

Effects of a structured education programme on illness beliefs, QoL and physical activity in individuals newly diagnosed with Type 2 diabetes: the DESMOND pilot study

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Diabetes Education and Self Management for Ongoing and Newly Diagnosed



Aim: To describe a pilot study evaluating the effects of the DESMOND structured education programme.

Methods

The study was an uncontrolled pilot intervention study of a structured education programme. Twelve PCGs participated, with practices referring patients newly diagnosed with Type 2 diabetes to the programme.

Eligibility criteria

- ◆ Aged over 18 years
- ◆ Invited to attend the DESMOND programme within 6 to 8 weeks of diagnosis
- ◆ Able to participate in a group programme
- ◆ Responsible for their own care

Intervention

The DESMOND Collaborative, a multi-disciplinary group including patient representation, developed a structured group education programme:

- ◆ Involving 6 hours contact time
- ◆ Based on adult learning principles
- ◆ With a clear theoretical basis¹
- ◆ Utilising best practice
- ◆ Delivered by 2 trained educators

Outcome measures

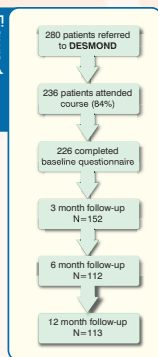
Patients completed a questionnaire at diagnosis and then 3, 6 and 12 months after diagnosis. The questionnaire included the Illness Perceptions Questionnaire², the Diabetes Illness Representations Questionnaire³, the International Physical Activity Questionnaire⁴ and the WHOQoL-BREF⁵. Patients also attended their practices for measurement of HbA1c and other biomedical measures.

Results

A total of 280 patients were referred to the programme with 236 attending (84%). 226 patients completed a baseline questionnaire before attending the course. Respondents at baseline had a mean age of 62.6 years (sd = 11.5), 51% were male and 97% were from a Caucasian background.

Follow-up questionnaire data were collected at 3, 6 and 12 months after diagnosis (Figure 1). Complete biomedical data sets (baseline, 3, 6 and 12 months) were collected on 60 patients.

Figure 1



Perceived understanding, impact and duration of diabetes: Significant changes at 3 months ($t=7.92$, $p<0.001$; $t=2.89$, $p<0.005$; $t=2.09$, $p<0.05$) were sustained at 6 and 12 months ($F=34.7$, $p<0.001$; $F=3.8$, $p<0.05$; $F=2.7$, $p<0.05$) (Figure 2a, 2b and 2c).

Perceived seriousness and personal responsibility: Significant changes at 3 months ($t=3.1$; $p<0.005$, $t=1.9$; $p<0.05$) were sustained at 6 months, but 12 month responses were not significantly different from baseline (F quadratic=10.0; $p<0.005$, $F=44.8$; $p<0.005$) (Figure 2d and 2e).

Physical activity: Frequency of walking showed a steady linear increase from baseline through 3, 6 and 12 months (F linear=7.0; $p<0.05$) from a mean of 4.3 days per week at baseline through to 5.1 days per week at 12 months (Figure 2f). The physical domain score of WHOQoL-BREF⁵ improved from baseline to 3 months ($t=2.03$; $p<0.05$) and this was sustained at 12 months.

Biomedical measures: Significant reductions at 3 months in HbA1c ($t=5.7$; $p<0.001$), SBP and DBP ($t=5.64$; $p<0.001$ and $t=4.33$; $p<0.001$) and weight ($t=5.18$; $p<0.001$) were sustained at 6 and 12 months. Significant reductions in total cholesterol ($t=6.17$; $p<0.001$), LDL ($t=2.89$; $p<0.007$), triglycerides ($t=4.08$; $p<0.001$) and waist circumference ($t=2.73$; $p=0.01$) at 6 months were sustained at 12 months for LDL, triglycerides and waist circumference.

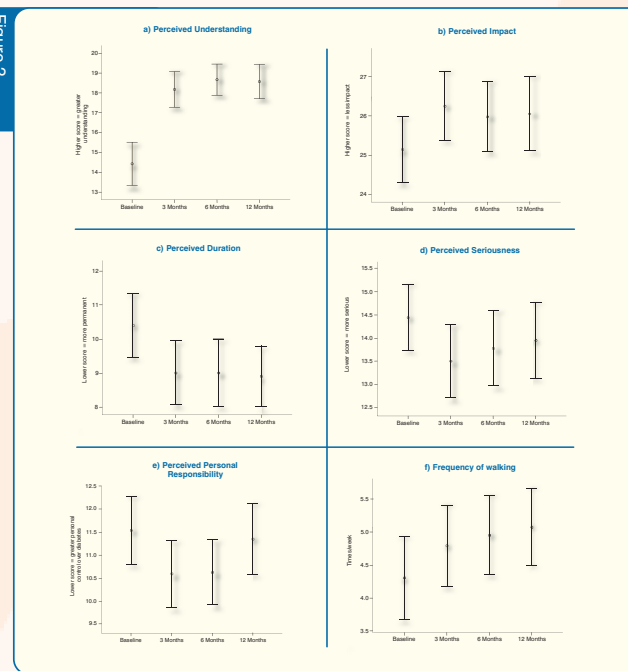
Illness beliefs associated with outcomes: Patients who agreed they understood their diabetes ($\beta=0.18$; $p<0.05$) and that diabetes is a chronic condition ($\beta=0.20$; $p<0.05$) reported a greater increase in physical activity. The more an individual believed they understood their diabetes, the better their physical quality of life at 3 months ($r=0.15$; $p<0.05$). The more an individual believed they can control their diabetes the greater their reduction in HbA1c ($r=0.24$; $p=0.05$).

Conclusion: Pilot data indicates the DESMOND course facilitates changes in illness beliefs which are sustained at follow-up and predictive of metabolic control. A full scale randomised controlled trial is now underway in 17 primary care organisations and 207 practices in England and Scotland. Recruitment is complete and the trial is due to report in early 2007.

Reference List

1. Skinner TC, Cradock S, Arundel F, Graham W. Four Theories and a Philosophy: Self-Management Education for Individuals Newly Diagnosed With Type 2 Diabetes. *Diabetes Spectr* 2003;16:75-80.
2. Moss-Morris R, Weinman J, Petrie KJ, Horne R, Cameron LD, Buick L. The Revised Illness Perceptions Questionnaire (IPQ-R). *Psychology and Health* 2002;17:1-16.
3. Skinner TC, Howells L, Greene S, Edgar K, McEvilly A, Johansson A. Development, reliability and validity of the Diabetes Illness Representations Questionnaire: four studies with adolescents. *Diabet Med*. 2005;20:283-9.
4. Craig CL, Marshall AL, Sjoström M, Bauman AE, Booth ML, Ainsworth BE et al. International physical activity questionnaire: 12-country reliability and validity. *Med.Sci.Sports Exerc.* 2003;35:1381-95.
5. The WHOQoL Group. Development of the World Health Organisation WHOQoL-BREF Quality of Life Assessment. *Psychol. Med.* 1998;28:551-559.

Figure 2



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