

# Decreasing Glycosylated Hemoglobin with Nutrition, Exercise and Bi-Monthly Telephone Calls In Patients with Type 2 Diabetes Mellitus

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## ABSTRACT

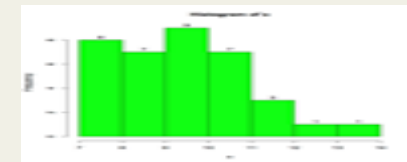
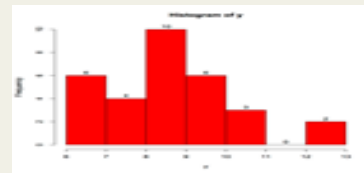
**Background:** Decreasing glycosylated hemoglobin (HbA1c) is a primary diabetes treatment goal  
**Aim:** This study is a quality improvement project designed to determine whether a personalized nutrition and exercise plan in conjunction with bi-monthly telephone reinforcement calls improved the HbA1c of patients with type 2 diabetes mellitus.  
**Setting:** The study was conducted at a community clinic located in the southeastern U.S that provides care predominantly to the working poor and uninsured patients.  
**Sample:** Type 2 diabetic patients (n=40) with a baseline HbA1c >7%.  
**Intervention:** The nurse practitioner, certified diabetic educator and an exercise physiologist developed an individualized action plan with the participant. Baseline HbA1c values were documented and 3 education sessions, followed with telephone calls twice a month for 3 months and a repeat HbA1c were conducted. **Results:** The p-value demonstrated a significant improvement with a p value of (0.05) and a postHbA1c mean average decrease of participants from 9.4% to 8.54%.  
**Conclusion:** Individualized attention and frequent reinforcement facilitated patients' need to develop and integrate self-management behaviors into their daily lives; thereby, reducing the HbA1c level and helping them to reach the desired goal.

## METHODS

The study design was a quantitative pre and post interventional study, analyzing aggregate data from 35 participants from a local southeastern U.S. clinic. Participants had 3 scheduled appointments at the clinic, followed by a repeat HbA1c on the 3<sup>rd</sup> appointment. The first appointment included a clinical counseling session lasting for approximately 1.5 hours with the principal investigator scheduled. The 2nd appointment participants received a telephone call from the principal investigator (PI) twice monthly lasting approximately ½ hour-1 hour each month using a telephonic script. The phone calls were also used to assess patient's health self-efficacy behaviors and provide additional instructions and education. At the third appointment scheduled in December lasted for approximately 1 hour, a repeat HbA1c was done as well as a general discussion about the participant's knowledge and perception of the effectiveness of the interventions and individual health self-efficacy.

## RESULTS

The statistical analysis of the study's findings indicated that the interventions were significant in decreasing the HbA1c of the participants. The T-test statistic used to analyze the data, shows a p-value = 0.01292. The participants had a combined 22.1 point HbA1c decrease with a postHbA1c mean of 8.5% compared to the preHbA1c of 9.4%. The results of the study support the ADA guidelines that using a multidisciplinary team for treating patients with diabetes.



## DISCUSSION



The study's provided a suggested treatment guideline for patients with type 2 DM with an HbA1c >7 %. Diabetes mellitus (DM) is a chronic illness that requires behavioral modifications as well as nutrition and exercise to decrease and maintain an ideal HbA1c > 7 to prevent complications. The ADA recommended guidelines for the treatment plan for patients with DM is to utilize a multidisciplinary approach of experts who have expertise and a special interest in diabetes (ADA, 2013). The personalized exercise and nutrition action plans that was developed and implemented by the certified diabetic educator (CDE) and exercise physiologist also impacted the postHbA1c. The bi-monthly telephone calls were an excellent motivational and encouragement tool that affected the patient's health self-efficacy and behaviors that resulted in an improved outcome