

ADdressing Health literacy, bELiefs, adheRence and self-Efficacy (ADHERE) program to improve outcomes on patients with diabetes: Preliminary results from a pharmacist-led randomized controlled trial

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Introduction

- Improving medication adherence in patients with diabetes is an effective approach for improving health outcomes.¹
- Increasing patient's knowledge does not guarantee behavioral changes. Health literacy is indirectly linked to medication adherence through psychosocial factors, such as medication beliefs and self-efficacy.²
- Objective:** Examine whether enhancing usual patient care in an ambulatory pharmacy setting with a more focused patient-centered psychosocial intervention will improve medication adherence within the Veterans Affairs hospital site.

Methods

Design

- Randomized study with half of patients receiving usual care and the others receiving additional pharmacist-provided tailored health literacy-psychosocial support intervention.

Participants

- Thirty English-speaking participants between ages 18-80 years old diagnosed with diabetes, who take at least one diabetes medication, and have low diabetes medication adherence.

Measurements

- Self-reported questionnaire administered at baseline and post intervention to determine any changes in patients' medication adherence (primary outcome) and psychosocial factors (secondary outcomes) along with the collection of hemoglobin A1c values. (Figure 1)

Statistical Analysis

- Descriptive statistics including means and percentages. (Table 1)
- Mann Whitney U test conducted to examine any significant differences between control and intervention group scores. (Figure 2 and Table 3)

Figure 1. ADHERE Intervention Outline



Results

Table 1. Baseline Demographic & Clinical Characteristics

	Control (n=11)	Intervention (n=10)	Total (n=21)
Age, yrs mean (SD)	58 (9.2)	56 (13.8)	57 (11.4)
Gender (%)			
Male	11 (100)	10 (100)	21 (100)
Race (%)			
White	10 (91)	9 (90)	19 (91)
Other	1 (9)	1 (10)	2 (9)
Diabetes diagnosis, yrs mean (SD)	17.8 (9.3)	12.1 (7.4)	15.1 (8.8)
Hemoglobin A1c mean (SD)	9.3 (1.1)	9.6 (1.7)	9.4 (1.4)
Diabetes Type (%)			
Type 1	1 (9)	3 (30)	4 (19)
Type 2	10 (91)	7 (70)	17 (81)
Diabetes meds mean (SD)	2.6 (1.2)	2.7 (0.9)	2.6 (1.1)
Insulin use (%)			
Yes	7 (64)	8 (80)	15 (71)
No	4 (36)	2 (20)	6 (29)

Figure 2. Hemoglobin A1c Test Value for Control and Intervention

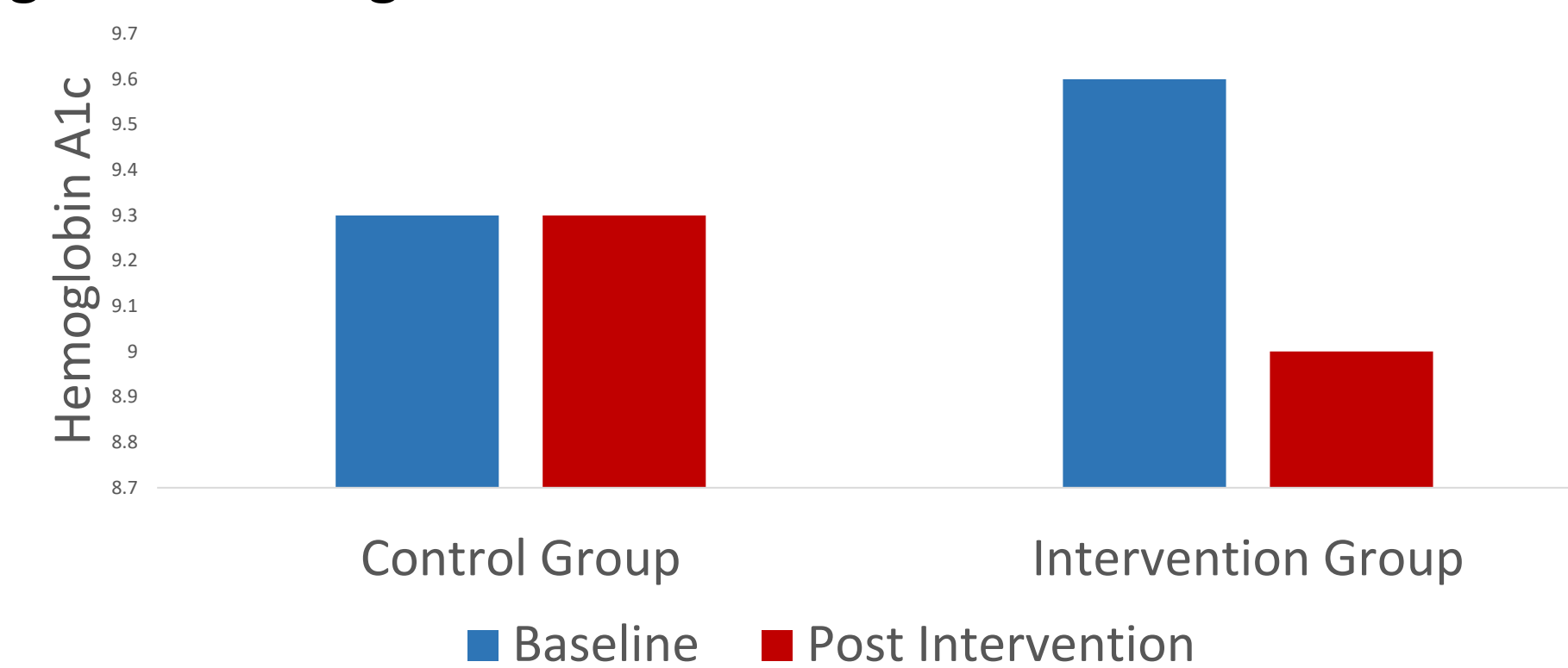


Table 2. Questionnaire Measurements and Outcomes

Measurement	Outcome	Scores	Higher scores indicates
ARMS-D	Medication Adherence	11-44	Worse medication adherence
BMQ	Necessity Beliefs about Medicines	5-25	Stronger Beliefs
	Concern Beliefs about Medicines	5-25	Stronger Concerns
BIPQ	Illness Perception	0-80	More threatening view of diabetes

Table 3. Baseline and Post Intervention Results for Selected Domains

	Baseline		Post Intervention Follow-up		Mann Whitney U-test n = 21
	Control (n=11)	Int. (n=10)	Control (n=11)	Int. (n=10)	
ARMS-D mean (SD)	16.9 (2.5)	17.0 (3.2)	--	--	--
BMQ mean (SD)					
Concern beliefs about medicines subscale	11.0 (4.6)	14.1 (5.0)	11.0 (5.5)	13.9 (3.2)	U= 57 (p=0.918)
Long term effect of diabetes meds n=9 (43%)	2.6 (1.4)	2.6 (1.7)	2.8 (1.4)	3.4 (1.2)	U= 68 (p=0.387)
BIPQ mean (SD)	44 (4.7)	42 (11)	41 (3.5)	43 (7.0)	U= 79 (p=0.099)
Concern n=16 (76%)	8.0 (1.7)	6.7 (3.8)	8.2 (1.7)	7.3 (3.0)	U= 50 (p=0.705)
Consequence N=13 (62%)	7.8 (1.8)	6.0 (3.7)	6.5 (1.6)	5.8 (3.0)	U= 69 (p=0.349)

Discussion

- ADHERE intervention aims to improve the psychosocial support offered to patients by building self-efficacy and addressing negative beliefs about medicines and diabetes
- Downward trend in the mean A1c for the intervention group suggests improved diabetes control
- Negative medication concern beliefs trending down for the intervention group, suggesting an improvement
- Illness belief about the effect of diabetes on participant's lives reported by over half of participants -- post intervention mean scores suggest an improvement in this belief
- Non-significant Mann Whitney U test results may have been due to our small sample size. This suggests there is no compelling evidence that the groups differ

Future

- Conduct future analysis with follow-up surveys to better understand lasting impact of study after the intervention was completed
- Interview with intervention participants for a qualitative analysis on appropriateness and practicality of ADHERE Intervention

References

- R.K. Campbell, Recommendations for improving adherence to type 2 diabetes mellitus to follow prescriptions for medications, Cochrane Database Syst. Rev. 2 (2002) CD000011.
- Y.M. Huang, O.O. Shiyabola, H.Y. Chan, A path model linking health literacy; medication self-efficacy, medication adherence, and glycemia control, Patient Educ. Counsel, 101 (11) (2018) 1906-1913.

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