Can J Diabetes 36 (2012) 337–344

Contents lists available at SciVerse ScienceDirect

Canadian Journal of Diabetes

journal homepage: www.canadianjournalofdiabetes.com

Review

Type 2 Diabetes Self-Management: Role of Diet Self-Efficacy

Irene Strychar EdD, RD [a,b,c,*], Belinda Elisha MSc [b,d], Norbert Schmitz PhD [c,e,f]

[a] Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM), Montréal, Québec, Canada
[b] Département de Nutrition, Université de Montréal, Montréal, Québec, Canada
[c] Montreal Diabetes Research Center (MDRC), Montréal, Québec, Canada
[d] Institut de Recherches Cliniques de Montréal (IRCM), Montréal, Québec, Canada
[e] Douglas Mental Health University Institute, Montréal, Québec, Canada
[f] Department of Psychiatry, McGill University, Montréal, Québec, Canada

ARTICLE INFO

Article history:
Received 23 August 2012
Received in revised form
11 October 2012
Accepted 13 October 2012

Keywords:
dietary behaviours
self-efficacy
self-management
social cognitive theory
type 2 diabetes

ABSTRACT

The importance of self-management in diabetes cannot be underestimated. It includes a variety of behaviours that are affected by multiple factors. Although much attention has been given to diabetes management as a whole, the purpose of this review is to focus on dietary aspects. One relevant factor in understanding this complex system of management is self-efficacy, defined according to the social cognitive theory (SCT) as an individual's confidence in being able to carry out a behaviour. The primary purpose of this review is to determine the role of self-efficacy in understanding dietary behaviours and corresponding outcomes in type 2 diabetes mellitus. We identified 59 articles and 19 met our inclusion criteria: studies focusing exclusively on type 2 diabetes, having a self-efficacy measure that included a dietary component, and including self-efficacy and/or related SCT constructs in the intervention. The majority of studies used a general diabetes self-efficacy measure that included diet as one component of management, along with exercise, medications and blood sugar control. Results of cross-sectional studies found that self-efficacy was associated with dietary self-care behaviours, reduced fat intake and improved glycemic index-load; it also was found to mediate the association between body mass index (BMI) and depression. Intervention studies, that integrated the concept of self-efficacy and other constructs of the SCT, resulted in improvements in self-efficacy, behaviours, BMI, and glycated hemoglobin (A1C) with self-efficacy mediating the effect of the intervention on A1C levels. In general, improving dietary self-efficacy has positive effects; however, the development of specific dietary self-efficacy scales seems warranted to better capture the multiple aspects of dietary management in type 2 diabetes.

Mots clés:
comportements alimentaires
connaissance de ses propres capacités
prise en charge
théorie sociale cognitive
diabète de type 2

RÉSUMÉ

L'importance de la prise en charge du diabète par le patient ne peut pas être sous-estimée. Elle inclut divers comportements qui sont influencés par de multiples facteurs. Bien que beaucoup d'attention ait été consacrée à la prise en charge du diabète dans son ensemble, le but de cette revue est de se concentrer sur les aspects alimentaires. Un facteur pertinent dans la compréhension de ce système complexe de prise en charge est la connaissance de ses propres capacités, qui est définie selon la théorie sociale cognitive (TSC) comme la confiance individuelle en sa capacité d'adopter un comportement. Le but principal de cette revue est de déterminer le rôle de la connaissance de ses propres capacités dans la compréhension des comportements alimentaires et des résultats correspondants au cours du diabète sucré de type 2. Nous avons relevé 59 articles, dont 19 répondaient à nos critères d'inclusion : les études visant exclusivement le diabète de type 2, ayant une mesure sur la connaissance de ses propres capacités qui incluait une composante alimentaire, et incluant la connaissance de ses propres capacités ou les concepts connexes de la TSC dans l'intervention, ou les deux. La majorité des études utilisaient une mesure générale de la connaissance de ses capacités sur le diabète qui incluait le régime comme une composante de la prise en charge, de même que l'exercice, les médicaments et la maîtrise de la glycémie. Les résultats des études transversales montraient que la connaissance de ses propres capacités était associée à l'autonomie dans les

* Address for correspondence: Irene Strychar, Hôpital Notre-Dame du CHUM, Pavillon Mailloux, porte K-6244, Rue 1560 Sherbrooke est, Montréal, Québec H2L 4M1, Canada.
E-mail address: irene.strychar@umontreal.ca (I. Strychar).

1499-2671/$ – see front matter © 2012 Canadian Diabetes Association
http://dx.doi.org/10.1016/j.jcjd.2012.10.005

comportements alimentaires, à la réduction de l'apport en matières grasses, et à l'amélioration de l'indice et de la charge glycémique; il était également montré qu'elle influençait le lien entre l'indice de masse corporelle (IMC) et la dépression. Les Études d'interventions qui intégraient le concept de la connaissance de ses propres capacités et les autres concepts de la TSC entraînaient l'amélioration de la connaissance de ses propres capacités, des comportements, de l'IMC et de l'hémoglobine glyquée ($HbA1_C$) dont la connaissance de ses propres capacités influençant l'effet de l'intervention sur les concentrations de l'$HbA1_C$. En général, l'amélioration de la connaissance de ses propres capacités sur le plan alimentaire a des effets positifs. Cependant, le développement d'échelles spécifiques sur la connaissance de ses propres capacités sur le plan alimentaire semble justifier une meilleure compréhension des multiples aspects de la prise en charge alimentaire au cours du diabète de type 2.

Introduction

Diabetes care is complex and requires life-long learning and support (1). Individuals with diabetes face the daily challenge of making decisions that affect their diabetes management and ultimately metabolic outcomes. Self-management education and support programs are recognized by numerous diabetes organizations as integral components of care (2–5). As outlined in the position statement of the International Diabetes Federation, the goal of self-management education is to prepare individuals with diabetes to change their behaviour to support improved outcomes (5). Several reviews and recent publications have identified the benefits of self-management interventions (6–10) and of psychological interventions (11) on self-management behaviours and glycemic control, although the effects of these interventions on metabolic outcomes were variable.

The components of self-management (i.e. healthy eating, increased physical activity, optimal glucose control and appropriate medication use) are as multifaceted as the psychosocial and cognitive factors (i.e. self-efficacy, social support, problem-solving skills) associated with self-management behaviours (12). Self-efficacy is but one factor associated with self-management behaviours. It is nevertheless a central component of Social Cognitive Theory (SCT) and is defined as an individual's confidence in being able to carry out a behaviour (13–16). Self-efficacy can be shaped by peer modelling, skill development, goal setting, previous performance accomplishments, observational learning and social support (13–16), related constructs of SCT. Planning interventions that integrate these elements into program activities/content are designed to increase a person's confidence in performing behaviours, including confidence in overcoming barriers to perform those behaviours (15). In diabetes, it can play a role in assisting individuals to carry out daily tasks to take control of their condition (17). Self-efficacy is also a construct that is part of the Health Belief Model (18) and the Transtheoretical Model, Stages of Change (19).

Self-efficacy has been used to predict behaviours and to plan interventions, yet what is the evidence for its use in type 2 diabetes mellitus? More specifically, how does self-efficacy relate to the multiple facets of diet-related behaviours (i.e. diet plan and nutrient intakes) and corresponding outcomes (i.e. glycemic and weight control)? Therefore, the primary objective of this review is to determine the role of self-efficacy in understanding adherence to diet, weight management, and metabolic parameters in type 2 diabetes. A better understanding of how self-efficacy and related SCT constructs are integrated into planning self-management programs and a better understanding of the factors associated with dietary self-management will better equip clinicians to facilitate patient empowerment for improved diabetes-related behaviours and outcomes (20).

Methods

Studies retained in this review were those that focus exclusively on type 2 diabetes and have a self-efficacy measure that includes dietary aspects. Interventions that target self-efficacy and/or goal setting associated with SCT were also retained. A PubMed search was conducted using the following key words: self-efficacy, diet and diabetes (n = 214 articles). Other sources of articles included: 1) additional PubMed searches using the words: diabetes self-management, nutrition, interventions and/or obesity, 2) identification of relevant articles cited in these publications, and 3) targeted searches for authors working in the area. Approximately 300 articles were identified and 59 were deemed to be relevant to the review: 40 did not meet inclusion criteria and 19 were retained. Article inclusion criteria: patients with type 2 diabetes, measures of self-efficacy that included questions on diet self-efficacy and interventions that integrated self-efficacy and related SCT constructs in their programs.

Results

Self-efficacy has been studied in different contexts: 1) intervention studies that have applied/integrated notions of self-efficacy and related SCT constructs into the program content-activities and intervention studies that have included self-efficacy as a primary or secondary outcome, and 2) cross-sectional analyses and longitudinal studies that examined psychosocial-behavioural-metabolic correlates of self-efficacy or analyses that determined their mediating or predictive role. The studies in this review consist of an array of different interventions, measures and outcomes. The principal intervention studies presented in this review are summarized in Table 1.

Measures

There are important differences in how the construct of self-efficacy is applied. It can range from general applications (i.e. confidence in following diabetes treatments including diet, exercise, medication use and blood glucose monitoring) to specific applications (i.e. confidence in following the eating plan, confidence in reducing fat intake) and to specific situations (i.e. following the diet when eating at a restaurant, following the diet when feeling stressed). Themes from self-efficacy measures used in selected studies reported in this review are outlined in Table 2.

Description of intervention studies integrating self-efficacy and related SCT constructs

A randomized controlled trial (RCT) comparing a Self-Efficacy Program (n = 72) with routine care (n = 73) was conducted among individuals with type 2 diabetes recruited from outpatient clinics in Taiwan (21). The program was based on SCT and included: a 10 minute DVD consisting of a success story of an individual with type 2 diabetes (SCT construct of observational learning). Participants also received a booklet containing information related to diet, physical activity, blood glucose testing, adherence to medication and foot care as well as goal setting sheets to permit patients to