

Family Support for Better Self Care Behavior Patients with Type 2 Diabetes Mellitus

An Integrated Review

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Abstract : Diabetes mellitus is a serious disease in the world. Family support approach improving self-care behaviour are important for diabetes management. The aims of this review are to identify family support for people with diabetes mellitus from quantitative studies, and to examine and understanding self-care behaviour was related with family support. A greater understanding of the strategies would help Indonesia nurses to develop nursing systems for managing people with diabetes mellitus **Methods:** Multiple databases (SCOPUS, MEDLINE and CINAHL) were searched for the period from 2008–2018 and in the English article, We were reviewed the reference list of included studies and picked up additional research. **Results:** This finding indicates that families are considered an important source of social support for diabetic adults. Families positively affect the health of diabetic patients or interfere with or promote self-care activities and alleviate the detrimental effects of stress on glycemic control. **Conclusion:** Self-care behaviour can improved by family support. Family-based approach to chronic disease management is based on family physical environment, diseases including educational, relational, and personal needs of patients and families were emphasized.

1 BACKGROUND

Common chronic disorder of adults patients is Type 2 diabetes mellitus (T2DM). Over the last 5 years the prevalence of diabetes in adults over the past 30 years has increased from 14.9% to 20.8% over the past five years. T2DM is a disorder disease that results in cognitive dysfunction and addiction, which cause a significant burden on the healthcare and social care resources. (Ishak et al., 2017).

Patients who are conducting education and various management are essential to maintain disruption and reduce complications. There is significant evidence to support various interventions to improve the outcome of diabetes. Diabetes self-management is essential to reaching glycemic manage and enhancing fitness effects (American Diabetes Association, 2018). Self-management refers back to the person's capability to manage the symptoms, treatment, physical and psycho social outcomes and way of life changes inherent to dwell with a persistent circumstance (Ishak et al., 2017).

Effective self-management is crucial to adults living with Type 2 diabetes. Self-management helps maintain well-being and reduces the risk of secondary complications, such as diabetic retinopathy, cardiovascular diseases, peripheral arterial disorder and amputation (Zhou et al., 2016). Adherence to a diabetes self-management plan has been associated with health literacy, motivation, self-efficacy, mental health, and environmental factors, such as social support and socio-economic status (Ahola and Groop, 2013; Blackburn, Swidrovich and Lemstra, 2013). A number of adults with Type 2 diabetes report already receiving diabetes-related support from family members (Kovacs Burns et al., 2013; Nicolucci et al., 2016), and many diabetes education interventions have involved families in actively supporting adults living with Type 2 diabetes with their self-management plan (Hu et al., 2014; McElfish et al., 2015).

Lorig's model for chronic disease self-management (Lorig and Holman, 2003) and the WHO framework for Innovative Care for Chronic Conditions (World Health Organisation, 2002) both identify that families and other social networks are valuable in promoting positive health outcomes;

however, neither conceptual model/framework provides a clear explanation or theoretical basis for how families can provide effective support. Commonly cited theoretical models in previous family-based interventions in diabetes are the Social Cognitive and Family Systems Theory (Vongmany et al., 2018) models; however, both of these models focus on parent-child interactions or educator-student interactions rather than adult-family interactions (Schafer, McCaul and Glasgow, 1986; Torenholt, Schwennesen and Willaing, 2014).

Some research have proven that a more level of social assist correlates with better diabetes self-management. Similarly, the international Diabetes Federation confirms that terrible social help is a predictor of terrible adherence to prescribe therapy. This is steady with social cognitive concept, emphasizing that self-management occurs in a context that consists of formal healthcare vendors, casual social community individuals and the bodily environment (Schjötz et al., 2011).

Most theories of health conduct exchange required for diabetes self care performance include a social help element (Tillotson and Smith, 1996; Osborn and Egede, 2010), and family participants are considered a significant source of social help for adults with diabetes. Own family contributors can provide many sorts of social guide (e.g., emotional, informational, and appraisal support), instrumental help (i.e., observable movements that make it possible or less difficult for a man or woman to perform wholesome behaviors) has been most strongly associated with adherence to self care behaviors throughout chronic diseases (Dimatteo, 2004). In spite of correlation evidence helping the importance of instrumental help, interventions not often target own family support as a way of promoting diabetes self care behaviours between adults. Most diabetes intervention trials have a look at the effect of character education on glycemic manage, without attractive or instructing own family contributors or accounting for member of the family aid as a method outcome (Norris, Engelgau and Narayan, 2001). There were few interventions for adults with diabetes including families, but that approach was almost inconsistent and does not affect health outcomes. Participants in the family intervention reported a growth in own family individual supportive behaviours and a lower in family members' nonsupportive behaviours.

Enhancements in self-reported diabetes self-care behaviours, weight, and glycemic control have been cited, although those found adjustments had

been no longer significant (Kang et al., 2010). Gilliland et al. (GILLILAND et al., 2002) three-arm intervention trial was conducted in adults and relatives of diabetes, classes not participating in one-to-one relatives who did not receive psycho education, and American native community for groups of operations. The intervention groups established small will increase in glycemic control relative to the manipulate group. Contributors have been not randomized to condition, and the look at did no longer verify the interventions' outcomes on diabetes self-care behaviours. Therefore, further studies are needed to effectively perform family-mediated therapy for adults with diabetes mellitus. (Mayberry and Osborn, 2012).

Nonetheless, many qualitative and quantitative observational studies have reported that families can be influential on diabetes self-management (Weiler and Crist, 2009; Guell, 2011; hu et al., 2013; Samuel-Hodge et al., 2013; Oftedal, 2014; Choi et al., 2015; Mayberry, Harper and Osborn, 2016), and some have measured an association between family behaviours and diabetes self-management (Epple et al., 2003; Wen, Shepherd and Parchman, 2004; Schjötz et al., 2011; Sankar et al., 2015; Soto et al., 2015). An examination of this evidence is required to provide greater insights to optimize families' involvement in diabetes self-management (Schafer, McCaul and Glasgow, 1986; Inzucchi et al., 2012; Torenholt, Schwennesen and Willaing, 2014; Baig et al., 2015).

However, these reviews mainly focus on the family support and self-care behaviour of diabetic patients. It is important that nurses understand family support for increase self-care behaviour patient with diabetes. Identification of these family behaviours as perceived by adults living with Type 2 diabetes, and how they affect self-management is an important first step to designing better person-centred self-management interventions involving family members. The aim of the present review was to identify the family support that have an impact on patient with diabetes self-care behavior practices. By understanding this strategy more deeply, Indonesian nurses can develop a nursing system for behavior management of diabetic patients and explore research areas that need further investigation.

2 METHODS

This review was conducted as a Integrated Literature Review, as described by (Souza and Carvalho, 2010). This type of review is a comprehensive

methodological approach to the review and can include experimental and non-experimental studies to understand the phenomena analyzed. It also has a wide range of purposes such as combining data from theoretical and empirical literature, defining concepts, reviewing theory and evidence, analyzing methodological problems of specific topics.

Evidence-based practices support classification systems according to the methodological approach adopted based on research design such as: level 1 evidence from a result of meta-analysis of multiple randomized controlled trials, level 2 of evidence from individual studies such as experimental design, for evidence from the quasi-experimental research is level 3, descriptive (or non-experimental) studies or adopts a qualitative approach has levels 4 for evidence, level 5 of evidence from case reports or experience reports. According to healthcare research and quality classification, Level 6 evidence based on expert opinion (Burns, Rohrich and Chung, 2011).

Based on the subject matter studies were divided into two categories. These were termed as study to identify areas relating to family support and their effectiveness, we selected reports on trials (e.g. randomized clinical trials [RCT], quasi-experimental design trials, and single group studies) and cross-sectional studies that examined family support. We aimed to identify the areas of strategies/interventions for self-care behavior; we also selected reports of qualitative research, through in-depth interviews and descriptive studies, which explored effective family support strategies for self-care behavior.

Published work related to family support for individuals with diabetes mellitus collected by searching Scopus, Cinahl, and Medline web database in Marh 2018. We searched abstracts and titles of manuscripts written in English that were published in the last 8 years (2008–2018) using key words such as “family support”, AND “self-care behavior”, AND diabetes management”, AND “diabetes”, AND “nursing”. This search identified 159 reports.

Patients with type 2 or type 1 diabetes as the study population ; they were written in English; They were

intervention studies for family support for diabetic patients; they were descriptive studies exploring patient preferences and evaluations of family support strategies for self-care behaviour.

Published work was excluded if family support was related to only glycemic control, it related to only medication adherence, it related to only depressive symptom, was not written in English; did not focus on family support to self care behavior, was a scale development study, case report with small sample size (e.g. one or two cases;); or was a published work review/opinion paper (n= 159). In the study studied here, we examined the implementation of family support for diabetic patients for self-care behaviour and / or strategies for recognition as effective diabetes management. We reviewed a report focusing on self-care behaviour and other variables on family support, participants, instruments, survey research. These are reported in Table 1.

3 RESULTS

3.1 Study Characteristics

Of the 159 studies reviewed, 11 met the criteria for this study and were selected for further analysis. The studies were conducted in the USA ($n = 6$), UK ($n = 1$), Saudi Arabia ($n = 1$), Japan ($n = 1$), Denmark ($n = 1$), and Malaysia ($n = 1$). There were some kind of studies reported, such as RCT ($n = 3$), quasi-experimental ($n = 1$), descriptive studies ($n = 6$), and mixed method ($n = 1$).

3.2 Effectiveness of Family Support

11 studies reported the effects of their family support on self care behavior in individuals with diabetes mellitus. Six studies found family support interacting statistically significantly with self-care behaviour. 2 studies reported that family intervention statistically significantly made better self care behavior.

Table 1: Family support and self care behavior.

(Author, published year), country	Sample	Design	Instrument / Intervention of the study	Main findings
(Herge <i>et al.</i> , 2012), USA	257 family dyads	longitudinal RCT	Background Information : Demographic and medical information were obtained through a 33-item questionnaire developed by the research team. Family Organization : The 9 item organization subscale from the Family Environment Scale Family Self-Efficacy : Diabetes Self-Management Scale Disease Management : The Diabetes Behavior Rating Scale Frequency of Blood Glucose Checks : To assess frequency of Blood Glucose checks	Family organizations with metabolic controls provide insight into the potential pathway for prevention / intervention for better management of diabetes.
(Ishak <i>et al.</i> , 2017), Malaysia	143 elderly diabetes patients	cross-sectional study	Diabetic characteristic section was filled out by the investigator based on the clinical history and medical records of the patient. Chronic kidney disease or neuropathy : glomerular filtration rate (calculated using Modified Diet in Renal disease (MDRD) equation) Self-care practices among the elderly : Malay Elderly Diabetes Self-Care Questionnaire (MEDSCaQ) Self-care Activity' questionnaire : Malay Version of the Morisky Medication Adherence Scale (MMAS-8) Diabetes knowledge : The Malaysian 14-item version of the Michigan Diabetes Knowledge Test (MDKT) Depression : Malay version of the geriatric Depression scale 14 (M-GDS-14)	Family support were significantly associated with diabetes self-care in elderly patients
(Watanabe <i>et al.</i> , 2010) Japan	112 with type 2 diabetes	cross-sectional study	The questionnaire was originally designed for evaluation of the effects of Japanese family environment on outpatient diet therapy and glycemic control. Questionnaire items assessed family diabetes enrollment, self perception of diabetes nutritional management, frequency and kind of family support, and emotional response to the support	Significant relationship between the type of nutritional support (cooking or buying light meals, advice or encouragement) and metabolic outcome.
(Schiotz <i>et al.</i> , 2011), Denmark	2572 patients with Type 2 diabetes	cross-sectional study	Self-management behaviours : Summary of Diabetes Self-care Activities Scale Patient activation : Patient Activation Measure (PAM) Emotional distress : ProblemAreas in Diabetes scale (PAID-5)	Significant association existed between poor functional social network and low frequency of foot examinations (P = 0.0339)

			Social network : Structural and functional aspects Care received by participants : Patient Assessment of Chronic Illness Care (PACIC) scale	
(Mayberry and Osborn, 2012) USA	Of those eligible who consented to participate (N = 75), 61% (n = 45) attended a focus group session	Mix method (Qualitative and Quantitative)	Family knowledge about diabetes selfcare : assessed by asking Family supportive and nonsupportive behaviors : Diabetes Family Behavior Checklist (DFBC) Medication adherence : 12-item Adherence to Refills and Medication Scale (ARMS) Glycemic control : the most recent glycated hemoglobin (A1C) value in the medical record	Perceiving family members performed more nonsupportive behaviors was associated with being less adherent to one's diabetes medication regimen, and being less adherent was associated with worse glycemic control. In focus groups, participants discussed family member support and gave examples of family members who were informed about diabetes but performed sabotaging or nonsupportive behaviors.
(Murphy <i>et al.</i> , 2012) UK	305 adolescents with Type 1 diabetes	Randomized trial	FACTS education programme Biomedical measures : episodes of severe hypoglycaemia, HbA1c was measured every 3 months from baseline Adolescent quality of life : Diabetes Quality of Life Youth scale (DQOLY-SF) Adolescent well-being : World Health Organization (WHO) Health Behaviour in School Children (HBSC) Diabetes management : Diabetes Family Responsibility Questionnaire (DFRQ) Perception of their child's diabetes specific distress : Problem Areas in Diabetes (PAID) scale	At 18 months there was no significant difference in HbA1C in either group and no between-group differences over time: intervention group 75 mmol/ mol (9.0%) to 78 mmol / mol (9.3%), control group 77 mmol/ mol (9.2%) to 80 mmol / mol (9.5%). Adolescents perceived no changes in parental input at 12 months.
(Hu <i>et al.</i> , 2014) USA	Adult patients with diabetes (n = 36) and family members (n = 37)	A quasi-experimental, 1 group longitudinal design.	Intervention : culturally tailored diabetes educational program Demographic forms : included family history, health history, socioeconomic information, and the number and frequency of family members attending the home visits and group meetings Hemoglobin A1C : Bayer A1C NOW kit Fasting glucose and lipid profiles : A Cholestech LDX machine (Alere, Inc., Waltham, MA) Physical activity : Short International Physical Activity Questionnaire (IPAQ) Energy expenditure : estimated metabolic equivalent task (MET) Diet : Behavioral Risk Factor Surveillance System (BRFSS) Diabetes knowledge : Spoken Knowledge in Low Literacy Patients with Diabetes (SKILLD) scale.	A1C decreased by 4.9% on average among patients from pre-intervention to 1 month post-intervention. Patients showed significant improvements in systolic blood pressure, diabetes self-efficacy, diabetes knowledge, and physical and mental components of health-related quality of life.

			Family support : Diabetes Family Support Behavior Checklist (DFBC-II) Diabetes self-efficacy : Stanford Self-Efficacy Scale Diabetes self-management : Summary of Diabetes Self-Care Activities (SDSCA) Health-related quality of life : Health-related quality of life	
(Satterwhite and Osborn, 2014) USA	192 adults with type 2 diabetes	Cross-sectional study	Perceptions of family members' supportive and obstructive behaviors : Diabetes Family Behavior Checklist-II (DFBC-II) Self-care behaviors : Summary of Diabetes Self-Care Activities (SDSCA)	Family members' supportive and obstructive behaviors were more strongly related to participants' self-care and explained more variation
(Aghili <i>et al.</i> , 2016) USA	380 adults with type 2 diabetes	Cross-sectional study	Clinical outcome variables : Total daily calorie intake was assessed using a single 24-hour recall. Physical activity : International Physical Activity Questionnaire Diabetes self-care behaviour : self-management profile for type 2 diabetes A1C levels : ion exchange chromatography (DS5 Analyzer, Drew Scientific, Cumbria, United Kingdom)	Family and social support was no independently linked with A1C levels
(Badedi <i>et al.</i> , 2016) Saudi Arabia	288 patients with T2DM	Cross-sectional study, random sample	All questionnaire created by an interdisciplinary team from the Carver College of Medicine, the College of Pharmacy, and the College of Public Health at the University of Iowa	Lower HbA1c levels among patients who received family support or had close relationship with their physicians
(Song <i>et al.</i> , 2013) USA	83 middle-aged Kas (Korean Americans) with type 2 diabetes	Community-based self-help intervention program with a randomized controlled design.	Diabetes self-care activity : Summary of Diabetes Self-Care Activities (SDSCA). Social support : social support subscales of the Diabetes Care Profile Self-efficacy : a modified form of the Stanford Chronic Disease Self-efficacy Scale Unmet needs in social support was created by summing the differences in scores between social support needs and the receipt of social support for each of the 6 tasks.	Unmet needs for social support are a significant strong predictor of inadequate type 2 diabetes self-care activities, after controlling for other covariates.

4 DISCUSSION

This review provides insight into the diversity and type of family behaviours that positively or negatively affect diabetes self-management, for the first time the "uncertain" family behavioral optimum that diabetic patients can recognize as diabetic patients Diabetes management barriers or promoters. For example, some people welcomed this information with reference to periodic reminders, but others recognized this as "troubles",

strengthened non-compliance, and strengthened. If this is correct, this interpretation is a window of opportunity for intervention aimed at assisting diabetes adults to recognize behaviors that are not obvious and to help them become a facilitator, not a self-management barrier.

We were reviewed published research which examined the relationship between social support of diabetes adults and self-care behaviour. Evidence of beneficial effects of social support for self-care behavior (multidimensional evaluation of family support and social support) is emerging. Limited evidence of being married with a partner was

associated with worsening self-care behaviour. The majority of statistical associations in the review were significant. The main findings are the importance of families in the management of type 2 diabetes. We discovered that we believe that cooperating as a couple with a common goal is supportive. It has been shown that lack of support for patient self-care behavior may interfere with patient efforts to implement the necessary behavioral changes.

Much of a patient's diabetes management takes place within his/her family and social environment (World Health Organisation, 2002). Addressing the family environment for adults on diabetes is important since this is the context in which the majority of disease management occurs. Families as two or more people who are somehow biologically, legally and emotionally related defines family as two or more people legally or emotionally related (Baig *et al.*, 2015). Thus, families may include nuclear, extended, and relatives network members.

Family members can actively support and care for patients with diabetes (CA *et al.*, 2003). Most individuals live within a household that has a great influence on diabetes-management behaviors. A survey of over 5000 adults with diabetes highlighted the importance of improving well-being and self-management by families, friends, colleagues (Kovacs Burns *et al.*, 2013). Family members are often asked to share in the responsibility of disease management. They can provide a variety of support such as instrumental assistance to help patients to appointment and help inject insulin, in overcoming the illness of patients were assisted with social and emotional support (Fisher *et al.*, 1998; Wagner *et al.*, 2001). Through family communication and attitudes, patients often have psychological well-being, decisions to comply with medical recommendations, and the ability to initiate and maintain changes in diet and exercise often. Among middle-aged and elderly people with type 2 diabetes, long-term follow-up research reveals that autonomous improvement of health status is related to social support (Nicklett *et al.*, 2013). Family unity and family functions have also been found to be positively correlated with patient self-care behaviour and improvement in glycemic control (Griffith, Field and Lustman, 1990; Walker *et al.*, 2015).

Offering diabetes education only to patients with type 2 diabetes may limit the effect on patients as families may play a major role in disease management. A family-based approach to chronic disease management emphasizes the situation in which the disease occurs, including family physical environments, educational, relationship between

personal needs patient and family (Fisher *et al.*, 1998; Armour *et al.*, 2005). Including family intervention in educational intervention, support for diabetic patients, development of healthy family behaviours, self-management of diabetes (Hu *et al.*, 2014).

The self-management intervention of diabetes can focus on family communication skills and may need to teach positive ways to influence the patient's health behaviour. Families may suffer from the beloved person's diabetes (Fisher *et al.*, 2002; Gleeson-Kreig, Bernal and Woolley, 2002; Rosland *et al.*, 2010; Baig *et al.*, 2015) knowledge on diabetes is limited or I do not know how to support loved ones (Carter-Edwards *et al.*, 2001; Fisher *et al.*, 2002; Rosland *et al.*, 2010; Keogh *et al.*, 2011; hu *et al.*, 2013). Family may also have misunderstandings that they believe they know the details of diabetes than they actually report, or They do not understand the needs of family members in diabetes management (Carter-Edwards *et al.*, 2001; White *et al.*, 2009). The disease knowledge, the strategy to change the family routine, the best way to deal with the emotional side of the illness is part of the self-management aspect of diabetes that the family needs (Orvik, Ribu and Johansen, 2010). Teaching families about the necessity of treating diabetes will find out why these changes are necessary, how to make these changes in the best way, where to find additional information such as healthy recipes and exercise routines By explaining what to do. Effective family management can also decrease the stress that families may experience when dealing with a changing lifestyle or disease progression (Baig *et al.*, 2016). It is important to provide family members with information about the illness and possible treatment options, validate their experiences as providers of support, helps to plan the future and teaches some stress management skills (Martire *et al.*, 2010).

Carefully designed research is needed to evaluate the benefits of diabetes self-management intervention in patients and families (Martire, 2005). How families manage chronic disease affects not only the patient's health, but the health of others in the family as well (Fisher *et al.*, 2002). Assessing family members' knowledge in diabetes self-care and perceived ability to support their loved one with diabetes may be important end points for diabetes self-care interventions. Families may also be more directly advantageous by relieving psychological distress of beloved diabetes and by participating in a health education program to improve their own health behaviour (Trief *et al.*, 2001; Fisher *et al.*,

2002; Sorkin *et al.*, 2013). In addition, families with high risk of diabetes may reduce the possibility of developing diabetes due to improvement in lifestyle habits and weight loss. In the review of randomized controlled trials of chronic disease interventions, that the benefits of families were scarcely evaluated (Martire, 2005).

The knowledge of family support is essential for diabetes management. This does not mean, that a strong family relationship enhances family and public compliance. The family dynamics described in this review will not be restricted to diabetic families, except for situations which are probably caused by hypoglycemia. Therefore, our results are potentially related to other chronically ill families whose adherence to a particular lifestyle is recommended. This is a potentially important problem for future research.

5 CONCLUSIONS

We identified family support can improving self care behavior. A family-based approach to chronic disease management emphasizes the situation in which the disease occurs, including family physical environments, educational, relational, and patients and families needs.

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