



INNOVATIVE: Journal Of Social Science Research

Volume 5 Nomor 3 Tahun 2025 Page 2121-2129

E-ISSN 2807-4238 and P-ISSN 2807-4246

Website: <https://j-innovative.org/index.php/Innovative>

## Family Instrumental Support and Dietary Compliance in Type II Diabetes Mellitus Patients: A Cross-Sectional Study

Ahmad Fauziansyah<sup>1✉</sup>, Mohammad Fahrul Arifin<sup>2</sup>, Dyah Pitaloka<sup>3</sup>, Warti Miftahul Miyah<sup>4</sup>

Institut Ilmu Kesehatan Nahdlatul Ulama Tuban

Email: [ahmadfauziansyah1@gmail.com](mailto:ahmadfauziansyah1@gmail.com)<sup>1✉</sup>

### Abstrak

Diabetes Melitus (DM) Tipe 2 memerlukan pengelolaan diet yang ketat untuk mempertahankan kontrol glikemik. Dukungan instrumental dari keluarga memainkan peran penting dalam kepatuhan pasien terhadap rekomendasi diet, namun hubungan antara keduanya masih kurang dieksplorasi di beberapa populasi. Penelitian ini dilakukan untuk menganalisis keterkaitan antara dukungan instrumental dari keluarga dan tingkat kepatuhan diet pada pasien dengan Diabetes Mellitus Tipe 2. Penelitian ini menggunakan desain analitik observasional non-eksperimental. Sebanyak 66 responden yang didiagnosis DM Tipe 2 direkrut menggunakan teknik consecutive sampling. Instrumen yang digunakan adalah Kuesioner Dukungan Keluarga dan Kuesioner Kepatuhan Diet DM Tipe 2. Data dianalisis menggunakan uji korelasi Spearman's Rho untuk mengevaluasi keterkaitan antara dukungan instrumental keluarga dan kepatuhan diet. Studi ini telah memperoleh persetujuan etik dari Komite Etik Penelitian Kesehatan Institut Ilmu Kesehatan Nahdlatul Ulama Tuban dengan nomor izin 347/0084223523/LEPK.IIKNU/XII/2024. Hasil penelitian menunjukkan bahwa 80,3% responden menerima dukungan instrumental keluarga yang baik, dan 78,5% patuh terhadap pedoman diet untuk pengelolaan DM Tipe 2. Sebanyak 66,7% responden yang mendapat dukungan baik menunjukkan kepatuhan diet. Ditemukan korelasi yang bermakna antara dukungan instrumental dari keluarga dan tingkat kepatuhan terhadap diet ( $p=0,002$ ;  $\alpha < 0,05$ ). Dukungan instrumental dari anggota keluarga berperan penting dalam meningkatkan kepatuhan diet pada individu dengan DM Tipe 2. Keterlibatan dalam tugas rutin seperti menyiapkan makanan dan belanja bahan makanan secara nyata membantu kepatuhan terhadap terapi nutrisi medis dan mendukung regulasi glikemik yang optimal.

Kata Kunci: *Diabetes Melitus Tipe 2, Dukungan Keluarga Instrumental, Kepatuhan Diet*

### Abstract

Type II Diabetes Mellitus (T2DM) requires strict dietary management to maintain glycemic control. Family instrumental support plays a critical role in patients' compliance with dietary recommendations, yet the relationship between the two remains underexplored in specific populations. This study investigates the association between family instrumental support and dietary compliance among patients with T2DM. This study employed a non-experimental, observational, analytic design. Sixty-six participants diagnosed with T2DM were recruited using a consecutive sampling technique. This study employed two main instruments: the Family Support Questionnaire and the Dietary Compliance Questionnaire for Type 2 Diabetes. Data were analyzed using Spearman's Rho test to evaluate the correlation between family instrumental support and dietary adherence. Ethical approval for this research was obtained from the Health Research Ethics Committee of the Nahdlatul Ulama Institute of Health Sciences, Tuban, under approval number 347/0084223523/LEPK.IIKNU/XII/2024. The findings indicated that most participants (80.3%) reported receiving strong instrumental support from their families, while 78.5% adhered to dietary recommendations for managing Type 2 Diabetes Mellitus. Among those who received high levels of support, 66.7% demonstrated dietary adherence. Statistical analysis revealed a significant positive correlation between family instrumental support and dietary compliance ( $p = 0.002$ ;  $\alpha < 0.05$ ). Instrumental support from family members plays a crucial role in improving dietary adherence among individuals with T2DM. Engagement in routine tasks such as meal preparation and grocery procurement substantially facilitates compliance with medical nutrition therapy and contributes to optimal glycemic regulation.

Keywords: *Dietary Compliance, Family Instrumental Support, Type 2 Diabetes Mellitus*

## INTRODUCTION

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by the body's resistance to insulin and a gradual loss of pancreatic  $\beta$ -cell function, resulting in persistently high blood sugar levels. Unlike Type 1 Diabetes, which is autoimmune, T2DM is largely preventable and is strongly associated with modifiable lifestyle factors such as obesity, poor dietary habits, physical inactivity, and aging. Accounting for over 90% of all diabetes cases worldwide, T2DM remains a leading cause of serious complications, including cardiovascular disease, kidney failure, vision loss, and limb amputations ((ADA), 2023; World Health Organization, 2023). T2DM has become an increasingly pressing global public health issue. In 2017, it was estimated that 462 million individuals, about 6.28% of the global population, were living with T2DM, with projections suggesting this number will rise significantly to 7,079 cases per 100,000 people by 2030 (Khan et al., 2020). . The International Diabetes Federation (IDF) anticipates that by 2045, more than 783 million adults worldwide will be affected, with the steepest increases occurring in low- and middle-income countries (International Diabetes Federation, 2021). This trend is largely driven by urbanization, increasingly sedentary lifestyles, and the global adoption of high-calorie, low-nutrient diets.

The economic burden of T2DM is equally alarming. In 2022, the economic burden of diagnosed diabetes in the United States amounted to USD 413 billion, encompassing both direct medical expenses and indirect losses related to reduced productivity (CDC Diabetes, 2024). In low-resource settings such as Indonesia, the economic strain may be even more profound, as many patients face limited access to healthcare, medications, and long-term management programs. One of the cornerstones of T2DM management is dietary compliance, which refers to the patient's adherence to prescribed nutritional guidelines tailored to glycemic control, weight management, and comorbidity prevention. Despite its importance, maintaining long-term dietary compliance is a challenge for many individuals, often due to psychosocial barriers, lack of knowledge, low motivation, and inadequate support systems (Hiefner et al., 2024). Family support, particularly instrumental support, plays a pivotal role among the various determinants of adherence. Instrumental support refers to tangible assistance provided by family members, such as helping with meal preparation, grocery shopping, and financial aid for purchasing healthy foods. Research suggests that patients with strong family support networks tend to have better glycemic control, higher motivation, and improved adherence to treatment regimens. Positive family involvement increases patient confidence and behavior change, improving overall outcomes (Gao, 2025; Primadani et al., 2022).

The prevalence of T2DM is steadily increasing, and family units remain culturally central. The role of family support in chronic disease management is especially relevant. However, empirical data exploring the impact of instrumental family support on dietary compliance among Indonesian T2DM patients remain scarce. Understanding this relationship is crucial for developing targeted, culturally appropriate interventions that enhance self-care behaviors and improve disease outcomes (Ridwan & Dewi, 2024; Wibowo et al., 2024). This research explores the relationship between family instrumental support and dietary adherence in individuals with Type 2 Diabetes Mellitus treated at the Internal Medicine Clinic of dr. R. Koesma Regional General Hospital, Tuban. The outcomes of this study are anticipated to contribute to the development of family-oriented care approaches aimed at improving dietary compliance and enhancing clinical outcomes among diabetic patients.

## RESEARCH METHOD

This research utilized a non-experimental, observational analytic design and was carried out at the Internal Medicine Outpatient Clinic of dr. R. Koesma Regional General

Hospital, Tuban. The study aimed to examine the correlation between family instrumental support and dietary adherence among patients with Type 2 Diabetes Mellitus. A total of 66 individuals diagnosed with T2DM were selected through a consecutive sampling method. The research utilized two primary instruments: the Family Support Questionnaire and the Type 2 Diabetes Dietary Compliance Questionnaire. The Family Support Questionnaire consisted of four key domains: (1) Provision of healthy meals, (2) Monitoring, (3) Financial assistance, and (4) Positive reinforcement. The instrument consisted of 12 statements assessed using a four-point Likert scale, where responses ranged from 1 (Never) to 4 (Always), yielding a total score between 12 and 48. The level of support was classified into three categories: good (36–48), moderate (24–35), and poor (12–23).

The Dietary Compliance Questionnaire assessed three key aspects: timing of meals, types of food consumed, and portion control. It contained 13 items evaluated on a four-point Likert scale (1 = Never, 2 = Sometimes, 3 = Often, 4 = Routinely), resulting in a possible score range of 13 to 52. Based on total scores, dietary adherence was categorized as compliant (40–52), moderately compliant (28–39), and poorly compliant (13–27). Spearman’s Rho correlation test examined the association between family instrumental support and dietary compliance. Ethical approval for this study was obtained from the Health Research Ethics Committee of the Nahdlatul Ulama Institute of Health Sciences, Tuban, with approval number 347/0084223523/LEPK.IIKNU/XII/2024.

## RESULTS AND DISCUSSION

Table 1 Respondents' Characteristics

Variable	Mean	Median	SD	Min-Max	95% CI <i>Lower-Upper</i>
Age	58.95	62.00	11.17	27.00-77.00	56.21-61.70
Variable				n	%
Gender	Man			36	54.5
	Women			30	45.5
	Total			66	100.0
Education Level	Elementary School			19	28.8
	Junior High School			11	16.7
	Senior High School			14	21.2
	Bachelor			22	33.3
	Total			66	100.0

\*The data was normally distributed

The findings presented in Table 1 indicate that the median age of respondents was 62.00 years, with the youngest being 27.00 years and the oldest 77.00 years. Most participants were male (36 individuals or 54.5%), and a notable proportion held a bachelor's degree (22 individuals or 33.3%).

Table 2 Family Instrumental Support and Dietary Compliance T2DM

Variable		n	%
Family Instrumental Support	Poor	3	4.5
	Moderate	10	15.2
	Good	53	80.3
Dietary Compliance T2DM	Poorly Compliant	2	3.0
	Moderately Compliant	14	21.2
	Compliant	50	78.5
	Compliant		

According to the results in Table 2, most respondents (53 individuals or 80.3%) reported receiving good family instrumental support. In addition, most respondents (50 individuals or 78.5%) demonstrated compliance with the recommended dietary guidelines for managing Type 2 Diabetes Mellitus.

Table 3 Bivariate Analysis

Variable		Dietary Compliance T2DM						<i>P value</i>
		Poorly Compliant		Moderately Compliant		Compliant		
		n	%	n	%	n	%	
Family Instrumental Support	Poor	2	3.0	0	0	1	1.5	0.002*
	Moderate	0	0.0	5	7.6	5	7.6	
	Good	0	0.0	9	13.6	44	66.7	
Total		2	3.0	14	21.2	50	75.8	

\* Significant at *p-value* <0.05

The findings in Table 3 indicate that most respondents who received good family instrumental support demonstrated dietary compliance, with 44 respondents (66.7%)

categorized as compliant. Additional analysis demonstrated a statistically significant relationship between family instrumental support and dietary adherence in patients with Type 2 Diabetes Mellitus treated at the Internal Medicine Outpatient Clinic of dr. R. Koesma Regional General Hospital, Tuban ( $p = 0.002$ ;  $\alpha < 0.05$ ).

## DISCUSSION

### Family Instrumental Support

This study's findings show that most respondents (80.3%) received good family instrumental support. This suggests that many patients with T2DM benefit from tangible assistance provided by family members, such as preparing meals, reminding them of dietary restrictions, providing transportation to health facilities, and offering financial support to obtain healthy foods. Instrumental support, as a subset of social support, plays a vital role in enhancing diabetes self-care behaviors, particularly in adherence to dietary guidelines and treatment regimens (Hiefner et al., 2024). Previous research consistently highlights the significant contribution of family involvement in managing chronic diseases. In the context of T2DM, family members often act as informal caregivers who not only assist with daily tasks but also provide emotional motivation and reinforce healthy behaviors (Gao, 2025). Research conducted by Primadani et al (2022) indicated that individuals with diabetes who consistently received support from their families were more inclined to perform self-care activities, including managing their diet, engaging in regular physical exercise, and monitoring blood glucose levels routinely.

The cultural context of Indonesia may further explain the high prevalence of good family support found in this study. Indonesian society tends to value collectivism, where multigenerational households and strong kinship networks are common. This social structure naturally promotes family caregiving and shared responsibility in managing health, especially for older adults and those with chronic conditions (Ridwan & Dewi, 2024). In such environments, family members often feel morally and culturally obligated to support relatives with chronic illnesses, which in turn positively impacts the patients' health behaviors. Moreover, instrumental support is particularly influential among patients with low health literacy or limited access to healthcare resources, as it can serve as a buffer against external barriers (Wibowo et al., 2024). In resource-limited settings like rural or semi-urban areas of Indonesia, where healthcare access and nutritional education may be inadequate, family instrumental support becomes even more critical in ensuring treatment adherence and nutritional compliance.

## Dietary Compliance T2DM

This study's results show that most participants (78.5%) followed dietary guidelines for managing Type 2 Diabetes Mellitus (T2DM), indicating a solid grasp and implementation of medical nutrition therapy. Adhering to dietary recommendations plays a vital role in maintaining blood glucose levels, minimizing the likelihood of complications, and enhancing metabolic indicators such as HbA1c, lipid levels, and body weight ((ADA), 2023; Evert et al., 2019). The American Diabetes Association highlights the importance of tailoring nutritional interventions to each individual, taking into account cultural and socioeconomic contexts. The high level of dietary adherence found in this study may be influenced by the effectiveness of health education provided at the clinic and robust family support, especially within Indonesia's collectivist society, where responsibilities like meal preparation and caregiving are typically shared among family members (Ridwan & Dewi, 2024).

Despite the encouraging results, some respondents still exhibited moderate or poor dietary adherence. Barriers such as limited access to diabetes-appropriate foods, financial difficulties, low nutritional literacy, and lack of motivation persist. Educational interventions that include counseling, structured follow-ups, and family involvement have improved adherence by reinforcing behavior change and providing ongoing support (Al-Salmi et al., 2022; Thalia Florencia Da Costa Cabral & Amin Samiasih, 2024). Thus, culturally appropriate, family-centered nutrition programs are essential for addressing behavioral and structural challenges, promoting long-term adherence, and enhancing diabetes self-management outcomes.

## Family Instrumental Support and Dietary Compliance T2DM

The findings of this study reveal a favorable association between family-provided instrumental support and adherence to dietary recommendations in individuals with T2DM. Instrumental support, defined as tangible aid and services provided by family members, such as preparing meals, grocery shopping, or assisting with diet planning, is critical in facilitating adherence to dietary recommendations. These results align with earlier research showing that family support is crucial in influencing self-management practices among individuals with diabetes, especially in maintaining dietary compliance (Hiefner et al., 2024; Thalia Florencia Da Costa Cabral & Amin Samiasih, 2024). When individuals with T2DM receive practical support from family members, they are more likely to maintain consistent dietary habits aligned with medical nutrition therapy guidelines. This support helps reduce the daily burden of managing a complex diet and reinforces positive behavioral patterns.

Moreover, instrumental support may act as a buffer against psychological stress

associated with chronic illness management. By sharing responsibilities related to food preparation and dietary monitoring, patients experience reduced decision fatigue and increased motivation to maintain healthy eating patterns. This can improve metabolic outcomes, such as better glycemic control and lower HbA1c levels ((ADA), 2023; Evert et al., 2019). However, the quality and consistency of family support can vary. Support that is overly controlling or misaligned with nutritional goals may hinder dietary compliance. Therefore, family members should be educated on appropriate dietary practices and provided with supportive, non-judgmental assistance. In conclusion, strengthening instrumental family support should be a key component of diabetes management programs. Health practitioners should consider involving family members in nutrition education sessions to foster a collaborative environment that promotes sustainable dietary compliance among individuals with T2DM.

## CONCLUSION

Instrumental support from family members plays a crucial role in improving dietary adherence among individuals with T2DM. Engagement in routine tasks such as meal preparation and grocery procurement substantially facilitates compliance with medical nutrition therapy and contributes to optimal glycemic regulation. Therefore, fostering active family involvement through structured educational interventions and collaborative care approaches is fundamental to achieving sustained diabetes self-management outcomes.

## REFERENCE

- (ADA), A. D. A. (2023). Diabetes Care: Standards of Care in Diabetes 2023. *The Grants Register 2024*, 46(January), 64–64. [https://doi.org/10.1057/978-1-349-96073-6\\_16356](https://doi.org/10.1057/978-1-349-96073-6_16356)
- Al-Salmi, N., Cook, P., & D'souza, M. S. (2022). Diet Adherence among Adults with Type 2 Diabetes Mellitus: A Concept Analysis. *Oman Medical Journal*, 37(2). <https://doi.org/10.5001/omj.2021.69>
- CDC Diabetes. (2024). *Methods for the National Diabetes Statistics Report*. [https://www.cdc.gov/diabetes/php/data-research/methods.html?CDC\\_AAref\\_Val=https://www.cdc.gov/diabetes/data/statistics-report](https://www.cdc.gov/diabetes/php/data-research/methods.html?CDC_AAref_Val=https://www.cdc.gov/diabetes/data/statistics-report)
- Evert, A. B., Dennison, M., Gardner, C. D., Timothy Garvey, W., Karen Lau, K. H., MacLeod, J., Mitri, J., Pereira, R. F., Rawlings, K., Robinson, S., Saslow, L., Uelman, S., Urbanski, P. B., & Yancy, W. S. (2019). Nutrition therapy for adults with diabetes or prediabetes: A consensus report. *Diabetes Care*, 42(5), 731–754. <https://doi.org/10.2337/dci19-0014>

- Gao, K. (2025). *Analysis of factors influencing the prevalence of type 2 diabetes mellitus*. 0, 110–117. <https://doi.org/10.54254/2753-8818/50/2024AU0140>
- Hiefner, A. R., Raman, S., & Woods, S. B. (2024). Family Support and Type 2 Diabetes Self-management Behaviors in Underserved Latino/a/x Patients. *Annals of Behavioral Medicine*, 58(7), 477–487. <https://doi.org/10.1093/abm/kaae023>
- International Diabetes Federation. (2021). *IDF Diabetes Atlas (10th ed.)*. <https://diabetesatlas.org/>
- Khan, M. A. B., Hashim, M. J., King, J. K., Govender, R. D., Mustafa, H., & Kaabi, J. Al. (2020). Epidemiology of Type 2 diabetes - Global burden of disease and forecasted trends. *Journal of Epidemiology and Global Health*, 10(1), 107–111. <https://doi.org/10.2991/JEGH.K.191028.001>
- Primadani, M., Mulasari, S. A., & Sunarti, S. (2022). The Role of Family Support on Self-Care Behavior in Patients Diabetes Mellitus (DM) Type 2. *Jurnal Berkala Kesehatan*, 8(2), 100. <https://doi.org/10.20527/jbk.v8i2.14024>
- Ridwan, R. K. S., & Dewi, A. D. A. (2024). Family Support and Dietary Adherence in Individuals with Type 2 Diabetes Mellitus in Banten, Indonesia. *Jurnal Gizi Dan Pangan*, 19(Supp.1), 27–34. <https://doi.org/10.25182/jgp.2024.19.supp.1.27-34>
- Thalia Florencia Da Costa Cabral, & Amin Samiasih. (2024). Family Support on Dietary Adherence Through Motivation in Patients with Diabetes Mellitus Type 2: A systematic review. *Open Access Research Journal of Science and Technology*, 11(2), 013–019. <https://doi.org/10.53022/oarjst.2024.11.2.0085>
- Wibowo, T. ari, Sisilia Ananda Putri, & Slamet Purnomo. (2024). Intrumental Support Familly for Diet Compliance With Type 2 Diabetes Mellitus. *Jurnal Keperawatan Widya Gantari Indonesia*, 8(1), 45–50. <https://doi.org/10.52020/jkwgi.v8i1.6806>
- World Health Organization. (2023). *Diabetes*. <https://www.who.int/news-room/fact-sheets/detail/diabetes>