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Review

Evaluating the Effect of a Diabetes Health Coach in Individuals with Type 2 Diabetes

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ABSTRACT

Objectives: Diabetes health coaching has not been adequately assessed in individuals with type 2 diabetes. The objective of this review was to synthesize the evidence of health coaching for individuals with diabetes to determine the effects of coaching on diabetes control, specifically on glycated hemoglobin (A1C) levels.
Methods: The EMBASE, MEDLINE, CINAHL, PsychINFO and Cochrane Central Register of Controlled Trials databases were searched from inception to January 2015. Reference lists from important publications were also reviewed. At least 2 evaluators independently screened and extracted data from eligible studies.
Results: A total of 8 trials met the selection criteria, which included 724 adult participants; 353 participants were randomized to a diabetes health coaching intervention, and 371 were randomized to usual care. The pooled effect of diabetes health coaching overall was a statistically significant reduction of A1C levels by 0.32 (95% CI, –0.50 to –0.15). Longer diabetes health coaching exposure (>6 months) resulted in a 0.57% reduction in A1C levels (95% CI, –0.76 to –0.38), compared to shorter diabetes health coaching exposure (≤6 months) (–0.23%; 95% CI, –0.37 to –0.09). Across all studies, diabetes health coaching consisted of goal setting, knowledge acquisition, individualized care and frequent follow up.
Conclusions: Diabetes health coaching has an emerging role in healthcare that facilitates self-care, behaviour change and offers frequent follow up and support. This review finds that health coaching for those with diabetes is an effective intervention for improving glycemic control, which may be of greater benefit when offered in addition to existing diabetes care.

Mots clés :
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RÉSUMÉ

Objectifs : L'accompagnement en santé de la personne diabétique n'a pas été bien évalué chez les individus souffrant du diabète de type 2. L'objectif de cette revue était de synthétiser les données scientifiques sur l'accompagnement en santé des individus diabétiques pour déterminer les effets de l'accompagnement sur la maîtrise du diabète, particulièrement sur les taux d'hémoglobine glyquée (A1c).
Méthodes : Nous avons consulté les bases de données EMBASE, MEDLINE, CINAHL, PsychINFO et Cochrane Central Register of Controlled Trials de leur création à janvier 2015. Nous avons passé en revue les listes de références de publications importantes. Au moins 2 évaluateurs ont examiné et extrait de manière indépendante les données des études admissibles.
Résultats : Parmi les 724 participants adultes provenant de 8 essais qui répondaient aux critères de sélection, nous avons réparti aléatoirement 353 participants à l'accompagnement en santé de la personne diabétique et 371 participants aux soins habituels. Dans l'ensemble, l'effet groupé de l'accompagnement en santé de la personne diabétique montrait une réduction statistiquement significative des taux d'A1c de 0,32 (IC à 95%, –0,50 à –0,15). Une plus longue durée d'accompagnement en santé de la personne diabétique (>6 mois) entraînait une réduction des taux d'A1C de 0,57% (IC à 95%, –0,76 à –0,38), alors qu'une plus courte durée d'accompagnement en santé de la personne diabétique (≤6 mois) entraînait une réduction

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de 0,23% (IC à 95%, –0,37 à –0,09). Dans toutes les études, l'accompagnement en santé de la personne diabétique consistait à établir des objectifs, à acquérir de connaissances, et à offrir des soins individualisés et un suivi fréquent.

Conclusions : Le nouveau rôle que l'accompagnement en santé de la personne diabétique joue dans les soins de santé facilite l'autonomie en matière de santé et la modification du comportement, et offre un suivi fréquent et du soutien. Cette revue démontre que l'accompagnement en santé des personnes diabétiques est une intervention efficace pour améliorer la régulation de la glycémie et qu'il peut se révéler plus avantageux lorsqu'il est offert en plus des soins actuels du diabète.

Introduction

Diabetes is increasingly becoming a crucial health issue worldwide. Both developing and developed countries are battling surging prevalence rates, with approximately 2.4 million Canadians currently living with diabetes (1,2). The high prevalence of diabetes and its associated comorbidities result in great financial costs to the healthcare system, in addition to the personal costs for individuals. Diabetes and its complications cost the healthcare system and the economy in Canada more than $11.7 billion dollars in 2010 alone, and this figure is expected to increase to $16 billion by 2020 (3).

The goals of treatment for type 2 diabetes are, ultimately, to achieve glycemic targets while minimizing adverse events (e.g. hypoglycemia) and preventing short- and long-term complications (4–8). A major factor in achieving good diabetes control is self-management. Specifically, diabetes self-management education and support have been shown to reduce the impact of diabetes on individuals (9–24). Moreover, research evidence in support of diabetes self-management emphasizes individualized education and support, with consideration of 1) patients' attitudes and capabilities; 2) risks for adverse events (e.g. hypoglycemia); 3) durations of type 2 diabetes; 4) life expectancies; 5) other comorbidities; and 6) patients' resources and support (23,24).

The complex nature of diabetes and heterogeneity in management often requires frequent access to and coordination of care across healthcare providers and healthcare sectors, as well as able and engaged individuals (25–29). Diabetes healthcare providers are often challenged to provide ongoing, long-term diabetes self-management education and support that is geared to individuals, while aligning interventions to match the individuals' readiness to change and their personal goals and priorities (28–31).

Health coaching is defined as health-related education, behaviour change and support by a healthcare professional (32–35); diabetes health coaching by a healthcare professional with expertise in diabetes is emerging as an effective intervention. Health coaching has been shown to improve clinical health outcomes (i.e. glycemic control), medication/treatment adherence, healthcare utilization (i.e. emergency department visits) and adherence to evidence-based practices (34–37). The goal of this systematic review and meta-analysis was to synthesize the best evidence so as to determine the effects of health coaching on adults with type 2 diabetes in terms of clinical outcomes, particularly glycated hemoglobin (A1C) levels, self-care behaviours and quality of life.

Methods

Search strategy

We searched all relevant biomedical databases, including MEDLINE, EMBASE, CINAHL, PsychINFO and the Cochrane Database of Randomized Controlled Trials. In consultation with a medical librarian, we developed a search strategy based on an analysis of medical subject headings (MeSH) terms and key text words from 1946 to the present. A start date of 1946 was chosen intentionally because it would include the inception of various databases. Specifically, the search strategy included combining diabetes coaching terms, such as *counselling*, *coaching*, *diabetes mellitus*, *telemedicine*, *consultations*, with methodologic terms; they were searched in English-language, published, peer-reviewed literature using validated search strategies (http://hiru.mcmaster.ca/hiru/) of electronic databases (MEDLINE, EMBASE, CINAHL, the Cochrane Central Register of Trials, and PsycINFO). Reference lists from relevant meta-analyses, systematic reviews and clinical guidelines were also examined. The appendix includes the full search strategy across the various databases. The authors followed the requirements of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement for transparency in reporting of this review and meta-analysis.

Study screening, data abstraction and quality assessment

All citations retrieved were reviewed against predetermined eligibility criteria. To be included, studies had to be written in English, to have been published in a peer-reviewed journal between January 1946 and January 20, 2015, and to meet the following criteria: 1) be a randomized controlled trial; 2) report data on adults ≥18 years of age with type 2 diabetes; 3) report a health-coaching intervention (in addition to usual care or self-management education/support); 4) be conducted by a health professional; and 5) report a mean change in A1C levels. Studies were excluded if 1) they reported data on subjects younger than 18 years of age or who did not have type 2 diabetes; 2) they reported data on pregnant women; 3) health coaching was not the primary intervention; 4) they did not report changes in A1C levels; 5) they were not randomized controlled trials or used a quasi-randomization methodology, including cluster randomization; and 6) there was no statement that informed consent was obtained.

Title and abstracts were reviewed for relevance by the lead investigator and 2 assistants; full text inclusion, quality assessment and data extraction were done by 2 research assistants who resolved disagreements through discussion. Data were abstracted by 2 people using a standard format; in cases of disagreements, consensus was reached after discussion. Items abstracted pertained to study characteristics, patient characteristics and outcome results. Individual study qualities were assessed by using the Cochrane risk of bias tool (38) for limitation in sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete reporting, selective reporting, other risks for bias and overall risks for bias.

Data analysis

To perform the meta-analysis, we utilized immediate post-treatment data (mean, standard deviation) for continuous outcomes of A1C levels. The DerSimonian and Laird random effects models with the inverse variance method were used to generate the summary measures of effect in the form of mean difference (MD); MDs were calculated using change from baseline data, along with its standard deviation (SD) for both the intervention and the control groups. For studies in which the SD was not reported, we calculated the SD from the reported standard error (SE) of the mean