

# Evaluating the effect of an education programme on quality of life

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## ARTICLE POINTS

**1** Quality of life is an important outcome measure for people with diabetes.

**2** A patient education programme was evaluated to determine its effect on patients' quality of life.

**3** Evaluation using the Diabetes Impact Measurement Scale found a significant improvement in diabetes-specific quality of life.

**4** No significant improvement was found for general quality of life using the SF-36.

**5** There is a need for the application of patient-specific measures of quality of life for patients with diabetes.

## KEY WORDS

- Diabetes education programme
- Outcome audit
- Quality of life
- Patient-specific measurements

## Introduction

Many studies have shown the effectiveness of providing diabetes education programmes for people with diabetes, although not all used quality of life (QoL) as an outcome. An audit was carried out to evaluate the effectiveness of one recently-developed programme. QoL measurements were used since they have been shown to be important in this patient group. Results showed improved QoL as measured by the disease-specific tool. The authors recommend the development of patient-focused QoL measurement tools.

Research has shown that diabetes patient education improves patient outcomes (Brown, 1990; Tan et al, 1997). However, research in this field has been limited because such studies have often focused on patient knowledge retention and metabolic control as outcome measures. Glasgow and Osteen (1992), in a review of the research in this field, highlighted the need for studies to focus on the use of quality of life (QoL) measures in order to present a more realistic measure of patient outcome.

The importance of measuring QoL as an outcome indicator for diabetes has also been promoted by the National Centre for Health Outcome Development (Home et al, 1999). A recently published *Effective Health Care Bulletin* also made a similar recommendation with regard to future research into diabetes self-management (NHS Centre for Reviews and Dissemination, 2000).

Taking these views into account, it was decided that in order to evaluate a new diabetes education service in Thanet, the methodology would need to measure the QoL of patients.

## Programme development

The Thanet Diabetes Education Programme emerged from a need exposed during local practice nurse training. It was highlighted that there was a growing requirement for the provision of diabetes patient education for people newly diagnosed with type 2

diabetes. Practice nurses have an important role in educating people with diabetes; however, the time that they have to perform this role is limited. The programme was initiated through joint collaboration between the Diabetes Co-ordinator and Health Promotion Specialist.

A literature search was undertaken to identify any existing initiatives that were providing an education referral programme for people with type 2 diabetes. The Royal Bournemouth Hospital was found to have designed and implemented an effective education programme for people with newly diagnosed type 2 diabetes (Everett and Kerr, 1998) and provided the template for the Thanet Diabetes Education Programme.

A local steering group comprising diabetes specialist nurses (DSNs), chiropodists, a community diabetes specialist dietitian, health promotion specialists and the chairman of the local Diabetes UK branch was formed to study the feasibility of implementing a similar programme in Thanet.

## Programme contents and process

The programme contents are shown in *Table 1*. The steering group agreed that each programme should be delivered over a six-week period and that the programme as a whole should be available over an initial six-month period. After review, this period was extended to one year. Each patient referred to the programme received an education pack that was related to the topics presented.

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The project started in March 1998 and patients were referred into the programme via DSNs. Three months after the project started, GPs and practice nurses were also invited to refer patients to the programme.

**Evaluation of the programme**

In order to measure the effectiveness of the project an outcome audit was designed to ascertain the effect of diabetes education on the QoL for patients participating in the programme.

The objective of the audit was to evaluate each patient’s disease-specific and general QoL at the time they started the programme (time one) and then six months after they had completed the programme (time two). This was in order to record whether there had been any change in each patient’s health status, with regard to their quality of life, after they had received diabetes education.

**Methodology**

The disease-specific QoL tool used was a modified Diabetes Impact Measurement Scales (DIMS) questionnaire (with only 17 items rather than the original 44). This had been designed by Hammond and Aoki (1992) from the Rand Health Insurance study and Arthritis Impact Measurement Scales. The questionnaire has been designed to reflect the presence of important symptoms, functional capacity of impairment and general wellbeing.

The general health QoL tool used was the Short Form-36 (SF-36) general health profile questionnaire which was also developed from the Rand Insurance Study (Ware, 1993) The instrument consists of nine dimensions, as follows:

- Physical functioning
- Social functioning
- Role limitation due to physical problems
- Role limitation due to emotional problems
- Mental health
- Energy/vitality
- Body pain
- General health perception
- Health changes over the last past 12 months.

A higher score indicates health improvement in all but the health transition dimension.

These two instruments were selected because they were developed from the

same study and have both been tested for validity and reliability. The data produced by the questionnaires were analysed using the Statistical Package for Social Sciences (SPSS) version 9 (SPSS (UK) Ltd, Woking).

**Ethics**

The evaluation was considered to be an outcome clinical audit and therefore did not require ethical approval. Patients were informed about the objectives of the project and were also given the opportunity not to take part in the evaluation if they wished.

In order to protect patient confidentiality, as few details as possible were recorded. All participants were sent information on the outcome of the project.

**Results**

A total of 63 patients were allocated to one of the six diabetes education programmes that took place over one year. The response rate for time one was 95% (n=60) and 81% (n=51) for time two. Therefore, only the results of 51 patients were compared at both time one and time two.

**Table 1. Contents of the Thanet Diabetes Education Programme**

Session title	Topics	Topics
What is diabetes?	Introduction, video, annual review, eye tests, driving, hypoglycaemia, prescription charges, smoking.	Diabetes Specialist Nurse
Nutrition	Guidelines for healthy eating, practical session on food types.	Diabetes Dietitian
Monitoring and medication	Monitoring methods and timing, medication (breakdown of terminology and use), insulin.	Diabetes Specialist Nurse
Exercise	Overview on diabetes and exercise, community programmes, relaxation.	Health Promotion Specialist
Footcare	Video on footcare, presentation and overview of footcare.	Chiropodist
Recall session	Management of co-existing illnesses, travel and holidays, question and answer session, Diabetes UK.	Diabetes Specialist Nurse and Chairman of local Diabetes UK branch

**PAGE POINTS**

1 Scores from the DIMS questionnaire showed a significant improvement in QoL between times one and two.

2 No significant differences were found between time one and two scores from the SF-36 tool.

3 The evaluation showed that the education programme had a positive impact on patients' perceptions of their QoL.

**Table 2. Mean scores from the Diabetes Impact Measurement Scales questionnaire and the SF-36 questionnaire at time one and time two**

Measurement tool	Score at time one	Score at time 2	Paired t-test result
Diabetes impact measurement scale questionnaire	68.03	71.17	0.001
SF-36 Physical functioning	67.50	61.26	ns
SF-36 Social functioning	77.20	70.39	ns
SF-36 Role limitation (physical)	56.34	51.30	ns
SF-36 Role limitation (emotional)	43.10	42.90	ns
SF-36 Mental health	70.16	69.75	ns
SF-36 Energy/vitality	25.46	26.28	ns
SF-36 Body pain	63.16	60.24	ns
SF-36 General health perception	60.58	57.14	ns
SF-36 Health transition	2.95	2.63	ns

ns = not significant ( $P > 0.05$ )

Scores from the DIMS questionnaire demonstrated that QoL improved significantly between times one and two ( $P = 0.001$ , 95% CI = 1.2–5.0, paired *t*-test) (Table 2). A total of 37 patients (72%) had a higher DIMS score at time two than at time one.

No significant differences were found between times one and two with regard to SF-36 scores. However, scores in the health transition dimension indicated a slight health improvement (Table 2). Sixteen patients (25%) had other medical conditions that affected their SF-36 scores at both time one and time two.

Across all of the SF-36 dimensions, 50–60% of patients had time two scores that were either the same or better than their time one scores (Table 3).

**Discussion**

The evaluation provides evidence that the diabetes education programme has had a positive impact on how patients perceive their QoL with regard to their diabetes. However the scores from the SF-36 questionnaires indicate that the impact of diabetes education on how patients perceive their general health QoL was more difficult to measure. A number of patients had other medical conditions, which may

have influenced their perceptions of their general health. The age of patients was also not taken into account, and may have been a factor that influenced responses to the SF-36 questions.

It should be noted that the patient population of this evaluation was small and the diabetes education programme provided was a local initiative so it is not possible to conclude if the results can be generalised to the whole population.

The evaluation did not try to measure the exact impact of what patients were taught but just focused on the impact of the total six-week programme on each patient's QoL.

Issues concerning the measurement of QoL are complex. This is because there is no consensus on the concept itself, due to its nebulous nature (Watkinson, 1999).

The many personal and social influences acting on individuals, together with the variation in their perspectives and expectations regarding their own health, make it important to attempt to develop a more individualised quality of life measurement process. One such process is the Patient-Generated Index of QoL tool (Ruta et al, 1999). With this tool, patients select the five most important aspects of

**Table 3. Comparison of scores at time two vs time one**

Measurement tool	Better	Same	Worse	n
Diabetes impact measurement scale questionnaire	37 (72%)	3 (7%)	11 (21%)	51 (100%)
SF-36 Physical functioning	16 (32%)	10 (20%)	24 (48%)	50* (100%)
SF-36 Social functioning	13 (26%)	14 (28%)	23 (46%)	50* (100%)
SF-36 Role limitation (physical)	10 (20%)	29 (58%)	11 (22%)	50* (100%)
SF-36 Role limitation (emotional)	10 (20%)	23 (46%)	17 (34%)	50* (100%)
SF-36 Mental health	21 (44)	5 (10%)	22 (46%)	48# (100%)
SF-36 Energy/vitality	18 (37%)	8 (17%)	22 (46%)	48# (100%)
SF-36 Body pain	14 (28%)	14 (28%)	22 (44%)	50* (100%)
SF-36 General health perception	19 (38%)	27 (54%)	4 (8%)	50* (100%)
SF-36 Health transition	19 (39%)	18 (37%)	12 (24%)	49† (100%)

\* n=50 because one patient did not complete the SF-36 questionnaire at time two  
 † n=49 because one patient did not complete the SF-36 questionnaire at time two and another did not complete the health transition dimension of the SF-36 questionnaire at time two  
 # n=48 because one patient did not complete the SF-36 questionnaire at time two and two patients did not complete the energy/vitality and the mental health dimensions of the SF-36 questionnaire at time two.

their lives affected by their condition. Each area is then rated by the patients according to the severity of impact. Patients are given 60 points to indicate which of the five areas they would like to see improved (Jenkinson and McGee, 1998). Repeated over time, this process gives a more individualised measurement of a patient's QoL.

**Conclusion**

In this study, evaluation of a diabetes education programme for people with newly-diagnosed type 2 diabetes using established measurement tools showed that it is possible, to some degree, to measure the impact of diabetes education on patients' QoL. However, such tools are limited because of the individualised nature of the concept of QoL. The production of more specific patient-focused QoL measurement processes should assist in monitoring the content, delivery and impact of diabetes education, hence improving the lives of patients. ■

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**PAGE POINTS**

1 Established QoL measurement tools are limited.

2 More patient-focused QoL measurement tools are needed to give more individualised measurements.

3 This should help to more accurately measure the impact of diabetes education programmes.