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Original Research

Self-rated health as a predictor of outcomes of type 2 diabetes patient education programmes in Denmark

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ABSTRACT

Objective: To explore if self-rated health (SRH) can predict differences in outcomes of patient education programmes among patients with type 2 diabetes over time.

Study design: This is an observational cohort study conducted among 83 patients with type 2 diabetes participating in patient education programmes in the Capital Region of Denmark.

Methods: Questionnaire data were collected by telephone interview at baseline and 2 weeks (77 participants, 93%) and 12 months (66, 80%) after the patient education ended. The seven-scale Health Education Impact Questionnaire (HeiQ) was the primary outcome. The independent variable was SRH, which was dichotomized into optimal or poor SRH. Changes over time were assessed using mean values and standard deviation (SD) at each time point and Cohen effect sizes. Odds ratios and 95% confidence intervals were calculated for the likelihood of having poor SRH for each baseline sociodemographic and health-related variable.

Results: Twelve months after patient education programmes, 60 (72%) patients with optimal SRH at baseline demonstrated increased self-management skills, overall acceptance of chronic illness, positive social interaction with others, and improved emotional well-being. Participants with poor SRH (23, 28%) reported no improvements over time. Not being married (odds ratio [OR] 7.79, $P < 0.001$), living alone (OR 4.93, $P = 0.003$), having hypertension (OR 8.00, $P = 0.031$), and being severely obese (OR 4.07, $P = 0.009$) were significantly associated with having poor SRH. After adjusting for sex, age and vocational training, marital status (OR 9.35, $P < 0.001$), cohabitation status (OR = 4.96, $P = 0.005$) and hypertension (OR 10.9, $P = 0.03$) remained associated with poor SRH.

Conclusions: We found a strong association between SRH and outcomes of patient education, as measured by the HeiQ, at 12 months. Only participants with optimal SRH appeared

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to benefit from patient education. Other patient characteristics may be responsible to explain the observed difference between patients with optimal and poor SRH.

Introduction

During the last 20 years, the prevalence of type 2 diabetes (T2D) has increased dramatically in many parts of the world, and the disease is now a worldwide public health problem. In 2013, 382 million people worldwide were diagnosed with diabetes, a global prevalence of 9%.[1] This number continues to increase and is estimated to reach more than 500 million people in 2030.[2–4] The prevalence of diabetes in Denmark is currently 6% of the adult population but is increasing rapidly.[5,6] The growing population of patients with diabetes has required a change in care. Treatment of diabetes is an around-the-clock activity, and more than 95% of the daily management of diabetes is conducted by patients.[7] Patient education programmes have been developed for patients with diabetes to help them acquire the knowledge and skills to better manage their disease in their everyday lives. Patient education plays a central role in supporting and creating individual changes to achieve good quality of life and health despite illness.[8]

Since the 1990s, the Danish healthcare system has offered a number of disease-specific patient education programmes to people with chronic conditions.[9] However, some challenges are associated with patient education programmes. Several studies suggest that patient education programmes might not be suitable for all types of chronic conditions and population subgroups.[10–12] More research is needed to explore diabetes-specific patient education and involved participants.

Self-rated health (SRH) is a useful and convenient tool for identifying individuals at increased risk of unfavourable health outcomes; e.g. cardiovascular events for patients with diabetes.[13] It is regarded as a valuable risk predictor of complications among patients with diabetes.[14] SRH can also be an outcome measure[15] and a goal for effective self-management.[16] SRH can thus serve as a comprehensive screening tool for patients' health status. However, positive SRH is no guarantee of good physical health, and poor SRH warrants further attention.[15] In this study, we explore whether SRH at baseline predicts differences over time in the outcomes of diabetes patient education programmes using the Health Education Impact Questionnaire (HeiQ) in the Capital Region of Denmark.

Methods

Study design

An observational cohort study was conducted among patients with T2D participating in patient education in the Capital Region of Denmark. Data were collected by telephone questionnaire three times: 2 weeks before patient education started (baseline, T1) and 2 weeks (T2) and 12 months (T3) after it ended.

Patient education programmes

Hospitals and municipalities in the Capital Region of Denmark offer standardized group-based patient education to patients with T2D at either municipalities or in hospitals.[17] The programme material is delivered through health professional-provided education in group sessions once or twice a week over 2 to 10 weeks. At the time of data collection (2011), group-based T2D patient education programmes were offered in 14 of 29 municipalities and in five of nine hospitals in the Capital Region of Denmark. Only patient education programmes offering at least 10 h of education were included in the study to maximize the likelihood of capturing any impact on participants' health-related behaviour. Inclusion criteria for the participants covered being diagnosed with T2D and living in the Capital Region. Exclusion criteria were mental illness, pregnancy and inability to speak/understand Danish. Five municipalities and two hospitals were included. For the 6-month study period these disease-specific patient education programmes had 100 patients registered to join their programmes in which all were invited to participate in the study ($n = 100$; Fig. 1).

Participants

A letter providing information about the project was sent to all participants enrolled in the included patient education programmes, followed a few days later by a telephone call. Participants were asked to complete baseline and subsequent questionnaires in telephone interviews lasting approximately 15 min. Reasons for declining participation included lack of time or interest; individuals who could not be contacted by telephone were excluded after four attempts to reach them at varying times between 8 AM and 9 PM.

Health Education Impact Questionnaire (HeiQ)

The HeiQ was used to assess patient education outcomes; it is a patient-centered questionnaire designed to measure the effectiveness of health education programmes.[18] It consists of 35 items across seven independent constructs: health-directed activity; positive and active engagement in life; emotional well-being; self-monitoring and insight; constructive attitudes and approaches; skill and technique acquisition; and social integration and support (Table 1). Each construct-specific questionnaire includes four to six items rated on a four-point scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). The sum of scores for all items is divided