

Early Insights from an Innovative intensive Diabetes Self-Management Education and Support (iDSMES) Program

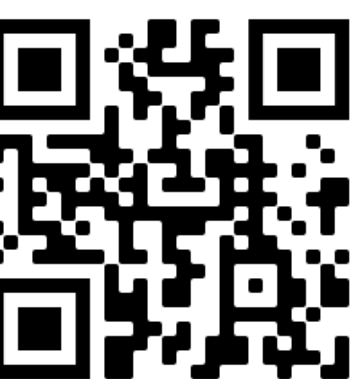
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Introduction

- More than 37 million people (11.3% of the US population) have diabetes.¹
- Diabetes represented the seventh leading cause of death in the US.² In 2018, people with diabetes (PWD) accounted for 17 million emergency department visits and 8.25 million hospital discharges.²
- The estimated total costs of diagnosed diabetes increased 25% between 2012 and 2017, reaching \$327 billion.
- Managing diabetes is needed more than ever in the era of COVID-19. PWD represents 30% of hospitalized cases and 20% of intensive care unit admissions and shows an increased risk for disease severity and mortality compared to those without diabetes.^{4,5}
- While people at risk for diabetes or prediabetes may join a 1-year diabetes prevention lifestyle change program to reduce their diabetes risk, PWD are often offered short-term DSMES programs with limited long-term goals.
- The use of telehealth has increased since the emergence of COVID-19. The convenience of telehealth made it ideal for patient education purposes.

Aims and Hypothesis

- A long, goal-setting, lifestyle change educational program would improve diabetes outcomes in PWD.
- We offered PWD a one-year lifestyle change program utilizing shared decision-making and problem-solving approaches to improve glycemic control and diabetes self-management.
- We also assessed the feasibility of the use of telehealth (distant-learning modality) in diabetes self-management education and support programs.



Click for more info on iDSMES at our program website

Methods

- PROGRAM DESIGN**
- We developed a year-long intensive Diabetes Self-Management Education and Support (iDSMES) program combining Virtual Diabetes Conversation Map® and selected modified modules from the PreventT2® curriculum to suit PWD. The curriculum included 18 modules that were conducted at intervals of three weeks.
 - Prevent T2®: A CDC-accredited lifestyle change program designed for diabetes prevention; most of its modules can help develop habit-formation concepts for self-management of diabetes and other chronic diseases. We selected and modified 10 modules to fit PWD.
 - Virtual Diabetes Conversation Map®: An ADA-accredited diabetes self-management curriculum consisting of 8 virtual maps that discuss different aspects of diabetes self-management.
 - The program was conducted by certified lifestyle coaches, diabetes educators, and Conversation Map® Trainers who are also trained on the use of shared decision-making and problem-solving approaches.
 - We used telehealth (distant learning modality) in conducting the program adopting the Zoom platform.

PARTICIPANTS

Including criteria	Excluding criteria
Age: ≥18 years	Pregnant women
Hemoglobin A1c: ≥7%	Type 1 diabetes
Body Mass Index (BMI): ≥25 Kg/m ² or ≥23 Kg/m ² (if Asian)	

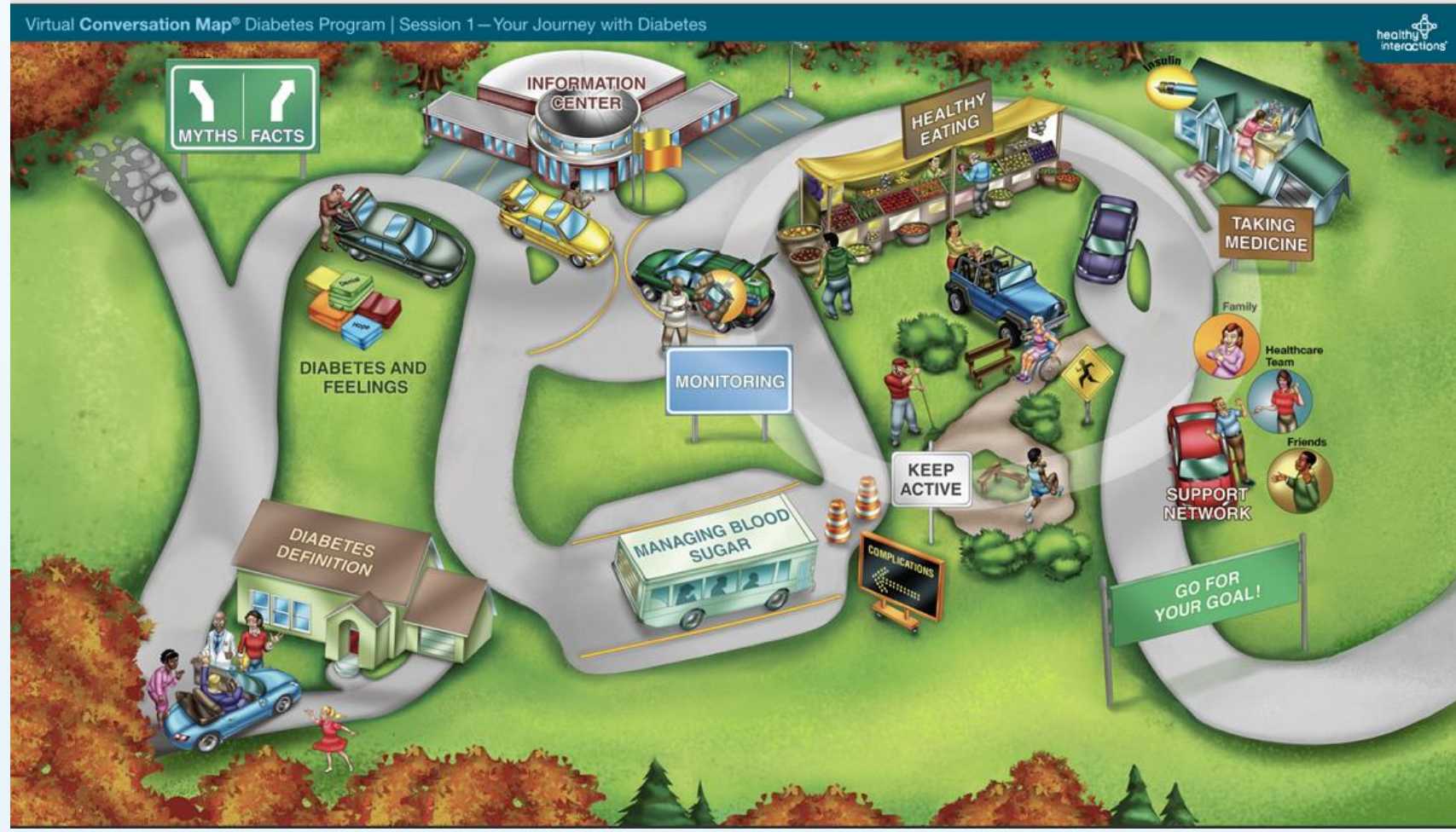
VARIABLES

- We measured the change in:
 - Fasting blood glucose, weight, blood pressure, and physical activity minutes at each session (every three weeks);
 - Hemoglobin A1c every three months.
 - We also collected data to assess changes in health literacy, dietary habits, adherence to medications, and perception of overall health.

Results

- Fourteen participants were enrolled in the iDSMES program (12 women and 2 men)
- Nine participants completed the one-year program.

Variables	Change
Body Weight	Participants reported losing 8.8% of their initial body weight – A total of 203 pounds collectively
Hemoglobin A1c	We observed 1% decrease in A1c (average for all participants who completed the program)
Fasting blood glucose	At the end of the program, we recorded 10mg/dL decrease in fasting blood glucose
Blood pressure	Participants reported an average of 10 and 11 mmHg decrease in systolic and diastolic blood pressure, respectively



Action Plan

Use this log to track your progress as you change your routine. Depending on this routine, you may practice several times a day or a few times a week. Each time you try it, note how it went. If it's not working and you need to change something, write it down too. You don't need to create this log with your Lifestyle Coach. It's just for you.

Step 1: What routine do I want to add, stop, or change? Today's date: _____

Step 2: What new routine do I want to try? _____

Step 3: What cue will help me remember my new routine? _____

Date / Time	Did it work?	Reflection: How is it going? Do I need to change anything?
	☐ Yes ☐ No	
	☐ Yes ☐ No	
	☐ Yes ☐ No	
	☐ Yes ☐ No	
	☐ Yes ☐ No	
	☐ Yes ☐ No	
	☐ Yes ☐ No	

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Discussion

- A meta-analysis of lifestyle intervention clinical trials of patients with type 2 diabetes emphasized the importance of intensive lifestyle interventions in achieving weight loss to exert desired metabolic effects.⁶
- The time needed to form a new habit varies significantly from one person to another. Automated habits may need between 18-254 days to develop.⁷ In diabetes self-management, we target several habits and deal with diverse population groups that require more time to be established.

Conclusion

A year-long iDSMES distance learning program effectively enhances lasting lifestyle changes to improve diabetes self-management in PWD. A 5-year follow-up is warranted to assess factors affecting the maintenance of accomplished lifestyle changes.

¹ CDC (2021). National Diabetes Statistics Report. <https://www.cdc.gov/diabetes/data/statistics-reports/>

² CDC (2021). Coexisting Conditions and Complications. <https://www.cdc.gov/diabetes/data/statistics-reports/>

³ U.S. Department of Health and Human Services (2020). Health Statistics Report, 2020. <https://www.hhs.gov/health-statistics/>

⁴ Barron E, et al. Association of Diabetes and Cardiovascular Disease. *Lancet Diabetes Endocrinol*. 2020;8(1):e1-e10.

⁵ Zhou F, et al. Clinical course and outcomes of COVID-19 in patients with type 2 diabetes. *The Lancet*. 2020;395(10252):1025-1026.

⁶ Franz MJ, et al. Lifestyle Management for Type 2 Diabetes: A Systematic Review and Meta-analysis. *Diabetes Care*. 2018;41(1):1-11.

⁷ Lally P, et al. How are habits formed: A review of the literature. *Health Psychology*. 2010;29(2):270-276.

Acknowledgment
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