Family Models of Diabetes Self-Management Education: The Current Evidence and Critical Gaps in Knowledge

Authors: *Pearl A. McElfish, Jennifer Post, Brett Rowland, Christopher R. Long

University of Arkansas for Medical Sciences Northwest, Fayetteville, Arkansas, USA
*Correspondence to pamcelfish@uams.edu

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Abstract

This commentary outlines the effectiveness of family-centred models of diabetes self-management education (Family-DSME) interventions and identifies five considerable gaps in the available literature that are keeping Family-DSME interventions from being translated into clinical practice. These include: (a) confounding effects of including cultural tailoring in many Family-DSME studies; (b) variations in duration and dosage of Family-DSME interventions; (c) most studies failing to assess the effects of Family-DSME on the included family members; (d) lack of cost-effectiveness data; and (e) lack of implementation research on Family-DSME interventions. It is crucial that clinical researchers focus efforts on filling the gaps in knowledge that constrain Family-DSME from being translated into clinical practice.

INTRODUCTION

The U.S. Centers for Disease Control and Prevention (CDC) estimates that 29 million people (9%) in the USA have Type 2 diabetes mellitus (T2DM), and rates are expected to continue to increase over the next decade.[1] It is well-established that people with T2DM who adopt recommended self-management practices are more likely to maintain metabolic control and experience fewer diabetes-related complications.[2,3] The Chrvala et al.[4] meta-analysis of 118 standard diabetes self-management education (DSME) interventions reported a median reduction of HbA1c of only 0.57%.[4]

Self-management of T2DM is complex and requires changes that are often difficult for patients to adopt in their everyday life in the contexts of work and family.[5] Poor self-management, while frequently attributed to patients, is often the product of their social environment. A large and growing body of evidence documents that the primary context of diabetes self-management resides within the family.[6-11] Through their communications, habits, and attitudes, family members influence patients' decisions to follow recommended treatment and self-care regimens.[8,10,11]

A growing body of literature suggests that family-centred models of DSME (Family-DSME) may be effective. Family-DSME explicitly addresses diabetes self-management within a family context by using family motivational interviewing and family goal setting, providing education on supportive and nonsupportive behaviours in the family environment, and focussing on

family behavioural changes.[6,7] Recent systematic reviews by Baig et al.[6] and Pamungkas et al.[7] have documented the effectiveness of 38 implementations of Family-DSME on a range of diabetes-related outcomes.

The studies demonstrate the potential of Family-DSME to achieve a statistically and clinically significant reduction in A1c, with some studies achieving a mean reduction of 1.40% (15.3 mmol/mol).[6,7] These Family-DSME have used a broad definition of family that has not been constrained by family configuration, sex, or sexual preference. Furthermore, the reviewed studies have also shown improvement in patient-reported outcomes such as family support, self-efficacy and empowerment, quality of life, positive emotional control, self-management behaviours, diabetes-related distress, and depression.[6,7] While evidence has demonstrated Family-DSME is effective at improving a range of diabetes-related outcomes, several critical gaps in knowledge remain, and it is unlikely that Family-DSME will be translated into mainstream clinical practice until those gaps are filled.

CULTURAL TAILORING

The majority of Family-DSME interventions have been culturally-tailored for specific populations, such as Pacific Islanders, Hispanics, and South Koreans, and were not evaluated in real-world clinical settings.[6,7] While these studies have been informative and important, the confounding effects of including both cultural tailoring and family involvement in the same study make it difficult to understand to what degree either contributed to improved outcomes. Therefore, it remains unclear if Family-DSME without cultural tailoring is effective among patient populations in real-world clinical settings.

VARIATIONS IN DOSAGE AND DURATION OF TREATMENT

Prior Family-DSME studies have varied in duration and dosage, with interventions ranging from <10 hours of education over 8 weeks, to >60 hours of education over 12 months.[6,7] Most studies that included a control group did not directly compare Standard-DSME with Family-DSME implementations that were equivalent in duration and dosage. The lack of a direct comparison and inconsistency in duration and dosage has limited the clinical value of these studies.[6,7]

EFFECTS ON FAMILY MEMBERS

Only a few Family-DSME studies have assessed health and psychosocial effects on both patients and family members.[6,7] T2DM affects the health and quality of life of patients and family members.[12] Failure to assess effects on family members provides an incomplete picture regarding the effectiveness of Family-DSME.

COST-EFFECTIVENESS

Prior studies lack a cost-effectiveness analysis that measures the relevant costs for both patients and family members, as well as the benefits to patients and the spillover benefits to family members. A systematic review showed Standard-DSME produced net cost savings and met generally accepted cost-effectiveness thresholds.[13] However, evaluations of Family-DSME cost-effectiveness based on accepted guidelines for clinic-based interventions have not yet been conducted. Understanding the cost-effectiveness for patients and the spillover benefits for family members is important for broad translation of Family-DSME into clinical practice.[14]

IMPLEMENTATION RESEARCH

Lastly, no implementation research has been conducted on Family-DSME. Implementation research is critical to document the barriers and facilitators to implementation in real-world clinical practice.[15] Implementation studies of Family-DSME should be conducted to inform and promote the uptake of the scientific knowledge of Family-DSME into routine practice.

CONCLUSION AND RECOMMENDATIONS

Multiple studies of Family-DSME have shown promising results.[6,7,16,17] The available research shows that Family-DSME could be twice as effective as Standard-DSME.[4,6,7,17] However, there is not wide clinical adoption because there

has been no research directly comparing the effectiveness of Family-DSME to Standard-DSME without cultural tailoring. It is imperative that future studies compare Family-DSME that is not culturally tailored to Standard-DSME with consistent duration and dosage across both interventions. Ten hours of DSME is reimbursable by many insurance companies and is therefore an appropriate dosage to consider. Future Family-DSME studies should measure the effects of the interventions on both patients with T2DM and their family members. Finally, the translation of science into clinical practice requires that future studies of Family-DSME conduct both cost-effectiveness analyses and implementation research. It is crucial that clinical researchers focus their efforts on filling these gaps in knowledge that constrain Family-DSME from being translated into clinical practice. As these critical gaps in knowledge are filled, it is possible to see a shift in clinical care to Family-DSME with better outcomes for both patients and family members.

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