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Review

Diabetes education for Chinese adults with type 2 diabetes: A systematic review and meta-analysis of the effect on glycemic control

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ABSTRACT

Aims: The purpose of this study is to systematically review evidence in English and Chinese publications to determine the size of glycemic effect of different diabetes education approaches for Chinese patients.

Methods: CINAHL Plus, Embase, Ovid Medline, Scopus and the China National Knowledge Infrastructure database were searched. Studies were included if they were randomised controlled trials with a detailed description of education approach, with more than 50 Chinese-adult participants, reporting actual glycemic outcome and with at least 3-month follow-up. Data was systematically extracted and cross-checked by the authors. Methodological quality was assessed.

Results: Fifty-three studies, including five English and 48 Chinese publications, were included. The overall weighted mean difference (WMD) in glycated haemoglobin (HbA1c) was −1.19% (−13 mmol/mol). *Ongoing regular education* was most-commonly employed, with a reported WMD of −2.02% (−22 mmol/mol). Glycemic control was further enhanced in studies using information reinforcement strategies.

Conclusions: Diabetes education in any format generates glycemic improvement for Chinese patients, but is particularly effective when an *ongoing regular education* is employed. Innovative strategies aligned with cultural concepts, such as employing patient examination to reinforce diabetes management knowledge and/or involving family in patient care deserve further trial to determine whether they enhance glycemic control in this group.

Contents

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1. Introduction

Diabetes education refers to the process of a clinician-educator facilitating the development of skills, knowledge and the ability to self-care in patients with diabetes [1]. Diabetes education plays an important role to support self-management and the adoption of a healthy lifestyle that can optimise glycemic control and reduce risk of diabetic complications [2]. Evidence on the effectiveness of diabetes education has primarily been based on interventions undertaken in Caucasian communities [3]. Despite the fact that the Chinese constitute the world's largest population with diabetes [4], recommendations regarding the most appropriate education approaches for this ethnic group are lacking. Current Chinese Guidelines for Type 2 Diabetes [5] are largely based on Caucasian studies. Given that health behaviours and practices are strongly shaped by culture [6], education approaches simply translated from western literature are unlikely to meet Chinese patients' needs [7].

A large body of literature in both English and Chinese has reported diabetes education interventions in Chinese populations. A previous meta-analysis on data from interventions among Chinese populations [8] has focused on examining the summative impact of diabetes education on anthropometric, biochemical and psychological indicators. Glycemic improvement was reported to be greatest at the twelve-month follow-up. This, however, was based on only four studies. Lou et al. [9] systematically reviewed both English- and Chinese literature on diabetes education in China and highlighted the importance of improving study design and training of diabetes educators. A narrative literature review [10] has explored community diabetes education practices in China and discussed the possibility of standardising education approaches for optimal clinical results. While these quantitative and qualitative reviews have contributed to our knowledge of the development of diabetes education for Chinese, there is still a lack of clear practice recommendations on specific practical education approaches and strategies that meet the unique needs of the Chinese patients and result in the greatest glycemic improvement.

The main objective of this study was to systematically review evidence in both English- and Chinese-language publications to quantitatively measure the glycemic effect of various diabetes education approaches for Chinese patients. Specifically, this review sought specific clinical recommendations on the best educational approaches for effective glycemic improvements for Chinese diabetes patients.

2. Methods

2.1. Data sources and searches

A systematic literature search was performed to retrieve publications on diabetes education interventions targeted at Chinese patients with type 2 diabetes. The search was undertaken in two parts. Firstly, electronic databases, including CINAHL Plus, Embase, Ovid Medline and Scopus were searched in English (referred to as 'English Search') for studies between January 2004 and April 2014. Combinations of keywords relating to China, type 2 diabetes and patient education were used (search strategy available from author). Articles retrieved were written either in English or in Chinese with an English title. Their references were exported to an Endnote X7 file (Thomson Reuters EndNote X7, Carlsbad, CA). Secondly, for the Chinese literature (referred to as 'Chinese search'), the China National Knowledge Infrastructure (CNKI) database was searched in Chinese using the keywords '糖尿病'(diabetes) and '教育'(education). Titles and abstracts of the Chinese articles were then printed for further review.

The inclusion of both English- and Chinese-language publications not only allowed a larger literature survey, it also ensured inclusion of studies done in China, specifically on the population of interest, and not as yet reported in the English literature.

2.2. Study selection

Duplicate articles were removed from retrieved studies before screening remaining articles (in English or Chinese) by title and abstract to identify studies that met the following inclusion criteria: describes a controlled trial on a diabetes education intervention given to Chinese adults (18+ years) with type 2 diabetes. Studies were coded according to the primary reason for their exclusion. Studies that clearly met the inclusion criteria and articles with insufficient detail in the title and abstract to make a clear decision were included for further review. Full text versions of all included publications were retrieved. Studies included for subsequent selection and review met both the initial inclusion criterion (as above) and additional criteria, introduced to narrow down the focus