

Enhancing Access to Digital Diabetes Self-Management Education & Support: A Quality Improvement Project in a Free Clinic

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Background

Introduction

- In the U.S., 37.3 million adults (11.3%) live with diabetes and, in 2017, it was the 7th leading cause of death in the U.S.¹⁻³
- Communities in Appalachia have heightened diabetes risk and prevalence 1.4 times greater than those outside the region.^{4,5}
- A Hemoglobin A1C of less than 7%, reduces disease burden, physiologic complications, and health care costs.^{6,7}

Background

- Diabetes Self-Management Education and Support (DSMES) reduces all-cause mortality risk, improves quality of life, and can reduce A1C.^{6,8,9}
- National standards recommend DSMES at time of diagnosis, annually or when not meeting targets, and with complications or transitions in care.⁶
- DSMES is underutilized in disease management, especially in low-income populations.¹⁰

Purpose & Aims

Purpose: To develop, implement, and evaluate the effects of an educational bundle delivered via social media on the AADE 7 Self-Care Behaviors[®] for individuals with T2DM at a free clinic in North Carolina.

Aims:

- Deliver an educational bundle based on the AADE7 Self-Care Behaviors[®] to the project site for dissemination to its patients with T2DM via a private Facebook group over an 8-week period in Fall 2021, as measured by implementation of 7 educational modules.
- Evaluate the efficacy of the educational bundle through patient assessment of their diabetes self-management, as measured by a pre-intervention survey at week 1 and a post-intervention survey at week 12 using the Diabetes Self-Management Questionnaire (DSMQ[®]).¹²
- Evaluate the efficacy of the educational bundle through patient self-report of their most recent Hemoglobin A1C as measured by a pre-intervention survey at week 1 and a post-intervention survey at week 12.

Methods

Design Pre/Post-intervention Quality Improvement Project

Setting Independent free clinic in Appalachia

Measurement Pre/Post-intervention patient self-evaluations at weeks 1 and 12

- Diabetes Self-Management Questionnaire* [®]: Validated 16 statement Likert scale questionnaire; scored on 10-point scale
- Hemoglobin A1C*

Learning Data Set Sample

Demographic characteristics	(N = 44)
Age, mean (SD)	51 (7.55)
Range,	35-64
Sex, n (%)	
Male	18 (40.9)
Female	26 (59.1)
Race, n (%)	
White	39 (88.6)
Black/African American	5 (11.4)
Ethnicity, n (%)	
Hispanic	8 (18.2)
Non-Hispanic	36 (81.8)

SD=standard deviation

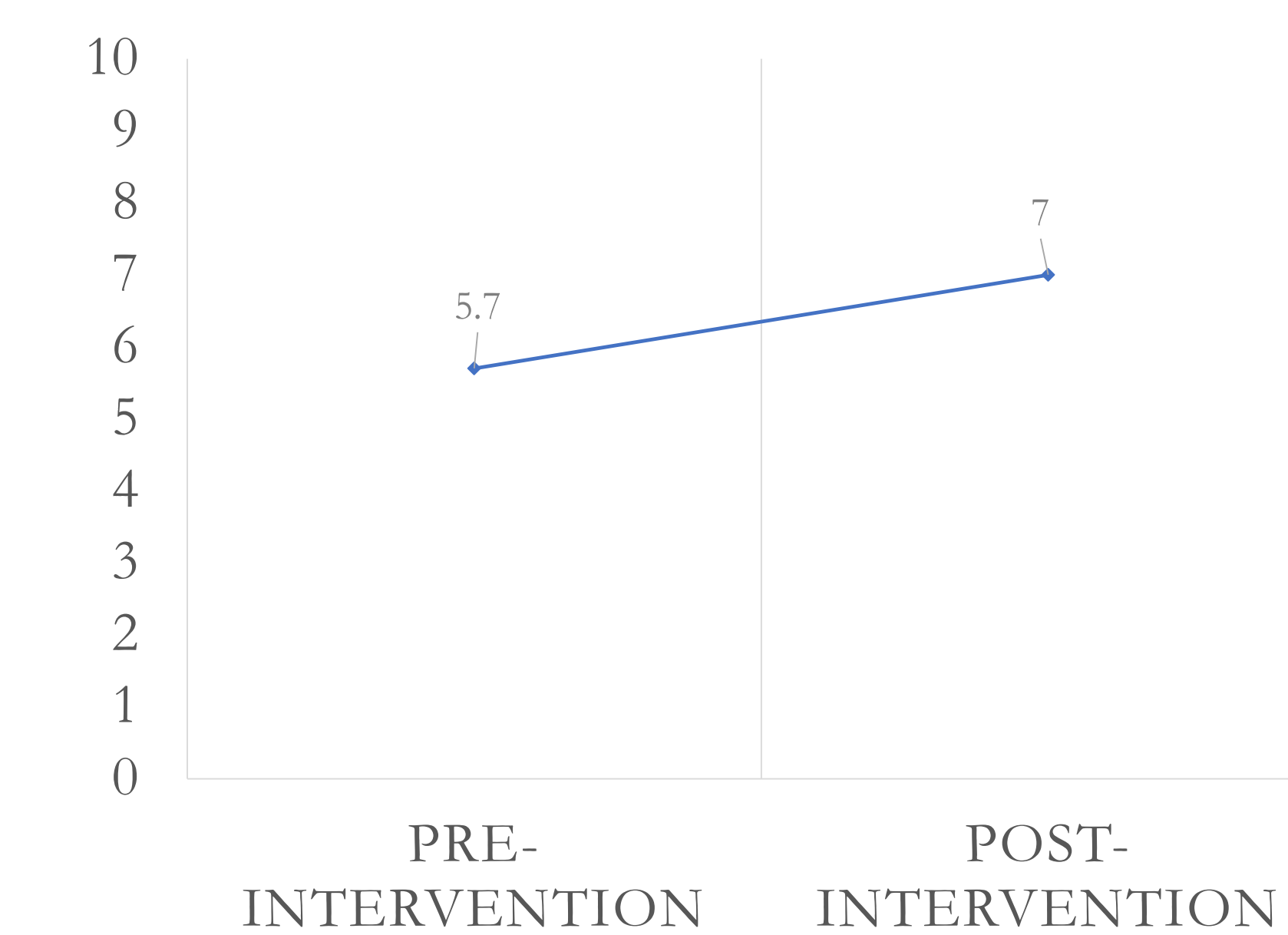
Discussion

- The intervention had **positive, statistically significant impact on participants' diabetes self-management.** **
 - Increased self-management improves patients' overall quality life.
- The intervention had **positive, statistically significant impact on participants' glycemic control.** **
 - A1C reduction was comparable to many oral anti-diabetic medications¹³ and demonstrates clinically significant progress and reduced mortality risk.
- Patients found the educational bundle informative, identifying the exercise, healthy eating, and problem-solving tips within the bundle to be most helpful.

**data analysis with a learning data set

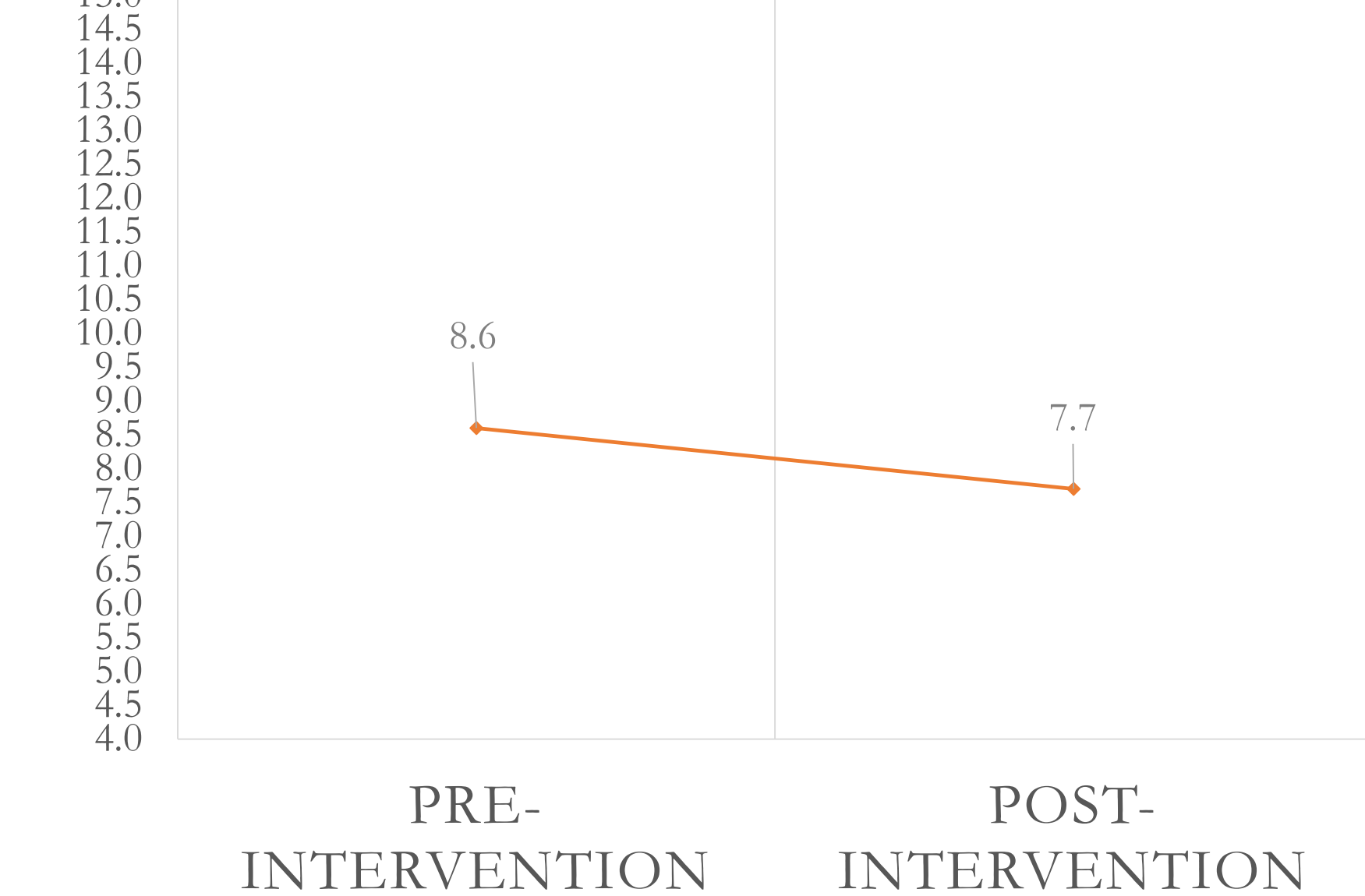
Results

Aim 2: DIABETES SELF-MANAGEMENT SCORES



- A paired sample t-test found that the difference between scores (1.4) was significant ($p < 0.001$).**

Aim 3: HEMOGLOBIN A1C



- A Wilcoxon signed rank test found that the difference between A1Cs (-0.9%) was significant ($p < 0.001$).**

**data analysis conducted with a learning data set

Limitations

- Low participant enrollment at the project site resulted in the use of a learning data set.
- A learning data set served as a proxy for real participant data; the project's reported outcomes cannot be equated with actual patient outcomes.
- Intervention was limited to eight weeks of DSMES. Optimal patient outcomes occur with at least 10 hours of DSMES over 6-12 months.

Conclusions

Summary

- This project mirrors the expanding integration of technology into diabetes care.
- Digital DSMES in low-income populations is both feasible and potentially beneficial.

Areas for future investigation:

- Subscale analysis of individual self-management behaviors within the DSMQ[®] to promote subsequent improvement of the educational bundle.
- Qualitative investigation into participants' perceptions of digital DSMES to illumine barriers and benefits to successful programs within low-income populations.

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