

THE INFLUENCE OF FAMILY SUPPORT AMONG UNCONTROLLED TYPE II DIABETES MELLITUS PATIENTS

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Article Info: Received 10 October 2020; Accepted 04 November 2020

DOI: <https://doi.org/10.32553/ijmbs.v4i11.1497>

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Conflict of interest: No conflict of interest.

Abstract

Across the Worldwide, the prevalence of type 2 diabetes mellitus (T2D) is rising significantly. Continuing diabetes mellitus (DM) treatment allows both patients and family members to undergo appropriate self-management instruction and support. This study aimed to review and describe the effect of self-management education for diabetes mellitus (DSME) involving close relatives on patient outcomes associated with patient health habits and perceived self-efficacy on self-management, such as medication adherence, tracking blood glucose, improvements in diet and exercise, health outcomes including psychological well-being and self-efficacy, and physiological indicators like body mass index. Three databases, PubMed, CINAHL, and Scopus, have been reviewed for relevant articles.

Keywords: close relatives, self-management; family support; uncontrolled glycaemia; type 2 DM.

Introduction

There is a steady rise in the global prevalence of type II diabetes mellitus (T2D). The World Health Organization (WHO) (2014) estimated in 2014 that 422 million individuals worldwide have been diagnosed with DM. The projected percentage of T2D in the Asian region could be more than 60 per cent of individuals by 2030. Just 14.3% of all patients with diabetes achieve the target targets for good glycemic control, while a whopping 85.7% fail to meet the target glycemic control targets as calculated by Hemoglobin A1c (HbA1c) level. The HbA1c level is a widely used level by T2D patients for glycemic control. It is an endocrine test that averages blood sugar levels in the preceding three months. Uncontrolled glycaemia is known to have HbA1c levels greater than 7 percent [1,2] High multiple long-term complications, including blood vessel constriction, nephropathy and retinopathy, peripheral

neuropathy and cardiovascular system issues, are associated with uncontrolled T2D glycaemia in patients. In T2D patients, factors associated with unregulated glycaemia include poor dietary patterns, lack of exercise, medicine poor adherence, and lack of regular monitoring of blood glucose. The cornerstone of avoiding long-term complications and enhancing the quality of life for people with T2D is the management of DM. Diabetes self-management education (DSME) has been described as a basis for effective diabetes treatment by the American Diabetes Association (ADA). One explanation is that DSME is so important because it's complex to handle T2D [3]. Multiple responsibilities are assigned to patients: they must routinely maintain medical appointments, stick to checking drug regimens and participate in self-care habits, including tracking blood glucose at home, safe dietary changes, and exercising regularly. It is also difficult for individuals, however, to regularly participate in different

health behaviors required for good glycemic control. Competing for everyday requirements, anger, other emotional trauma, and low self-commitment are common obstacles. In addition, inadequate diabetes self-management has been associated with lack of awareness, low levels of self-efficacy to effectively complete an operation, and insufficient social support from family members. Some studies have indicated that the support of families has a positive effects on the self-management habits of patients [4]. Even though people with DM2 are incorporated within their families and in a wider social setting, these variables may also impact the diabetes treatment of a patient. Core sources of both emotional and instrumental support are family members. Instrument support involves helping complete particular tasks for patients, such as scheduling an appointment with health care professionals or assisting with insulin injections, while emotional support may include offering comfort and motivation as patients experience anxiety or anger about the long course of their diabetes care. Knowing the family 's effects, diabetes care recommendations may include providing close relatives with diabetes education or integrating support from family as part of the diabetes care plan for the patient. In this manner, there may be restricted educational services that concentrate only on the individual. Although the value of family support is frequently addressed, few systematic reviews in the DSME literature have specifically examined this issue [5,6]. This research is therefore aimed to reviewing DSME interventions that reinforce family support as a basic aspect for improving the self-management of patients, identifying their elements, and investigating the relationship among DSME with family support interventions and outcomes related to diabetes among T2D patients. The goal of the study was to analyze and explain the effect of DSME involving close relatives on patient health behavioral outcomes such as drug adherence, blood glucose monitoring, improvements in nutrition and lifestyle, psychological well-being and self-efficacy, and physiological indicators like body mass index, blood pressure, cholesterol level, and glycemic control [3-5]

Material and Methods

The influence of family involvement in DSME among uncontrolled glycaemia patients was mentioned in this study. For all phases of the study, we used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) argument. Three investigations were carried out, resulting in the elimination of 675 papers after duplication. The key search words were family support, social support, and unregulated glycaemia for all initial strategies and were entered in the abstract and title area as the medical topic heading (MeSH). If the study

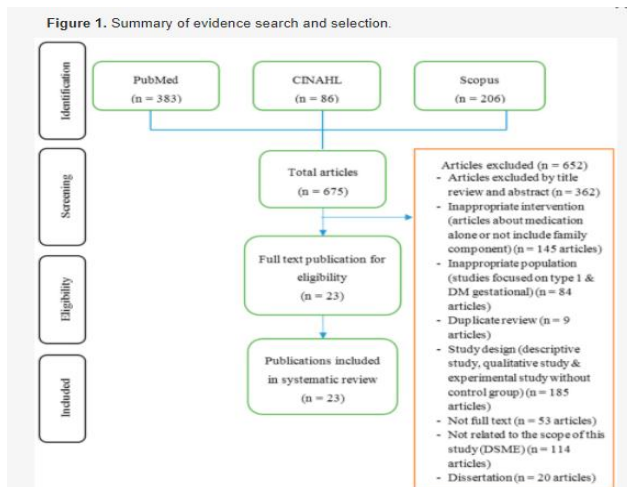
concerned type 1 diabetes or gestational diabetes, or was not published in English, titles were eliminated [1-7]. This produced 102 abstracts to be reviewed for a full article analysis. This initial review consists of 23 papers that are almost relevant to a systematic review. Eligibility Criteria to establish the inclusion criteria for evaluating the documents, the PICO (Participant-Intervention-Comparison-Outcomes) format, based on the Joanna Briggs Institute (JBI) [14], was used. Usage of any treatment techniques (e.g. normal care, didactic approach, participatory learning, approaches focused on the internet) were included in this review. A definition of whether an unacceptable topic (e.g. diabetes treatment articles alone or intervention that did not involve a family component) should include a detailed list of excuses for the exclusion of articles on the basis of this analysis. Groups of design experiments not published in an academic journal (e.g., unpublished dissertation) and experiments concentrating on prevention strategies or targeting the population of gestational diabetes have also been omitted, such as single design, descriptive design, qualitative analysis, no control group [8]. In the past 3 months, glycaemic control suggested by patient levels of HbA1c was the main outcome indicator. Secondary outcome measures included self-reported on self-care behaviours (e.g., diet, physical activity, blood glucose monitoring, foot care and inspection, and medication adherence), physiological outcomes (e.g., HbA1c, blood glucose level BGL, BP, BMI, lipid profile), and self- reported on levels of self-efficacy and social support from family.

Search Strategy

Type 2 diabetes (T2D)," self-management," "diabetes self-management education," "family support," "social support "and" uncontrolled glycemic "were the search strategy used to find the related papers. Accessible titles and abstracts of papers have been thoroughly checked for their relevance to the DSME subject involving family support.

Study Selection

Pubmed, CINAHL, and Scopus databases were searched in this analysis for papers published between 2008 and 2016. Abstracts of interest were checked and redundant papers were excluded. Effect synthesis Textually, the consequences of this study are explained. The outcome summary explains: (1) Diabetes Self-Management Education (DSME) services; (2) how family support can be incorporated into DSME services; and (3) how these programs affect lifestyle habits, physiological outcomes, and clinical outcomes of lifestyle (Figure 1).



Results

Twenty-three studies are investigating the effect of DSME on results of uncontrolled T2D glycaemia with a family support program. There were nineteen randomized controlled trials (RCT), three quasi-experimental studies [4,7,8] and two mixed-method design studies, of which 23 studies were performed in western nations, whereas only one study was undertaken in Asian countries.

DM Self-Management Education (DSME) We observed that 40.9% of the analyses used a person format and 59.1% used a mixture of people and a group format. In general, tailored therapy, goal-setting, solving problems, and explaining ways in which family members can help self-care practice and follow-up interventions were included in both styles of program. Teaching technique In general, DSME was either predominantly didactic, such as an instructional class providing learning material accompanied by discussion or involving more participatory learning (promoting the active involvement of patients in the learning process, with group discussion sessions, setting goals, negotiation and problem solving), or following a hybrid approach incorporating both didactic and participatory learning. 5 of the 15 Researches mixed both didactic and collaborative learning with techniques such as setting goals, preparing action, solving problems and plans for follow-up. One study offered a DVD-based training program to develop T2D self-management awareness and communication skills. Another research integrated bluetooth connection to provide health information to the remote secure server through a supplied modem. Advice on lifestyle modification and how to contact their medical providers were also provided to patients [9]. The research by Aikens extended a DVD-based training program to develop communication skills. A cooking class to show nutritious foods was proposed by another report. Four experiments have used food templates, food bingo and food photos to explain balanced diets and the size of food servings. To disseminate information, diabetes handouts /

booklets (diet , exercise, medicine, eye and foot self-care) were used. In addition, four studies used video and DVD to show good habits and practices of self-care among patients with diabetes, and two studies given the easy home self-monitoring blood glucose pedometer [10]. In order to maintain self-management practices, follow-up follow-up techniques are critical components in diabetes treatment. Seven research combined face-to - face follow-up and mobile or computer-based follow-up methods preceded five research on their mobile programs. Family Support Inclusion of the DSME Program Recently, DSME services has been integrated into primary care and neighborhood units. Regardless of the environment, in influencing diabetes management behaviors and facilitating successful day-to-day coping, the efficacy of communication and supporting abilities are also important. 13 of 15 As a unit intervention, studies included patients and family members and enabled family participants to join education classes or meetings, and eight studies demanded family members to provide help for stress reduction, denial, and maximization of environmental factors. Family members were required to encourage and support patients in self-management activities by assisting patients with strategic planning, setting goals, and solving problems. For the sharing of health knowledge, decreasing care resistance and building self-efficacy highlighted by family members, successful feedback on negative perceptions of diabetes was used. Patients received interactive voice response (IVR) calls in other studies to track the challenges of self-management, pursuing medical check-ups, and communicating with family members. Family members have handled the record of progress of patients, emotional encouragement as well as problem-solving. Using social cognitive theory, a study was conducted focusing on how environmental change increases self-efficacy, self-management of diabetes and overcoming barriers. To promote dietary reform, physical activity, and blood glucose control, family members stressed cultural traditions and values [11]. One research indicated growing communication skills among couples using a speakerphone to help and address behavior change issues. This curriculum focused on conversation exercises, setting targets and problem-solving to strengthen communication skills, achieving goals that tailor uncontrolled glycemia DM2 interventions. Participants in Ananda's study received a mHealth + CarePartner (CP) software to track self-management behavior while family members were advised to provide self-management feedback and support and help evaluate obstacles to successful self-management action. In order to increase the value of maintaining good glucose regulation, the overview of outcomes obtained was sent to the patient and their family members during the program to promote positive relationships. 7 research discussed psycho-social concerns such as feelings of denial,

the prevalence of discordant conditions (e.g., negative reaction to diabetes self-management, seasonality of mood disorder and the existence of depression in medical illness) with respect to psychological support activities [12]. It has been shown that the influence of family support combined with DSME is cost-effective and decreases the risk of DM2 complications, increases HbA1c levels by up to 1% and has a beneficial affect on psychosocial, self-efficacy, nutritional and exercise behavioral aspects, perceived support, knowledge, medication adherence and quality of life. It clearly established that DSME is an important aspect in the regulation of DM2 blood glucose with family support. A research comparing the treatment of diabetes both with and without family involvement showed that patients enrolled with an informal caregiver had a higher commitment rate and were more likely to reduce blood glucose levels and also to monitor blood glucose frequently [13]. Family members' practical and emotional assistance has had a positive impact on global disease control interventions in diabetic patients. Another research showed that more changes in knowledge, metabolic function, and stress levels were observed in elderly patients whose spouses were involved with them relative to those who participated alone. To provide instrumental and emotional support related to diabetes management, it is important to include close relatives in the program for older patients. The DSME family support program has supported diabetic patients who have trouble adhering to diabetes treatment, including educating patients about how to treat diabetes; encouraging patients to address the changes in emotions and actions associated with diabetes; facilitating self-esteem and helping patients resolve barriers; creating solutions and methods to maintain diabetes-related actions; and to help patients establish positive relationships to maintain diabetes management over time among family members. Effectiveness of Family Support Incorporation on Diabetes Outcomes According to current research in this study, DSME with family support has an important impact on health outcomes. The findings were categorized into five groups, including self-management habits (diet, physical activity, control of blood glucose, foot infection and adherence to medication), physiological habits, outcomes, As listed below, self-efficacy and social support and clinical outcomes (HbA1c / level of blood glucose, blood pressure, BMI status and lipid profile) [14]. Self-Management Behavior Results 23 articles investigated the effect of DSME on self-care habits with family support. There was clear evidence that good self-management practices, including diet, physical activity, blood glucose control, foot inspections, and adherence to medication, greatly improved clinical results and could enhance clinical outcomes. Preventing problems in the long run. After

receiving the program, 2 studies reported a positive effect on balanced dietary intake. In choosing healthy food and food exchange, one other study showed adequacy, while 5 studies increased the level of physical activity. Both of those research indicated a high degree of incorporation of family support into the DSME program. Furthermore, when the association between perceived blood glucose monitoring support was investigated, 4 studies confirmed that a higher level of support had a substantial effect on home blood glucose monitoring. Seven research found that routine prescription adherence was carried out under family support with respect to drug taking actions. In addition, this study confirmed that improved self-awareness of foot inspections was associated with the prevention of foot ulcers [1-7]. In comparison to similar research, 4 studies found that drug adherence in relation to family support did not change significantly. In the long term, it may be associated with low family engagement, awareness of patient and family member roles and the acceptance of medication adherence by patients. Those opposing findings showed that the weaknesses of the analysis had minimized the findings. Psychological Outcomes Obstacles linked to the psychosocial factor were reviewed as an approach to investigate the psychological issues in the management of self-care behaviors. Weak diabetes self-management and glycemic control were associated with emotional reactions, including feeling frustrated by diabetes treatment, worrying about long-term complications, and wrongly identifying concrete goals for diabetes care. Twelve out of 23 studies indicated that higher levels of family support had a positive effect on the reduction of depressive symptoms and positive emotional regulation, psychosocial well-being, distress-related quality of life, and diabetes. As a result, there was a positive influence of less depression on self-management behavior and some health results. Studies of the Self-Efficacy 5 review explained that patients with higher perceived help display substantially improved self-efficacy. A one-on-one personalized education session and bi-weekly follow-up were obtained by one study to affect self-efficacy when practicing self-management. This program for improving self-efficacy could boost self-confidence in self-management behaviors of diabetes behaviors and overcoming challenges among diabetes patients. 6 longitudinal studies identified the effect of family support interventions on self-management among T2D patients to improve perceived social support. Individuals seeking assistance are able to receive advice while dealing with challenges and to develop constructive diabetes treatment contact. It may have a positive effect on diabetes self-management behaviors in a positive relationship between patients and family members. For this purpose, in improving diabetes self-management behaviors, social support from family was successful. Clinical outcomes The

23 articles investigated the impact of DSME on clinical outcomes with family support. After active diabetes self-management, ten studies showed an increase in HbA1c. Five research focused on support for dietary change to boost the level of blood pressure, body mass index, and lipid profile. A strong reason for the effectiveness of self-care practices has remained the higher level of encouragement [3-10]. In comparison, 2 studies confirmed that the amount of triglycerides and BMI did not change significantly. The low level of peer support over a long-term period may be related to this. Other studies have also shown no major changes in the amount of HbA1c 5.

Discussion

Between 2008 and 2016, we conducted a systematic analysis of 23 existing studies relating to the effect of DSME involving the family as a key source of social support on self-management among T2D patients. The findings have verified the effect of family integration on many T2D health outcomes. Strong research designs such as randomized controlled trials were used in different studies. DSME is also created by individual and community education. A blend of didactic instruction and immersive or participatory approaches to learning provides this technique [1-5]. A collective approach to DSME 's mixed teaching approaches and engagement in family care. The integration of didactics with other approaches has had a significant effect on health outcomes and changed health habits, such as participatory learning, goal setting, action planning and problem solving. Several studies have included family members' specifics in program activities, such as offering emotional support for problem-solving and helping patients overcome their emotional distress or providing knowledge and responsibilities to encourage, accommodate, remind, inspire and partner in behavioral improvement and conduct tasks [7]. Some research in this analysis of literature find that members of the family were involved in an intervention program. They missed, however, knowledge about how family members embraced diabetes self-management habits, communicated with the program, or what family results could be dealt with in the intervention. Using a participatory learning approach, only a few studies represented the role of family members. To get family members involved in the intervention efficiently, to serve T2D patients when practicing self-management activities, a clear understanding of the theoretical basis of involving family members is required. The period of the treatment and follow-up was assessed from the pre-test until the intervention was completed using the length of the intervening time. In the short term, approaches were more successful in enhancing health outcomes using various methods, including weekly telephone follow-ups, face-to - face follow-ups, negotiation, and dialogue to design the

objectives and action plan and change the objectives and action plan [9-11]. An important component of diabetes self-management for patients with chronic conditions is the follow-up process. In general, follow-up strategies are classified into four approaches, namely computer-based telephone calls, short message service (mail) and home visits. Different follow-up approaches are used to analyze the program's patient experience, define challenges and problem-solving approach to overcome barriers, update the objectives and action plan and improve any effective nutritional performance and self-management exercise [3-15]. The combination of telephone and face-to - face follow-up is very successful in tracking the success of patients and increases health outcomes dramatically by growing awareness and self-efficacy to carry out self-management behaviors. After introducing the program, a study that measured the results showed a substantial change in clinical outcomes such as HbA1c, blood pressure, lipid profile and BMI status. Three studies have stated that no substantial change in the level of HbA1c was observed during the short interim period. Maintaining changed habits at the completion of the intervention cycle is another challenge concerning self-care that is frequently faced by diabetes patients. Involving family members, however, may help patients improve self-management procedures and increase the efficacy obtained from the intervention [8-16].

Conclusion

An important part of maintaining self-management habits and enhancing the health outcomes of T2D patients is developing diabetes strategies with family support. In conclusion, this systematic review showed that DSME improves health outcomes for patients with uncontrolled glycaemia with family support. Further studies must include information of DSME in the intervention and compare health results with and without family participation in DSME programs.

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