Nutritional Education Using Cooking Demonstrations to Improve Outcomes in Patients with Type 2 diabetes

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Problem

- DM contributes to the burden of chronic illness and affects 30.3 million people in the U.S. (CDC, 2017).
- Type 2 diabetes (T2D) - 95% of diagnosed cases.
- 50% of new cases are among ages 45 to 64 years.
- Risk of death for adults with diabetes is 50% higher than those without the chronic disease (CDC, 2017).
- CDC (2016) projects that adults ≥ 40 y/o with uncontrolled diabetes without complications have a risk of death (S94).

Project Aim

- Nutritional education is an integral part to overall diabetes management and requires each patient to be actively engaged in healthful eating knowledge with their healthcare team (ADA, 2017).
- The aim of this quality improvement (QI) project is to implement a hands on approach to nutritional education in adult patients with Type 2 diabetes to improve nutritional knowledge and reduce HbA1c and triglyceride levels.

References


Conceptual Framework

Chronic Care Model: evidence-based health model with 6 core components to improve delivery of quality chronic care services (ADA, 2017).
- Organizational support, proactive team delivery system design, population based clinical information systems, evidence supported decisions, and self-management support.

Methods

- Convenience sampling using chart reviews. n=7 participants
  - Adults ≥ 40 y/o with uncontrolled diabetes (HbA1c ≥ 7.5%).
  - Existing lab results for HbA1c and triglyceride levels within 8 weeks.
  - No planned medication changes after start of project.
  - Three divided 90 minutes sessions
  - Informed consent for group visits

Results

- Average 59 years
  - Male 4 (57%)
  - Female 3 (43%)
  - Duration of Diabetes Diagnosis: Less than 1 year = 1 (14.29%), 1 to 5 years = 1 (14.29%), 5 to 10 years = 2 (28.5%), 10 to 20 years = 3 (42.9%).
  - Level I to III studies: RCT, Non randomized RCT, Quasi Test reported reduction of (~ 0.05 significant).
  - Insulin Therapy = 1 (100%)
  - Poor Glycemic Control ≥ 7.5% = 5 (71.43%)

- The post intervention knowledge scores (M = 92.42, SD = 10.15) were significantly higher than the baseline mean nutritional knowledge scores (M = 81.97, SD = 10.03), p = 0.006
- A paired sample t test revealed a lower post intervention triglyceride levels, but most participants reported that the project can help identify participant’s true nutritional deficits and be individualized for future classes.
- Providers and patients reported “very satisfied” with the time and schedule of classes.
- There was not any statistical improvement with triglyceride levels, but most participants resulted in lower post intervention triglyceride levels within 6 weeks.
- Limitations include costs, staff and office availability for shared medical visits.
- Recommendations include a longer intervention period, use of SMA format with larger groups, and increased staff availability.
- This hands on nutritional education with cooking can be implemented in offices with kitchen functionality.

Discussion

- The QI project demonstrated improvement in nutritional knowledge and glycemic control among adult patients with T2D.
- All participants were on intensified insulin therapy prior to the intervention and most were diagnosed with diabetes for at least 15 years. This implied an important role for nutrition.

Table 1. Participant Demographics

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender (%)</th>
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Measurable Outcomes

- Primary outcome: Improved nutritional knowledge quiz scores
  - Questions created using ADA recommendations and consultation with CDE and RD.
- Secondary outcomes: Reduction in HbA1c and triglyceride levels.
- A course satisfaction survey was collected to evaluate participants’ feedback about the nutritional program.

Figure 1. (A) Pre intervention knowledge quiz scores (B) Post intervention knowledge quiz scores (p = 0.05 significant)
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Figure 2, (A) Pre intervention HbA1c (B) Post intervention HbA1c (p = 0.05 significant)
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Acknowledgements

To my father who ignited my passion for diabetes care and management. Special thanks to Michele Lane for ARNP, CDE, Suzanne McClay MS RDN, CDE, Dr. Deborah Flood, and Dr. James Lani for your support and mentorship on my project. Thank you to all the staff at Florida Medical Clinic and Intellectus Statistics.