

A Diabetes Self-Management Education Program Based on the Information-Motivation-Behavioral Skills Model: Effects on Older Adults with Type 2 Diabetes in Korea

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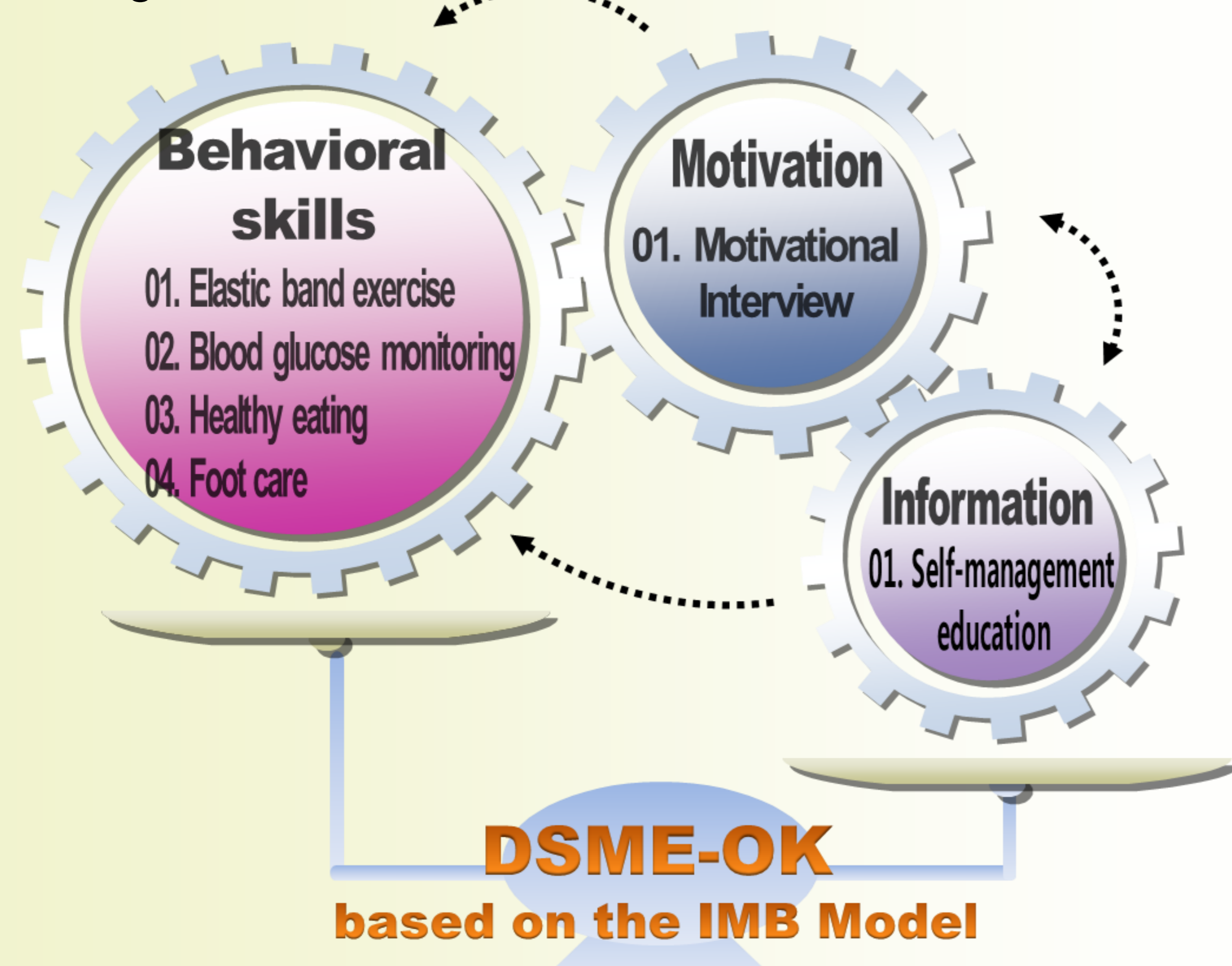
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Purpose

The purpose of this study was to evaluate the effect of the **Diabetes Self-Management Education for Older Koreans (DSME-OK) program** based on the Information-Motivation-Behavioral skills (IMB) model.

- The unique characteristics of the DSME-OK program are the application of the IMB model and utilization of the intervention mapping (IM) protocol.
- The **IMB model** includes three important behavioral change resources: information, motivation, and behavioral skills.
- The **IM protocol** includes needs assessment, defining goals and objectives, identifying theory and determinants, developing a matrix to form change objectives, selecting strategies and methods, structuring the program, and planning for evaluation.



Methods

1. Design and Participants

- A two-group, quasi-experimental study design.
- Thirty older adults between 66 and 90 years old (mean 76.8 ± 5.4) completed the entire research protocol and assessments at four time points.
- Changes in scores (from baseline to 14 weeks and 3- and 6-month follow-up) of outcome variables were compared between the intervention group (n=15) and the control group (n=15).

2. Intervention

- The DSME-OK program has 14 weekly 90-minute sessions.
- Seven behavior objectives developed by the American Association of Diabetes Educators as behavioral outcomes.

3. Dependent variables

Measurements were made on A1C, lipids, diabetes knowledge, motivation, self-efficacy of self-management behavior, and self-management behavior.

Results

- **At 14 weeks**, diabetes self-management **motivation** was improved for the DSME-OK program participants than usual care control subjects.
- **At 3-month follow up**, diabetes self-management **motivation and self-efficacy** were more improved for the DSME-OK program participants than the controls.
- **At 6-month follow up**, self-management **knowledge** was more improved for the DSME-OK program participants than the controls.

Table 1. Comparisons of Outcome Variables between Tests for Intervention and Control Group.

Variables	Group	T0	T1	T2	T3	Z' (p-value)		
		Mean (SD)				T1	T2	T3
A1C (%)	I	7.15 (1.4)	6.49 (0.5)	6.57 (0.7)	6.57 (0.7)	-0.021 (.983)	-0.624 (.533)	-0.958 (.338)
	C	7.02 (0.9)	6.79 (1.4)	7.03 (1.6)	6.85 (0.8)			
TC (mg/dl)	I	156.00 (29.2)	151.93 (22.8)	151.40 (28.9)	148.00 (20.9)	-1.203 (.229)	-0.560 (.575)	-0.270 (.787)
	C	155.87 (40.0)	156.40 (34.0)	153.27 (33.6)	147.93 (38.5)			
TG (mg/dl)	I	124.73 (54.8)	111.33 (57.9)	92.80 (35.4)	119.27 (48.0)	-0.975 (.330)	-0.643 (.520)	-1.016 (.310)
	C	134.07 (69.6)	130.67 (67.9)	113.80 (65.5)	156.6 (95.4)			
HDL-C (mg/dl)	I	40.05 (10.9)	43.46 (10.6)	46.47 (14.3)	43.26 (8.8)	-0.519 (.604)	-1.508 (.290)	-0.477 (.633)
	C	40.33 (8.4)	44.33 (10.2)	49.65 (14.3)	41.94 (12.1)			
LDL-C (mg/dl)	I	90.67 (23.3)	81.13 (16.7)	93.13 (25.4)	89.73 (21.1)	-0.788 (.431)	-0.311 (.755)	-0.560 (.575)
	C	85.33 (31.2)	87.53 (30.0)	88.53 (29.1)	85.5 (33.2)			
Knowledge for DSM	I	18.27 (2.8)	19.47 (2.3)	20.13 (1.7)	20.00 (2.2)	-0.971 (.331)	-1.667 (.096)	-2.067 (.039)
	C	18.27 (2.4)	18.80 (2.2)	19.00 (1.9)	18.53 (2.2)			
Motivation for DSM	I	24.93 (4.4)	28.24 (2.4)	27.69 (3.1)	27.73 (3.0)	-2.030 (.042)	-2.298 (.022)	-1.571 (.116)
	C	24.05 (4.7)	25.41 (5.2)	24.79 (4.1)	25.12 (4.5)			
Self-efficacy for DSM	I	37.73 (10.4)	43.40 (6.6)	45.47 (5.7)	43.73 (5.4)	-1.723 (.085)	-2.852 (.004)	-1.851 (.064)
	C	36.40 (10.4)	37.87 (8.8)	36.27 (9.6)	38.20 (8.8)			
DSM behavior	I	19.84 (6.8)	23.53 (3.8)	23.21 (4.8)	23.55 (4.4)	-1.350 (.177)	-1.766 (.077)	-1.307 (.191)
	C	19.57 (4.5)	20.52 (5.7)	19.64 (5.5)	21.07 (5.1)			

Z' = Mann Whitney U test; T0 = Baseline; T1 = 14 weeks follow-up; T2 = 3 months follow-up; T3 = 6 months follow-up; TC = Total cholesterol; TG = Triglycerides; HDL-C = High density lipoprotein cholesterol; LDL-C = Low density lipoprotein cholesterol; DSM = Diabetes self-management; I = Intervention; C = Control.

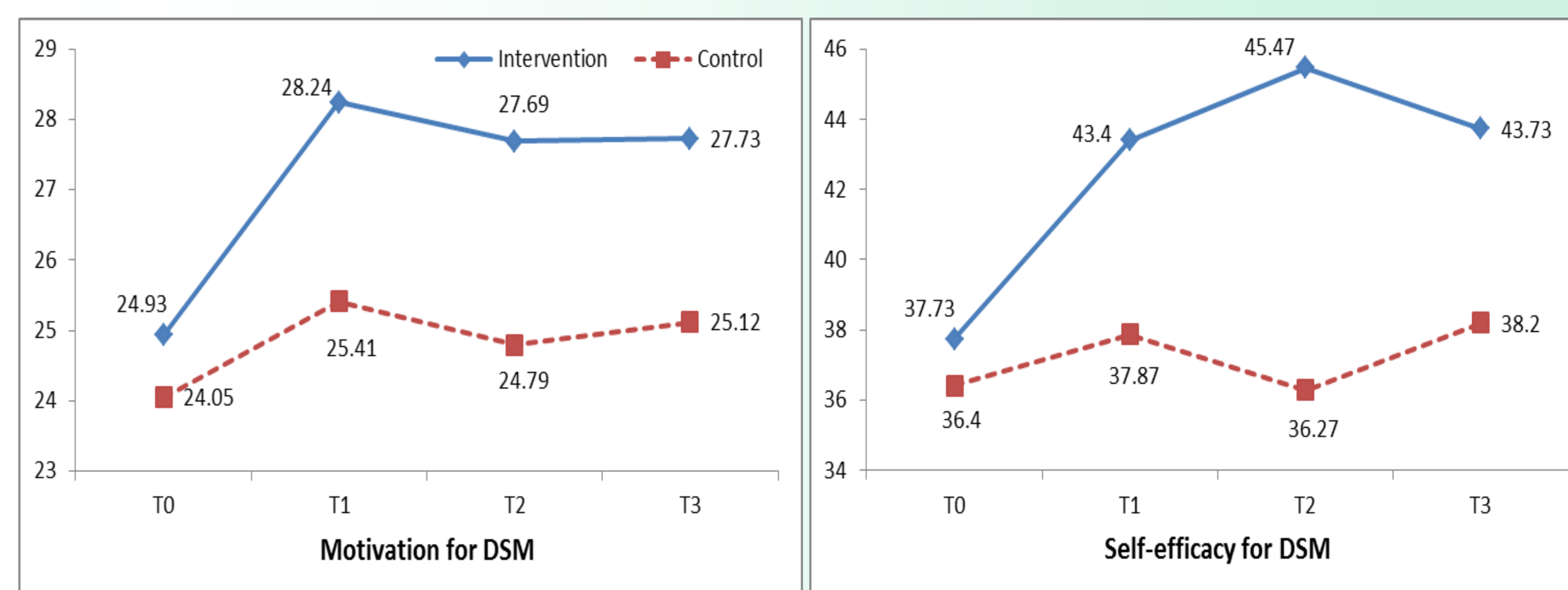


Figure 1. Changes in the motivation and self-efficacy from baseline to 14 weeks, and 3- and 6-month follow-up.

Conclusion

- This theory-based self-management program that focused on behavioral outcomes was effective for improving diabetes self-management information, motivation, and skills for older adults with type 2 diabetes.
- Further studies should attempt to replicate the current findings by using larger samples and longer time frames.