Effectiveness of the Diabetes Education and Self-Management Program (DESMOND) for people with type 2 diabetes: Qatar Version

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INTRODUCTION

- Diabetes self-management education and support is a critical element of care for all people with diabetes
- Structured Education is a proven method to enable supported self-care in Diabetes.
- DESMOND (Diabetes Education and Self-Management for On-going and Newly Diagnosed) is an internationally recognized evidence based self-management structured group education program for people with type 2 diabetes.
- The education is provided in a group setting and focuses on a variety of aspects such as supporting people with diabetes to understand how lifestyle (e.g. food choices and activity levels) influence diabetes on a day-to-day basis, as well as enabling them to identify personal risk factors and monitoring them to set achievable targets to reduce this risk.
- In collaboration with Leicester diabetes center at UK, DESMOND program has been adapted for Qatar population to meet their cultural and specific needs.

OBJECTIVE

- To evaluate the effectiveness of DESMOND Qatar program on metabolic parameters in people with type 2 diabetes.
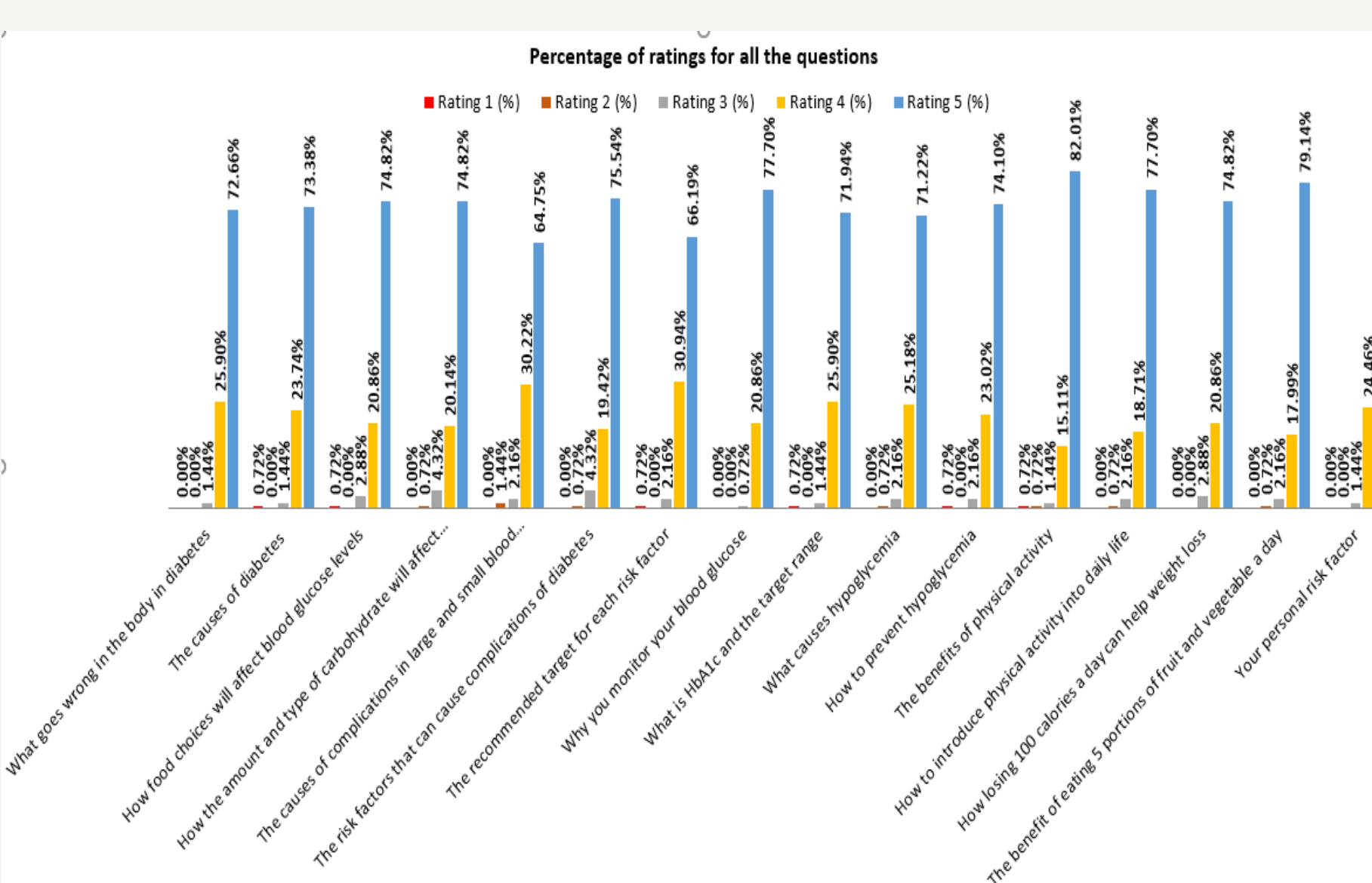
METHODS

- **Setting:** National Diabetes Center (NDC), Hamad Medical Corporation (HMC).

- **Participants:** 140 Adults (78% male, mean age 49.1 years)

- **Intervention:** A structured group education program for 6 hours delivered in NDC by 2 CDE based on a formal curriculum, it is offered either as a one-day or two half-day sessions of teaching, for six to ten patients at a time. Learning was elicited rather than taught, with the behavior of the educators promoting a non-didactic approach

- **Main outcome measures:** A1C, Blood Pressure (BP) and lipids were measured at baseline, 6 and 12 months of attending DESMOND program.

Table 1: Baseline characteristics

Characteristic	Summary measure	No. of obs
Male – n (%)	78 (56)	138
Age (years) – mean (sd)	49.1 (8.5)	138
BMI (kg/m²) – mean (sd)	29.3 (5.2)	124
Systolic BP (mmHg) – mean (sd)	133.7 (19.8)	124
Diastolic BP (mmHg) – mean (sd)	80.8 (8.5)	124
HbA1c (%) – median [IQR]	7.6 [6.6, 8.9]	136
HDL cholesterol (mmol/l) – median [IQR]	1.10 [0.97, 1.31]	132
LDL cholesterol (mmol/l) – median [IQR]	2.54 [1.93, 3.22]	130
Total cholesterol (mmol/l) – mean (sd)	4.70 (1.33)	133

Table 2: Clinical measurements at 6 and 12 months from baseline

Characteristic	Summary statistic	Number of obs.
6 months		
BMI (kg/m²)	29.2 (5.8)	104
Systolic BP (mmHg)	132.6 (14.7)	119
Diastolic BP (mmHg)	78.8 (8.5)	119
HbA1c (%) – median [IQR]	6.9 [6.2, 7.8]	112
HDL cholesterol (mmol/l) – median [IQR]	1.14 [1.00, 1.35]	100
LDL cholesterol (mmol/l) – median [IQR]	2.46 [1.85, 2.91]	100
Total cholesterol (mmol/l)	4.50 (1.18)	101
12 months		
BMI (kg/m²)	29.0 (4.8)	94
Systolic BP (mmHg)	130.0 (18.6)	110
Diastolic BP (mmHg)	77.8 (8.0)	110
HbA1c (%)– median [IQR]	7.1 [6.3, 8.0]	110
HDL cholesterol (mmol/l) – median [IQR]	1.10 [0.97, 1.30]	105
LDL cholesterol (mmol/l) – median [IQR]	2.38 [1.83, 3.03]	105
Total cholesterol (mmol/l)	4.39 (1.23)	104

Table 3: Secondary outcomes compared between different time points

Outcome	Time point 1	Time point 2	No. pairs of obs	Mean diff. (Paired t-test)	95% CI (Paired t-test)	P-value (Paired t-test)	P-value from Wilcoxon signed-rank test
BMI	Baseline	6 months	98	-	-	-	0.3146
		12 months	92	-	-	-	0.8394
	6 months	12 months	85	-	-	-	0.3249
SBP	Baseline	6 months	107	-1.69	-5.18 to 1.80	0.3387	-
		12 months	101	-6.66	-10.97 to -2.35	0.0028	-
	6 months	12 months	103	-3.26	-7.27 to 0.76	0.1104	-
DBP	Baseline	6 months	107	-1.64	-3.49 to 0.22	0.0828	-
		12 months	101	-3.34	-5.39 to -1.28	0.0017	-
	6 months	12 months	103	-1.30	-3.25 to -0.65	0.1893	-
HDL cholesterol*	Baseline	6 months	94	0.039	-0.017 to 0.095	0.1670	-
		12 months	100	-0.013	-0.080 to 0.055	0.7100	-
	6 months	12 months	81	-0.004	-0.051 to 0.043	0.8589	-
LDL cholesterol	Baseline	6 months	94	-0.154	-0.319 to 0.011	0.0665	-
		12 months	101	-0.232	-0.399 to -0.065	0.007	-
	6 months	12 months	83	-0.085	-0.230 to 0.061	0.2512	-
Total cholesterol	Baseline	6 months	98	-0.177	-0.437 to 0.083	0.1798	-
		12 months	101	-0.351	-0.606 to -0.096	0.0074	-
	6 months	12 months	84	-0.092	-0.312 to 0.128	0.4081	-

Percentage of ratings for all the questions

What did our patients say about DESMOND?

RESULTS

Primary outcome – change in HbA1c

- Wilcoxon signed-rank tests were used to compare HbA1c percentages at 6 months and 12 months to baseline. This test was used as the differences from baseline at 6 and 12 months were negatively skewed, and a t-test requires them to be normally distributed.
- Median baseline HbA1c was 7.6% (Table 1) and median HbA1c at 6 months was 6.9% (Table 2). There were 112 participants (80%) with HbA1c measurements at both time points. The p-value comparing 6 months to baseline was 0.0001, suggesting a significant reduction in HbA1c at 6 months.
- There were 110 participants (79%) with HbA1c measurements at both time points. Median HbA1c at 12 months was 7.1% (Table 2), and the p-value from comparing 12 months to baseline was 0.0648, suggesting there is a reduction in HbA1c at 12 months but that it is not statistically significant.

Secondary Outcomes

- There was a reduction from baseline to 6 months and to 12 months, and from 6 to 12 months, for every secondary outcome (LDL cholesterol, HDL cholesterol, Total cholesterol, Systolic & Diastolic BP) except the BMI(Table 3)
- Only four of the comparisons were statistically significant; SBP and DBP both decreased at 12 months from baseline (decrease of 6.66 mmHg (95% CI 2.35 to 10.97) and 3.34 mmHg (95% CI 1.28 to 5.39), respectively).
- Additionally, both LDL and total cholesterol decreased significantly after 12 months from baseline (decrease of 0.232 mmol/l (95% CI 0.065 to 0.399) and 0.351 mmol/l (95% CI 0.096 to 0.606), respectively).

CONCLUSION

- Implementing DESMOND Qatar showed significant improvement in A1C, BP & Lipids,
- the improvement in A1C wasn't sustained till 12 months.
- Further improvements suggestions need to be studied to ensure sustain the outcome improvements.