Tracking Carbohydrate Intake With an App and the Effect on Type 2 Diabetes Mellitus

Chantell Corkern, DNP, RN

Samford University
Ida Moffett School of Nursing

Project Purpose

Evaluate if the utilization of a mobile health app to track daily carbohydrate intake improves clinical outcomes in patients with type 2 DM as evidenced by:

» Improved glycemic control
» Reduction in weight
» Improved perception of self-management of DM

Problem

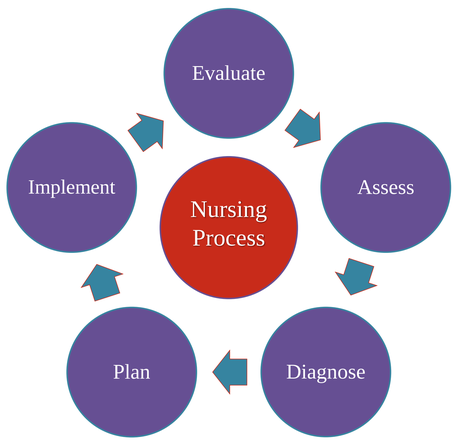
Diabetes imposes a large economic burden
» $245 billion in the United States
» $827 billion worldwide

Growing numbers
» 7th leading cause of death in the U.S.
» 300,000 Arkansas residents have DM diagnosis
• 12% of adult population

No standardized approach to help patients achieve autonomy in managing their DM.

Theoretical Framework

Ida Jean Orlando's Nursing Process Theory



Importance of the nursing process to:
» Improve patient outcomes
» Promote patient-centered care

Readily assess the patient's immediate needs:
» Thoroughly assess the patient
» Communicate clearly and openly
» Facilitates dynamic patient-provider relationship

Inclusion criteria

» Age 18 years or older
» HbA1c greater than 6.0
» BMI greater than 25

Methodology

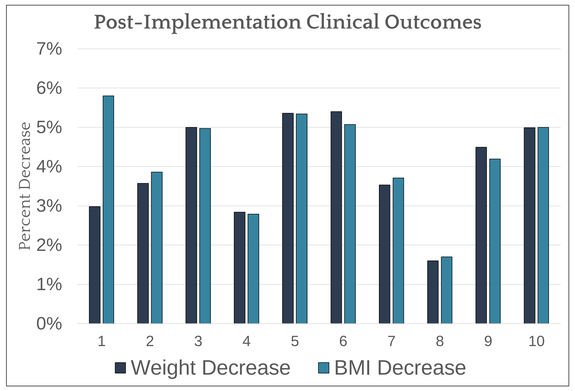
10 participants (6 female, 4 male)

First meeting:
» Starting weight, BMI, and A1c collected
» Week 1 details discussed
• Continue typical diet and lifestyle regimen and keep a paper log of diet
• Monitor daily blood glucose
» Consents signed
» Questionnaire using Likert scale administered
» Provided contact information

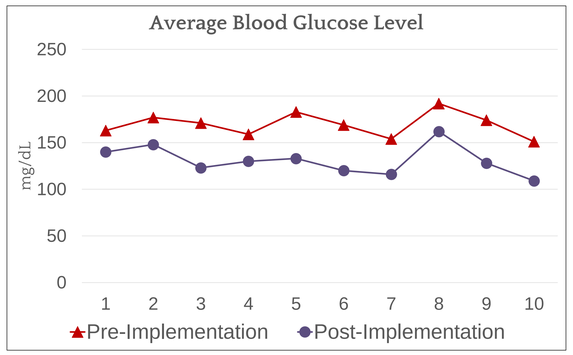
Second meeting:
» Patient's paper logs from week 1 collected
» Second phase of project discussed
• Download "Carb Manager" onto mobile device of their choice
• Input weight, height, activity level, and goals
• Change from "keto" to "low carb" recommendations
• Utilize app and its recommendations to document daily intake and monitor daily blood glucose for 4 weeks

Final meeting:
» Final weight and average blood glucose collected
» Diabetes questionnaire re-administered

Results



Participant	1	2	3	4	5	6	7	8	9	10
Pre-Weight	191	245	229	221	289	316	280	315	221	185
Post-Weight	185	236	218	215	274	299	270	310	211	176
Pre-Glucose	163	177	171	159	183	169	154	192	174	151
Post-Glucose	140	148	123	130	133	120	116	162	128	109

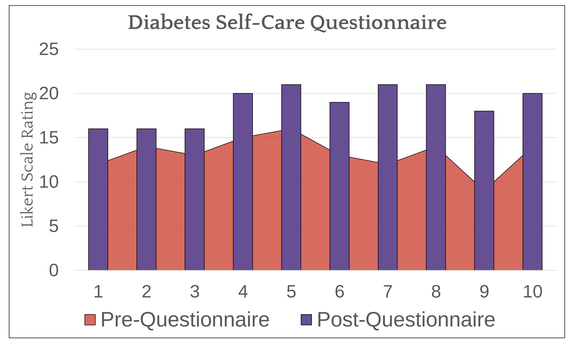


Average
» Weight loss: 4%
» BMI decrease: 4.24%
» Glucose decrease: 26%

Diabetes Self-Care Questionnaire

Likert Type Scale from 1-4 with 1 being the least and 4 being the most

Participants were asked 7 questions related to self-management of DM



Implications for Practice

Utilization of an app such as Carb Manager into diabetic management could:
» Increase patient autonomy in managing their DM
» Improve clinical outcomes associated with DM
» Promote the patient-provider dynamic relationship
» Promote interprofessional communication
» Improve patient, family, and provider satisfaction

Recommendations

Incorporate an app such as Carb Manager into diabetic education

Provide patients the opportunity to explore the app and promote self-management

Contact

Chantell Corkern
chantell.corkern@gmail.com
(479) 264.5438