Background

Type two Diabetes is becoming an extremely prevalent chronic disease among the adult population in the United States. Likewise, due to the youth obesity crisis, type-two diabetes among the youth population is on the rise as well. According to the America's Health Rankings report by United Health Foundation, Mississippi was ranked number 50, the least healthy state in the country (1). The Center for Disease Control and Prevention reported that in 2010, the prevalence of diabetes in the United States was 8.7%, while that of Mississippi was 12.4% in adults above 18 years of age (2). The mortality rate among people who had diabetes in the United States was 73.1, while in Mississippi the rate was 96.6. On a smaller scale, in Hinds County alone Find the Data reported, in 2008, the number of people living with diabetes was 20,150, which was equivalent to a rate of 11.7%. Two risk factors worth mentioning in the scope of diabetes are physical inactivity and obesity. The report also says that 34.2% of Hines County citizens ware physically inactive and 33.1% of people were obese (3).

Annually Central Mississippi Health Service, Inc. assembles a report called the Uniform Data System Report. It is a report that is required by all community health centers to assess a variety of health topics such as hypertension, diabetes, sexually transmitted infections, vaccinations, prenatal care and more. From this report data, the number of patients who were living with diabetes in 2011 was 1091 out of the total patient population of 6813. This accounts for 16% of all the Central Mississippi Health Service patients. In this same report, a sample of the patient charts (n=70) were pulled and evaluated for their hemoglobin A1c numbers. Approximately 53% of the patients had a hemoglobin A1c value of less than 7%, 14.3% had a values between 7-8%, another 14.3% had values between 8-9%, and 18.5% had values greater than 9%. Other statistics that were significant are the number of patients with hypertension and heart disease, which was 2,727 (40%) and 242 (3.5%) respectively (4). These statistics are important because of their relevance to diabetes mellitus. In addition, the number of individuals

with diabetes could have been under reported and hidden in the hypertension and heart disease categories for this particular type of evaluation. Reason being, the system report that was created only reports the first diagnosis made for each individual; therefore, many of the patients who were first diagnosed with hypertension or heart disease could have possibly developed diabetes over the course of the year, but would not have been included in the 1191 reported for patients living with diabetes.

At Central Mississippi Health Center, multiple strategies have been implemented to enhance the quality of life among those individuals with chronic diseases. Likewise, programs have been implemented and providers have been trained as Certified Diabetes Educators to enhance the care and education for the patients with diabetes. Over the last few years, it was said that the average Hemoglobin A1c has greatly declined due to the ongoing educational efforts and quality of care received.

Overall, because of the alarming statistics of diabetes in Mississippi and Hines County, the community health project that seemed warranted and that was greatly welcomed by Central Mississippi Health Center, was a Diabetes Education Program. The program was developed to compliment the educational services currently provided by the providers and certified diabetes educator. Along with the project that was designed to be implemented, Dr. Young, DPN conducts one on one diabetes educational classes on Thursdays during clinical hours. I assisted Dr. Young, DNP, with those classes as well.

Methods

The Diabetes Education Program was implemented in the form of presentations on diabetes and related topics. The topics included diabetes, heart health, foot care, exercise and obesity, and nutrition. Presentations were conducted in the waiting room in large groups and in exam rooms in small groups or one on one, while patients were waiting to be seen by their provider. The sessions were interactive and participants were also allowed to ask questions

during and after the presentations. Since the presentations were conducted in the waiting room, those with diabetes and without diabetes, from various age groups were targeted.

Each presentation was accompanied by a pre and post presentation survey of two to five questions to measure the effectiveness of the presentations. The surveys had the same answer choices of the following: strongly agree, somewhat agree, unsure, somewhat disagree, and strongly disagree. There were two questions that had specific answer choices. Those will be discussed later. The surveys were written at a low literacy level to allow as many patients as possible to understand them, and the font was enlarged on most of them to 14-points. In addition to answering the survey questions, patients were asked to write one or two things they learned from the lesson. To compliment those who could not read, sometimes I verbally asked the group of patients what they learned and wrote them myself. Pre and post questions were read to participants who asked. The surveys were optional; therefore, many more people were educated than those who answered the surveys. Please see appendix one to view each of the pre and post presentation surveys that were administered and appendix two for viewing of the presenter notes.

Results

Diabetes Education Project proved to be very effective from a qualitative perspective. However, quantitatively the post test results only demonstrated a slight knowledge improvement on some questions, while a large improvement on others. After noticing this, after answering the post test questions, patients were asked to write one to two things they learned from the presentations. Results from each of the presentations are represented below.

Power over Diabetes Presentation

Power over diabetes had five pre and post presentation questions. The first three had the same scale: strongly agree, somewhat agree, unsure, somewhat agree and somewhat disagree.

1. Question 1: I am aware of what diabetes is.
2. Question 2: I understand the difference between type 1 and type 2 diabetes.
3. Question 3: I know what can happen to a person's body if diabetes is not under control

4. Question 4: A good fasting blood sugar reading is:
a. 350 or less b. 225 or less c. 130 or less d. 100 or less e. 60 or less
5. Question 5: A good Hemoglobin A1c number is:
a. 10 or less b. 8.5 c. 7 or less d. 6 or less e. unsure

Overall, when asked if they know what diabetes is, 67% said they strongly agree on the pre test, while 87.5% said they strongly agree on the post test. When asked if they were aware of the difference between type one and type two diabetes, 40% said they strongly agree on the pre test, while 85.7% strongly agreed on the post test. The following charts demonstrate the results from questions 1-3. Figure 1 is from the pre-test, while figure 2 is from the post-test. In question four, 37.5% of people answered correctly on the pre-test, on the post test, 100% of the participants answered it correctly. Twelve percent of people answered question five correctly on the pre-test, while 57% of people answered it correctly on the post-test. When participants were asked to write what they learned from the presentation, participants said they learned the difference between type 1 and type 2 diabetes.

Figure 1: Power over Diabetes Presentation Pre-Survey Answers

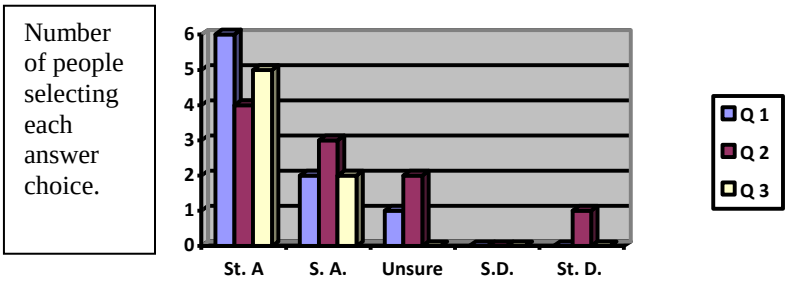
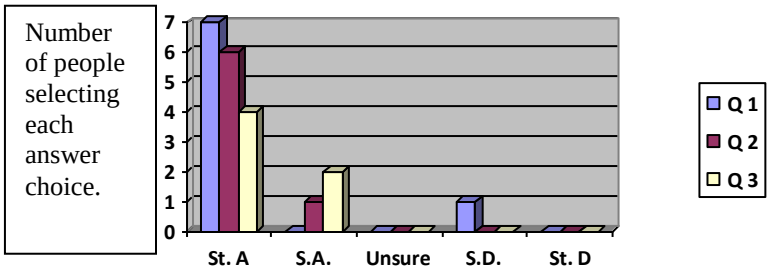


Figure 2: Power Over Diabetes Presentation Post-Survey Answers



Foot Care Presentation

The foot care presentation had two questions. They both used the same scale from strongly agree to strongly disagree. When asked the first question, "I know how to take care of my feet to keep them healthy", 50% of people said they strongly agree on the pre-test, which improved on the post-test, with 75% of people answering that they strongly agree. The second question; "I am aware of why foot care is important if a person has diabetes", did not reveal anything significant. From the presentation, a patient wrote, "I didn't know that using hot water on your feet was bad". View figures three and four for the results.

Figure 3: Foot Care Presentation Pre-test Results

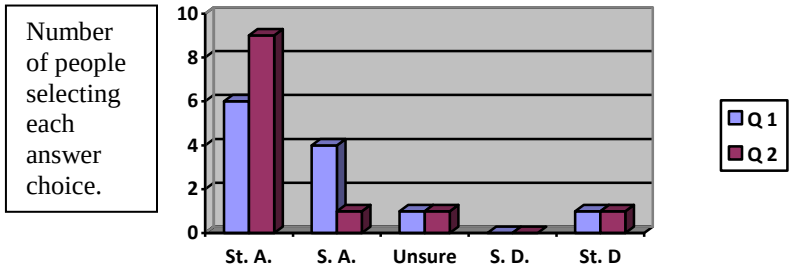
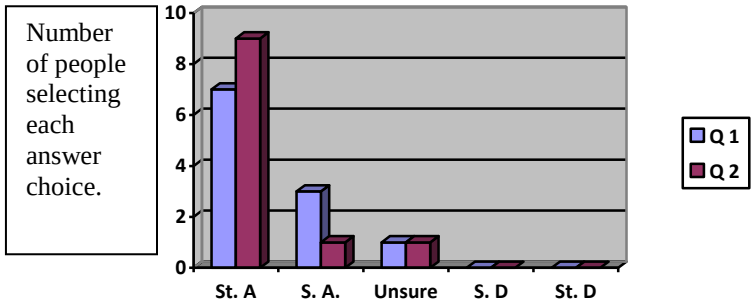


Figure 4: Foot Care Presentation Post-test Results



Nutrition Presentation

The nutrition presentation was accompanied by three pre and post test questions, which each had the same answer choices as the others.

1. I am aware of the difference between starchy and non-starchy vegetables
2. I am aware of how my diet can affect my health
3. I know what portion sizes of the different food groups I am supposed to eat for a meal.

Twenty-five percent of patients strongly agreed on the first question pre-test, while 85.7% strongly agreed on the post test. Likewise, 62.5% of patients strongly agreed on the third question, while 100% strongly agreed after the presentation. View figures five and six below for the complete results of all three questions. When patients were asked what they learned from the presentation, the answers were abundant. A list of the most popular are as follows:

- I didn't know corn was a starchy vegetable
- I didn't know the plate method of portion sizes
- I learned about starchy foods
- I learned that I need to eat more vegetables
- I learned that fish is a meat
- I learned that small portion of food is healthier than large and that I need to watch my eating habits

Figure 5: Nutrition Presentation Pre-Test Results

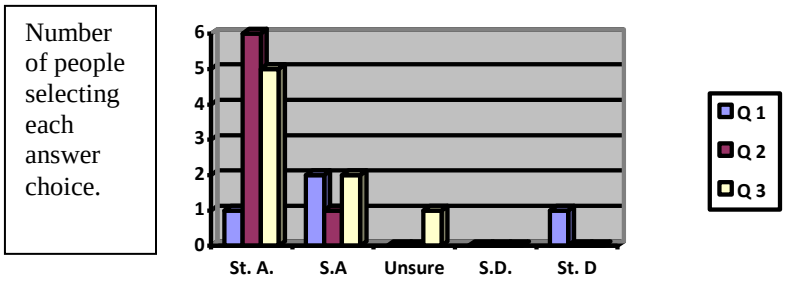
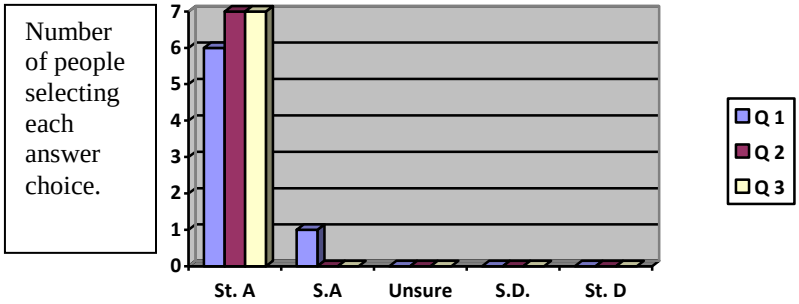


Figure 6: Nutrition Presentation Post-Test Results



Physical Activity Presentation

The physical activity presentation was accompanied by three pre and post test questions, with the answer choices from strongly agree to strongly disagree.

1. I am aware of why exercise helps people with diabetes.
2. I know why exercise is good for the heart.
3. I know how being overweight relates to diabetes

For question one, 50 % of people strongly agreed for the pre test and 100% strongly agreed for the post test. However, everyone answered with either strongly or somewhat agree for that question. In addition, the knowledge went from 0% to 75% for question three, showing that it may be an area that needs more focus when doing physical activity presentations related to diabetes. Figures seven and eight are representative of the complete results for the nutrition surveys. Qualitative results for this session were not obtained.

Figure 7: Physical Activity Presentation Pre-Survey Results

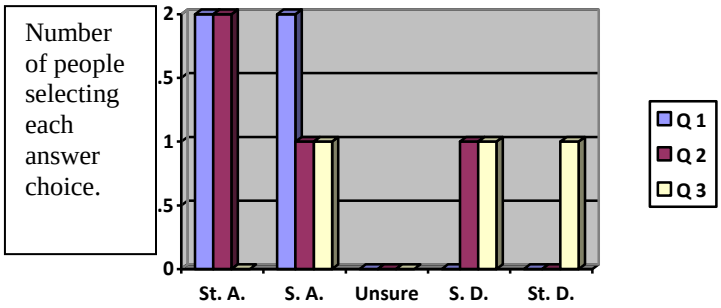
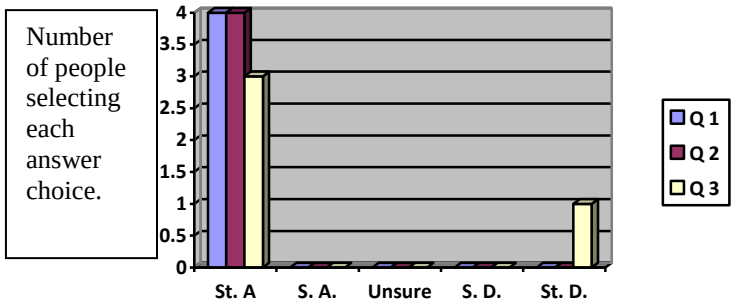


Figure 8: Physical Activity Presentation Post-Survey Results



Heart Health Presentation

The heart health presentation had two pre and post survey questions, with the same scale as the rest for answer choices. The first question, "I am aware of how diabetes is related to heart health", 50% of people said they strongly agree for the pre and post test. While the answers remained mostly the same, it is worth mentioning that 10% answered somewhat disagree for the pre test and 0% answered disagree for the post test. "I know how to take care of my heart" was

the second question and showed a bit of improvement with the knowledge going from 50% to 60%. Figures nine and ten demonstrate the results.

Figure 9: Heart Health Presentation Pre-Survey Results

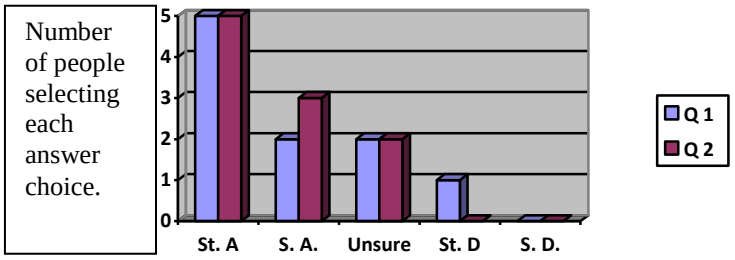
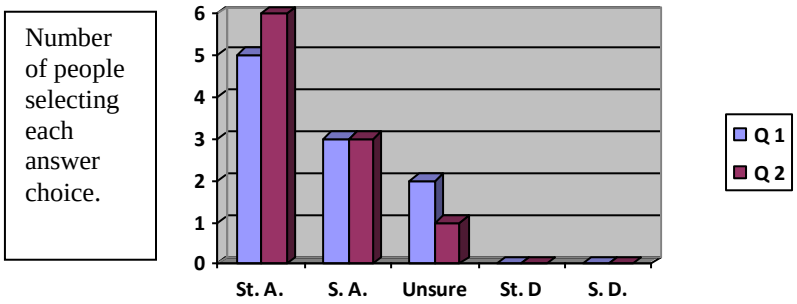


Figure 10: Heart Health Presentation Post-Survey Results



Discussion

Although there was a limited amount of time and participants available to implement the project, its overall effectiveness for educating individuals on diabetes and other related health topics was successful. Based on the results, more education should be focused on nutrition, overall diabetes, including the difference between type 1 and type 2, and how to care for those who are living with diabetes, and how physical activity helps those with diabetes. As it relates to the pre and post test results, many of them may have been slightly inaccurate. Before the presentation, patients were told to keep listening for their names to be called to be triaged and placed in their rooms. During many of the presentations, patients left and only some returned, causing them to miss parts of the lesson. Others answered pre and post test questions at the same time because it was on the same sheet. In addition, it is a possibility that some of the patients were unable to read or did not understand the questions, so they just circled the same thing on

both the pre and post test. In fact, when conducting a small group session, it was noticed that each of the participants placed strongly agree on the pre-test questions, and when the questions were asked during the presentation, the participants realized that they really were unknowledgeable about the information. These factors demonstrated limitations of the project and also made it difficult to get a real estimate of what the participants really learned based on the survey questions. If the project were conducted again aspects that could possibly improve the results are listed below:

- Change the survey answer choices to: Yes, No, somewhat, and unsure
- Just provide one survey at a time when doing more than one presentation in the same setting so patients will not mix them up
- Make the pre survey on the front page and post survey on the back of the page so participants will do them at the proper time.
- Allow more than a few weeks to collect data to obtain more participants. This will provide a better estimate of the effectiveness of the program.

Conclusion

Health education is a form of primary prevention and what is partially responsible for the level of awareness that our society has of certain health conditions. In particular, it is an imperative component of enhancing patient understanding of their individualized health condition and thus, their adherence to the agreed upon health plan. In the case of this project, the small amount of education that was received by the patients was effective in enhancing their knowledge. Patients also verbally expressed their appreciation for the information they learned and seemed to enjoy the resources that were provided with each of the presentations. The concept of conducting presentations in the patients' waiting period was constructive and also may have been great in reducing their perceived waiting time, which is also an advantage.

Appendices

Appendix 1: Diabetes Pre-Post Presentation Surveys

Appendix 2: Diabetes Presentation Presenter Notes

Jaleen Sims: Waiting Room Diabetes Education Project: July 2012

Resources:

1. America's Healthiest Rankings: http://www.americashealthrankings.org/rankings
2. Center for Disease Control and Prevention: http://apps.nccd.cdc.gov/cdi/SearchResults.aspx?IndicatorIds=12,61,34,31,24,19,38&StateIds=46,25&StateNames=United%20States,Mississippi&FromPage=HomePage
3. Find the Data: http://diabetes-obesity.findthedata.org/l/1006/Hinds-County-MS
4. Uniform Data System Report 2011. Central Mississippi Health Center, Inc.

Project Direction and Mentorship:

5. Dr. Robert Norris, MD
6. Dr. Robert Smith, MD
7. Dr. Geraldine Young, DNP
8. Mr. Pat Gregory