey. Using the Body Mass Index (BMI) chart, we found an alarming 51.6% of the population to be obese, meaning they had scored over 29 on the BMI scale. In several extreme but common cases, the

obesity in question had become especially dangerous. One male in the over-75 age group stood at 5'2" and 189 pounds, scoring a 34.5 on the BMI scale. Another male in the 50-60 age group, measured 5'3" tall but weighed 200 pounds, scoring a 36 on the BMI chart. One of the most alarming cases observed, however, was that of a female in the 60-74 age groups. Standing at 4'5", a normal height for a schoolchild, the woman in question weighed 175 pounds, putting her off the charts on the BMI scale. We estimated her score to be roughly 38 or 39.

Unfortunately, although over half of the randomly chosen participants in our study were obese, only 6.45% of these cases had been diagnosed. Even more alarming, a full 71.1% of the undiagnosed obesity cases claimed to visit a doctor on a regular basis.

## Conclusion

Diabetes, once relatively uncommon among African Americans, is now the third leading cause of death from disease among this population.<sup>2</sup> Studies have found that African Americans, both in North Carolina and throughout the United States, are more prone to this disorder for numerous reasons. African Americans have a higher prevalence of obesity, a fact also observed in this study, which is a major risk factor for Type II diabetes. In addition, African Americans are known to have a higher occurrence of hypertension, a disorder strongly associated with diabetic complications such as eye, kidney, and heart disease. Lastly, African Americans tend to have less access to financial, social, health, and educational resources that would otherwise improve their current health status and level of diabetes awareness.<sup>10</sup>

Still, there are many ways to alleviate this problem and to improve the present health situation of our state and nation's African American population. First, obese individuals, through proper diabetes education and instruction, can effectively manage or prevent diabetes through diet, weight control, and exercise if they act early. With more advanced obesity cases, treatment with oral hypoglycemic agents or insulin can make a difference. In addition, proper diabetes education and management can reduce the risk of suffering from the major diabetes complications such as blindness, kidney failure, heart attack, stroke, and amputations. The factors that aggravate these complications include delay in diabetes diagnosis, delay in treatment, denial of diabetes, abnormal blood lipids, high blood pressure, and cigarette smoking, all of which can be avoided or alleviated through increased diabetes awareness.

Ultimately, the key is spreading the word. This study was intended to motivate clinics, hospitals, and medical professionals to aid in the crucial task of increasing diabetes awareness. Already throughout Halifax County, the word is beginning to spread: diabetes support groups, fundraisers, and public presentations are becoming increasingly more common. Awareness is paramount if we want to see more favorable diabetes statistics for the African Americans of Halifax County, North Carolina, and the entire United States. **NCMJ**

*Angela Antony was senior in high school at the North Carolina School for Science and Mathematics when she completed her study and this article. She is now a freshman pre-med student at Harvard University. Her work here is remarkable at this early stage in her career. We are proud to produce young students like Ms. Antony in North Carolina and hope that she will return to North Carolina to practice.*

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