

Improving physical activity self-efficacy with the use of motivational interviewing in people with diabetes type 2

Stephanie M. Wills, AGPCNP-BC

Introduction

- Diabetes type 2 (T2DM) is characterized by persistent hyperglycemia, insulin resistance & beta cell destruction.
- T2DM is considered a global health crisis and is projected to become the biggest epidemic in world history (Zimmet, 2017).
- T2DM has increased threefold from 1980 to 2014 (Mathers & Loncar, 2006).
- People with diabetes (PWD) have an increased risk of developing macrovascular and microvascular complications leading to retinopathy, nephropathy, gastroparesis, and cardiovascular disease.
- There are currently 517 million people in the world diagnosed with T2DM (IDF Diabetes Atlas, 2023).
- There are 34.2 million people in the U.S. that have T2DM, equivalent to 1:10 or 11.3% of the population (CDC, 2023).
- By the year 2050 that number is expected to increase to 48.3 million equivalent to 1:3 (Boyle et al., 2010; Deshpande et al., 2008).
- Annual costs associated with T2DM is also on the rise:
 - 2012-\$245 billion
 - 2022-\$412 billion
- T2DM is a preventable disease and can be controlled with diet, exercise and weight loss.
- American Diabetic Association recommends at least 150 minutes of moderate intensity physical activity (PA) weekly (ADA, 2023), however the literature suggests that most PWD maintain a sedentary lifestyle (Bazargan-Hejazi et al., 2017; Oliveria et al., 2018).
- Barriers to engaging in health promoting behaviors for PWD include; lack of family/social support and self-perceived difficulty in completing physical exercise (Man et al., 2019; Thomas et al., 2004).

Method

- Self-efficacy- an individual's beliefs in their capacity to execute behaviors necessary to produce specific performance attainments (Bandura 1977, 1986, 1997 as cited by The American Psychological Association, 2023).
- Motivational interviewing (MI)-constructs are based on social psychology using the concepts of attribution, cognitive dissonance, and self-efficacy.
 - Useful in encouraging & supporting the behavioral changes required for chronic disease management.
- The Health Promotion Model by Nola Pender will be the theoretical framework used to guide this project.



Procedure

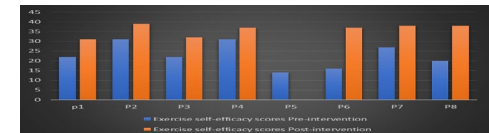
- Site: primary care office, Plainville, CT
 - Selection criteria:
 - Purposive sampling with the use of the electronic health record to pre-screen potential participants
 - Age 18-70
 - Hemoglobin A1C (Hgb A1C) ≥ 7 in the past 6 months
 - Self-reported lack of physical exercise
- Three-month nurse led program
 - Initial visit-in person. Baseline Hgb A1C, weight, blood pressure, Diabetes Knowledge Questionnaire (DKQ), Exercise self-efficacy scale (ESES), use of scripted questions utilizing MI principles to access readiness to exercise, facilitators/barriers to engaging in PA, activity goals were established.
 - Participants were contacted weekly by phone to access goal attainment, barriers/facilitators and to discuss any need for plan revision using scripted questions through MI principles
 - 6 week follow up-in person. Weight & blood pressure were obtained, discussed concerns using principles of MI.
 - 3 month-final visit, in person. Weight, blood pressure, Hgb A1C, post intervention DKQ/ESES completed, scripted questions using MI principles were used to discuss intention to remain engaged in PA.

Results

- The use of bar graphs were used to determine any relevant change in ESES and DKQ scores and any significant changes in the Hgb A1C.
- The use of themes were used to identify consistency among the qualitative data.

Conclusion

- 7 of the 8 participants completed the program
 - All participants that completed the program had an increase in post-program ESES and DKQ.
 - Of the 7 participants, 5 had a reduction in Hgb A1C
 - The two remaining had no change or minimal increase
 - At program end, all 7 participants remained engaged in physical exercise.
- Themes:
 - Barriers: lack of time, lack of family support, lack of energy, stressors in personal life.
 - Facilitators: improvement in weight and blood glucose readings, energy level, follow up phone calls and office visits resulted in accountability and increased motivation.



Bar graph provides side by side comparison of pre-intervention and post-intervention ESES scores

Significance

- Nurse led program to improve physical activity self-efficacy among PWD with the use of MI is a useful adjunct to treatment for the management of T2DM.
- MI is a useful in improving self-efficacy
- Practitioners should consider obtaining additional training on principles of MI to guide chronic disease management.

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