



## Family Support on Dietary Adherence Through Motivation in Patients with Diabetes Mellitus Type 2: A systematic review

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Open Access Research Journal of Science and Technology, 2024, 11(02), 013–019

Publication history: Received on 21 May 2024; revised on 30 June 2024; accepted on 03 July 2024

Article DOI: <https://doi.org/10.53022/oarjst.2024.11.2.0085>

### Abstract

Diabetes Mellitus is a degenerative disease characterized by high blood sugar levels. The main obstacle in the treatment of diabetes mellitus diet is saturation in following dietary therapy, therefore family support is needed to improve dietary adherence of people with type 2 diabetes mellitus. This review aims to obtain information about family support for dietary adherence motivation in people with type 2 diabetes mellitus. The research method used is systematic review. Literature is searched through Google Scholar, PubMed, and Mendeley databases in May-June 2024. A total of 1957 articles were obtained, then the articles were selected through the stages of title, abstract, keywords and continued selection in fulltext. The results of the selection were obtained 7 articles that met the set criteria. Review reporting uses Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA). Based on the systematic review that has been carried out, the results of the relationship and factors that affect family support with motivating dietary adherence in people with type 2 diabetes mellitus are obtained.

**Keywords:** Diabetes Mellitus Type 2; Family Support; Diet Adherence; Diet Compliance

### 1. Introduction

Type 2 diabetes mellitus is characterized by hyperglycemia, insulin resistance, and relative insulin deficiency [1]. Diabetes Mellitus (DM) is a condition of chronic hyperglycemia followed by a variety of metabolic abnormalities resulting in the appearance of chronic complications of blood vessels, nerves, kidneys and eyes, as well as lesions of the basal membrane in examination with an electromicroscope. [2].

WHO in 2024 explained that 422 million people worldwide have diabetes, most of them live in low- and middle-income countries, and 1.5 million deaths are directly caused by diabetes each year. Both the number of cases and the prevalence of diabetes have continued to increase over the past few decades. Data from the International Diabetes Federation (IDF) shows that the number of diabetics in the world in 2021 reached 537 million. This figure is predicted to continue to increase to 643 million in 2030 and 783 million in 2045. According to the IDF, Indonesia is ranked fifth in the country with the highest number of diabetes with 19.5 million sufferers in 2021 and is predicted to reach 28.6 million by 2045 [4].

Diabetes is a chronic disease that occurs when the pancreas does not produce enough insulin or when the body is unable to use the insulin produced effectively. Insulin is a hormone that regulates blood glucose [5]. Type 2 diabetes is usually in adults, which occurs when the body becomes resistant to insulin or does not produce enough insulin. In the last 3 decades, the prevalence of type 2 diabetes has increased significantly in countries with varying income levels [3].

Diabetes Mellitus is a disease related to lifestyle, so the patient's success in fighting Diabetes Mellitus correlates with the patient's own lifestyle to change his behavior [2]. The diet aims to prevent the appearance of DM complications, To

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get a better quality of life for people with type 2 DM requires a great struggle in their ability to carry out the diet. More than half of DM patients experience boredom of doing the DM diet continuously, for patients who already know the benefits of the DM diet they will voluntarily follow the DM diet. there are also patients who deliberately do not follow the DM diet, on the grounds that it can be overcome by taking medication [2].

T2DM patient's dietary adherence may face three challenges. First, the diabetic diet must be specifically designed to suit weight, glucose, and the type and stage of the disease. Secondly, different medical and dieting authorities offer different T2DM diet plans. Third, as the nutritional science develops, the concept of a diabetes-friendly diet is also evolving. This can confuse diabetic patients and shake their resolve to follow the recommended dietary recommendations. Thus, only about 25% of T2DM patients adhere to their healthy diet plan [6]. The occurrence of non-compliance of people with diabetes in diet is influenced by many factors, including internal factors such as education and knowledge, beliefs and positive traits as well as personality. External factors include the interaction of health professionals with patients, environmental factors and family support [2].

Family support is a form of providing help, attention, and emotional support provided by family members to diabetic patients. This support can be practical support such as helping with diet management, blood sugar measurement, or accompanying the patient to the doctor, as well as emotional support such as providing encouragement and attention. Family support has a very important role in the management of diabetes and can have a direct impact on the quality of life of patients [7]. This type of family support for diabetic patients has a diverse and important effect on maintaining lifestyle changes and diabetes self-management. For example, it has been reported that inhibiting family behavior that hampers patients' self-care efforts in diabetes care is an obstacle to effective self-efficacy and self-management adherence [8].

Although there has been a lot of discussion about dietary adherence for people with diabetes mellitus in general, there is still little research on family support for dietary adherence in people with type 2 diabetes mellitus. The purpose of this study was to analyze family support for dietary adherence through motivation in people with type 2 diabetes mellitus.

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## 2. Method

The research method used is a systematic review using the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) reporting guidelines regarding family support for dietary adherence through motivation in people with type 2 diabetes mellitus. The literature search was carried out in May – June 2024. Some of the steps taken in this study are:

- Defining eligibility criteria,
- Defining information sources,
- Selection of studies,
- Data collection process,
- Selection of data items.

The data used in this study is secondary data obtained not from direct observation, but obtained from the results of research that has been carried out by previous researchers. Article and journal searches use keywords that are used to expand or specify the search, making it easier to determine which articles or journals to use.

### 2.1. Eligibility criteria

The eligibility criteria consist of inclusion criteria and exclusion criteria. The inclusion criteria were set as review guidelines, namely:

- Journals published in 2020-2024,
- Journals using english,
- Research discussing the effect of family support on dietary adherence through motivation in people with type 2 diabetes mellitus,
- Full text is available. Meanwhile, the exclusion criteria in choosing this article are articles published before 2020.

## 2.2. Resources

The articles used in this study were obtained from online database sources from Google Scholar, PubMed, and Mendeley. Articles that are not in full text will be eliminated by the author. In addition, the researcher also adapts the article to the research questions that have been created.

## 2.3. Study selection

The selection of studies is carried out in three phases, namely:

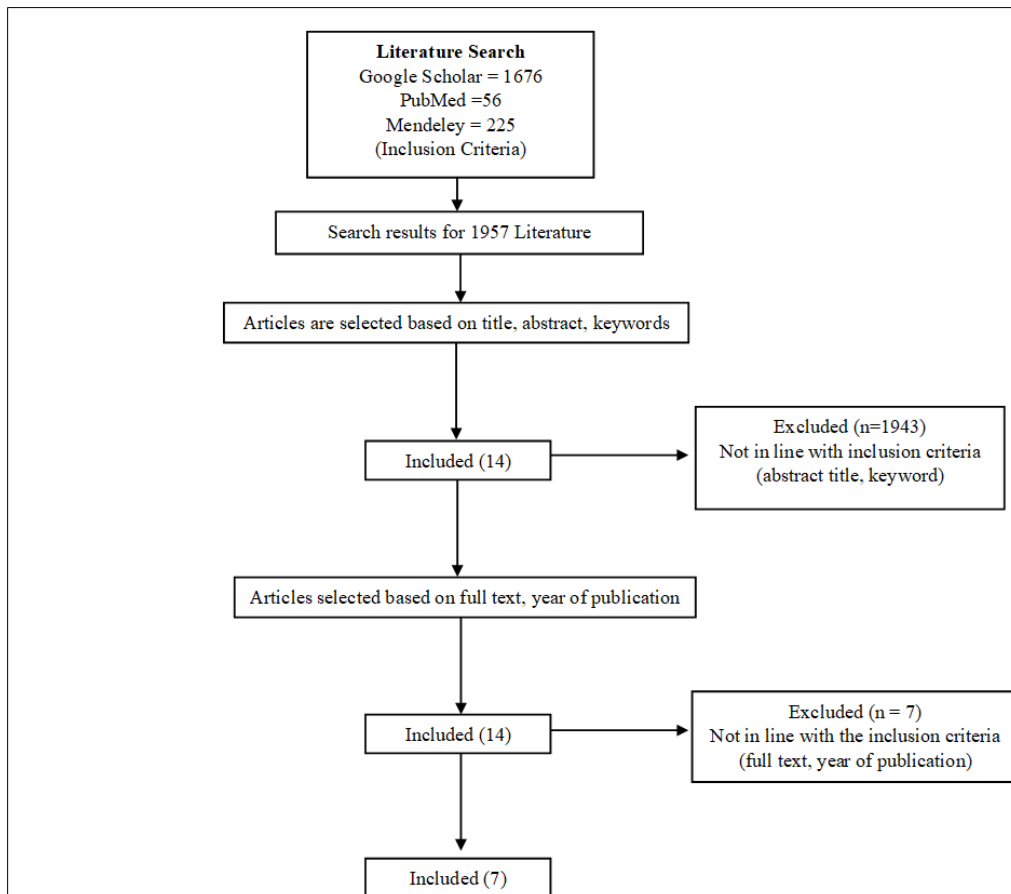
- Keywords used in article search include: "Family Support", "Diet Compliance", "Dietary Adherence", "Diabetes Mellitus Type 2" The keyword search is expanded by adding the words "and", "or" and a combination of two keywords at the same time
- The selection of articles uses the filter of the year of publication, which is 2020-2024
- The selection of articles is based on the abstract content, title and keywords in the article.
- Articles that have been selected based on the title, abstract and other inclusion criteria will then be critically analyzed using the Critical Appraisal Skill Program (CASP) instrument to determine the eligibility of the article.
- Articles that are complete or partially comitted in the previous review process will be carried out to determine whether the article should be included in the review or removed according to the criteria set.

## 2.4. Data collection process

Data collection is done manually, consisting of article type, article title, year of publication, method. Article collection by reading data through full text. The article obtained is assessed by the researcher whether the article is relevant or not.

## 3. Result

### 3.1. Study Selection



**Figure 1** Results of the Systematic Review

The results of the article selection were obtained with a total of relevant articles in accordance with the criteria that have been set, namely as many as 8 articles from 2020 to 2024. In the first stage, the author obtained 1957 articles in accordance with the set criteria. After that, the researcher reviewed the search results by adjusting the title, abstract and keywords, and obtained 14 articles that met the criteria, as many as 1943 articles did not meet the criteria. Of the 14 articles that have been reviewed by the author from the abstract, then the author reviews by looking at the full text and there are only 8 articles that are suitable and 7 articles that are not in accordance with the eligibility that has been set. After the review process carried out by the author, a total of 7 articles were obtained in this study.

### 3.2. Characteristic Study

A total of 7 articles found from several online databases obtained results that have been adjusted to the criteria that have been set are illustrated in the following table:

**Table 1** Results of Research Data Analysis

No	Author	Implementation	Method	Research Objectives and Results
1	Kumalawati, (2023)	Questionnaire administration of family support and dietary adherence	Descriptive correlation With crossectional approach	Objective: To determine the relationship between family support and dietary adherence of Diabetes Mellitus patients in the working area of the Barong Tongkok Health Center, West Kutai Regency Results: There was a relationship between family support and dietary adherence of Diabetes Mellitus patients in the working area of the Barong Tongkok Health Center, West Kutai Regency..
2	Cahyono et al., (2020)	Conducting interviews with respondents about diabetes and diabetes mellitus diet	Qualitative method with phenomenologic al approach	Objective: The purpose of this study is to find out the factors that affect dietary adherence in people with diabetes mellitus Results: The data collection technique by conducting in-depth interviews resulted in 3 themes, namely lack of knowledge about diet, lack of family support, and difficulties in running a diet.
3	Rondhianto et al., (2023)	Give a questionnaire SKILLD, The Coping Scale, DDS, HDFSS, Perceived Nurse Support Questionnaire, dan SMDBQ.	Analytical observation with cross sectional design	Objective: To explain the effect of psychosocial support on diabetes mellitus dietary habits Results: Perceived distress and family support are two psychosocial factors that can affect dietary behavior. Preventing distress and increasing family support is important to improve dietary behavior adherence in people with type 2 diabetes mellitus.
4	Winarko & indasah (2021)	Giving a Family Duties questionnaire	Survey research with explanatory research method	Objective: The purpose of this study is to analyze the relationship between family support tasks and dietary adherence in patients with Diabetes Mellitus at the Jayawijaya Regency Health Office. Results: Based on the results of the study, there was a relationship between family duties and dietary adherence in patients with diabetes mellitus.
5	Wiliyanarti et al., (2021)	The research population of 90 families with DM using pre-probability sampling techniques, random	The research used was pre-experimental with a static	Objective: The purpose of this study is to analyze the effect of family caregiver support using 3D magnetic diabetic food miniature on the diet of DM patients in the elderly.

		sampling, was then divided into two groups, namely the treatment group and the control group of 36 elderly people and their families.	group comparison design	Results: Support of family caregivers using 3D magnetic diabetic food miniature can be used as an alternative to health education in improving patient adherence in DM diet management.
6	Horikawa et al., (2020)	Providing DFBC and FFQg questionnaires	Cross sectional study	Objective: The purpose of this study is to investigate the relationship between dietary habits in diabetic patients and the level of family support for medical nutrition therapy (MNT). Results: There was a relationship between the type of family support of type 2 diabetes patients and their dietary intake and the importance of sex differences for more effective MNT.
7	Andriyanto et al., (2022)	SoSMed intervention was carried out for 3 months. The sample was taken by random sampling technique as many as 50 respondents in each group. The measuring instrument used to check glucose during the GDA test 3 times, analyzed using a paired t-test.	This study used a quasi-pre-post-test experiment with a control group design.	Objective: This study aims to analyze Social Support Management of Diabetes (SoSMed) for glucose control in type 2 DM patients. Results: The SoSMed intervention provided patients with type 2 DM glucose control. Based on these findings, it is recommended that nurses provide appropriate nursing interventions by involving families in diabetes management.

#### 4. Discussion

The articles used were 7 articles that had been selected through the review containing family support with dietary adherence in people with type 2 diabetes mellitus. Used articles from the last 5 years. In table 1, it has been explained that there are effects, effects, and relationships of family support with diabetes mellitus diet adherence. The result is that there is a relationship between family support and diabetes mellitus dietary adherence, the effect of lack of family support can result in low dietary adherence in people with diabetes mellitus.

In an article written by Malawati (2023), Winarko & Indasah (2021) and Horikawa et al., (2020) stated that there is a relationship of family support to dietary adherence to type 2 diabetes mellitus [8]–[10]. This is in accordance with research conducted by Kencana et al. (2022), this is due to the motivation of the family that makes the respondents feel appreciated and have the confidence to recover. Patience and motivation are needed to support living a diet that can be obtained from relationships with the closest people such as family or friends. Patience and motivation will affect the attitude of people with type 2 diabetes to follow a diet. Therefore, the support obtained from the closest family will increase the desire of the sufferer to achieve the highest degree of health [2].

According to Cahyono et al., (2020) there are several things that affect dietary adherence in people with type 2 diabetes mellitus, namely lack of knowledge about diet, lack of family support, and difficulties in carrying out diets [11]. Meanwhile, based on the article Rondhianto et al., (2023) seen from the psychosocial factors that affect dietary adherence in people with type 2 diabetes mellitus, namely stress and family support [12]. Lack of knowledge can be caused by low level of education, according to Tasalim et al. (2020) a person with a basic education level, tends to find it difficult to accept new developments, especially in supporting health degrees because there is no sufficient reasoning process due to their educational background. Without high knowledge, a person is lazy to adhere to the diet program he is running [13].

A lack of family support can occur due to the many things that must be considered in family members with type 2 diabetes mellitus. The main source of emotional and instrumental support is family members, instrumental support includes helping to complete specific tasks for the patient, such as scheduling appointments with healthcare professionals or helping to inject insulin, while emotional support can provide comfort and motivation when the patient experiences anxiety or anger regarding long diabetes treatment [14].

Difficulties in following a diet found in a study conducted by Cahyono et al., (2020) were also found in a study conducted by Tirfessa et al. (2023), that diabetic patients living in households that have food security are 3.3 times more likely to have good dietary practices compared to patients living in food-insecure households [11]. These findings are consistent with previous research, which showed that diabetic patients living in diet-resistant households had good dietary practices compared to those living in diet-insecure households. It will be difficult for patients to practice dietary recommendations when the food supply in the household is inadequate. As a result, diabetic patients living in food-insecure households may use unhealthy coping mechanisms, such as reducing the frequency and amount of food; The consumption of cheaper, calorie-dense foods can also play an important role in poor diet practices.

To make it easier for families to provide support in increasing the level of dietary adherence in people with diabetes mellitus, the application of 3D magnetic diabetic food miniature to the diet of DM patients has been carried out by research by Wilayanarti et al., (2021) the results of the study are Support using 3D magnetic diabetic food miniatures, it was found that most families who serve as caregivers feel that they can understand the DM diet pattern obtained from a miniature diabetic food 3D magnet. Therefore, the family said that there was an increase in knowledge in carrying out their duties to provide diet and education for DM sufferers. Meanwhile, the impact felt by DM sufferers themselves feel better because they get full support from their families [16].

In addition, it can also carry out Social Support Management of Diabetes (SoSMed) for glucose control in type 2 DM patients that has been carried out. research by Andriyanto et al., (2022) Promotive and preventive activities to disseminate information and practical education through nursing intervention strategies to deal with DM need to be carried out. For example, the SoSMed program is to support diabetics in controlling glucose to remain in normal condition. The implementation of SoSMed is carried out by involving the family as the closest source of care. Families are the most effective place to implement healthy behaviors as an important health promotion strategy. The application of interventions in the management of DM to prevent more severe complications is carried out by increasing good self-management behavior. Dietary regulation, medication adherence, physical activity, blood glucose control, and foot care are all important components of diabetes self-care [17].

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## 5. Conclusion

- Implications for Health Practice/Services

Providing family support to improve dietary adherence for people with type 2 diabetes mellitus has a significant effect. The authors found a combination of family education and family support for dietary adherence to type 2 diabetes mellitus.

- Implications for Research

The author analyzed that family support is one of the important factors in increasing diabetes mellitus diet adherence. Therefore, it is hoped that future researchers can expand or develop more effectively and efficiently.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

There is no conflict of interest declared by the authors in regard to the findings of this research.

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