

The Relationship of Knowledge and Family Support with the Compliance of the Diet of Patients with Diabetes Mellitus

M Ramadhani Firmansyah^{1*}, Lisa Rizky Amalia², Rahayu Tri Nuritasari³, Ana Fitria Nusantara⁴, & Yoanita Hijriyati⁵

¹*STIK Siti Khadijah, Indonesia, ²Universitas Sriwijaya, Indonesia, ³Universitas 'Aisyiyah Palembang, Indonesia, ⁴Universitas Hafshawaty Zainul Hasan, Indonesia, ⁵Universitas Binawan, Indonesia

*Co e-mail: ramadhani2687@gmail.com¹

Article Information

Received: July 15, 2025

Revised: August 30, 2025

Online: September 08, 2025

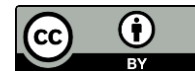
Keywords

Diabetes Mellitus, Knowledge, Family Support, Diet Compliance

ABSTRACT

Diabetes mellitus (DM) is a chronic disease requiring long-term management, particularly through adherence to dietary recommendations to maintain blood glucose stability and prevent complications. Nevertheless, many patients show poor compliance with dietary guidelines. This study aimed to determine the relationship between patients' knowledge, family support, and dietary adherence in DM management. A quantitative cross-sectional design was employed with 75 outpatients at Ambacang Health Center, selected through purposive sampling. Data collection used standardized and validated questionnaires, and analysis was performed using the chi-square test. The results demonstrated significant associations between knowledge and dietary compliance ($p = 0.012$) as well as between family support and dietary compliance ($p = 0.001$). Patients with higher knowledge and stronger family support were more likely to adhere to dietary recommendations. These findings emphasize the importance of educational interventions involving both patients and families. Family support in emotional, motivational, and practical aspects enhances commitment to following dietary plans. In conclusion, adequate knowledge and strong family support play crucial roles in improving dietary adherence among DM patients. Healthcare providers are encouraged to provide ongoing education for both patients and families to strengthen adherence to dietary management and optimize diabetes care outcomes.

Keywords; Diabetes Mellitus, Knowledge, Family Support, Diet Compliance



INTRODUCTION

Diabetes mellitus (DM) is a chronic disease with a steadily increasing global prevalence. According to the International Diabetes Federation (IDF) 2023, approximately 530 million people worldwide are living with DM, and this number is projected to continue rising in line with global lifestyle changes, including in developing countries such as Indonesia. In Indonesia, the increasing incidence of type 2 diabetes has become a major public health concern. Data from the 2018 Basic Health Research (Riskesdas) survey showed a continuous rise in DM prevalence, making it one of the leading contributors to the national burden of chronic diseases. Poorly controlled DM can lead to serious complications, such as cardiovascular disease, nephropathy, retinopathy, and lower extremity amputations. Therefore, comprehensive DM management is essential, encompassing pharmacological treatment, health education, lifestyle modification, dietary regulation, physical activity, and, importantly, social support from family members.

One of the main strategies in managing type 2 diabetes is the adoption of a healthy lifestyle, particularly adherence to an appropriate diet. A well-balanced diet with proper regulation of portion size, food type, and meal schedule helps maintain stable blood glucose levels and prevents complications. However, studies indicate that patient adherence to recommended dietary guidelines remains low. Many individuals with DM struggle to control their food intake due to internal factors, such as knowledge, and external factors, such as social support.

Dietary adherence is one of the fundamental pillars of DM control. A properly regulated diet helps maintain blood glucose within normal limits and prevents long-term complications. Nevertheless, in practice, many patients are unable to consistently follow the dietary recommendations provided by healthcare professionals.

A study in Pekanbaru (2024) reported that 73.3% of diabetes patients demonstrated low dietary adherence. The same study also found a significant association between lack of family support and low dietary adherence ($p = 0.000$). Similar findings were observed in Medan (2023), where patients who received strong family support were more likely to adhere to dietary guidelines ($p = 0.038$). These results highlight the crucial role of family as an external factor in supporting behavioral changes among patients.

However, the relationship between patient knowledge and dietary adherence remains debated in the literature. A study conducted at Kayon Health Center, Palangka Raya (2024), reported no significant association between knowledge and dietary adherence ($p = 0.670$), although family support continued to show a significant effect ($p = 0.034$). In contrast, a study at Muhammad Sani Hospital (2022) found different results, showing that both knowledge ($p = 0.040$) and family support ($p = 0.001$) were significantly associated with dietary adherence. These findings suggest that knowledge can play an important role when reinforced by a supportive social environment, particularly within the family.

Intervention studies also reinforce the importance of family involvement in DM management. Research in Surakarta (ASJN, 2024) confirmed a significant relationship between active family participation in dietary management and improved adherence among type 2 diabetes



patients. Family support in the form of motivation, reminders for meal and medication times, and the provision of healthy foods is a key determinant of successful DM control. Therefore, patient knowledge and family support should be viewed as complementary components in improving dietary adherence and enhancing the quality of life of individuals with diabetes.

Beyond biological aspects, psychosocial and cultural factors also influence dietary adherence among DM patients. In Indonesia, where communal culture and consumption of carbohydrate- and fat-rich foods are prevalent, dietary modification is often challenging. Without support from their immediate social environment, particularly family, patients face greater difficulties in maintaining a healthy diet. Families who lack awareness of the importance of dietary management may hinder adherence, while those who are knowledgeable and attentive can act as motivators and companions in consistently implementing dietary control.

Patient knowledge itself plays a significant role in shaping attitudes and behaviors toward dietary recommendations. When patients understand the risks and consequences of non-adherence, they tend to develop stronger internal motivation to follow medical advice. However, a study by Fitriyani et al. (2023) found that although patients received nutritional education, only 40% were able to consistently apply it in daily life. This emphasizes that knowledge alone, without reinforcement from the social environment, is insufficient to achieve the desired health behaviors.

Family support has multiple dimensions, encompassing not only practical assistance, such as providing appropriate meals, but also emotional, motivational, and, in some contexts, spiritual support. Family-based healthcare models have proven effective in managing chronic diseases across various countries. This approach positions the family as an active partner in care rather than a passive observer. In diabetes management, families can act as agents of change, assisting patients in developing and maintaining healthy behaviors, including dietary adherence.

This context forms the foundation for research exploring the relationship between knowledge, family support, and dietary adherence in patients with DM. With a sample of 75 respondents, this study aims to generate valid data that can serve as a basis for designing sustainable education- and family-support-based interventions, particularly at the primary healthcare level. The findings are expected to provide a deeper understanding of the importance of health education and family involvement in the successful management of DM. Moreover, the results can inform the development of health policies and programs that emphasize family engagement as a key partner in chronic disease management, specifically in improving dietary adherence among patients with type 2 diabetes mellitus.

METHODS

This study was conducted at the Ambacang Community Health Center in 2024. The setting was chosen because the health center has a relatively high number of type 2 diabetes mellitus patients undergoing routine treatment and dietary monitoring. Although the research site was limited to a single location, the findings are expected to provide an overview of patient knowledge, family support, and dietary adherence within this community.

The study sample consisted of 75 respondents who met the inclusion criteria, namely patients diagnosed with type 2 diabetes mellitus for at least six months. Most respondents were women and over 45 years of age. While this demographic distribution reflects the characteristics of patients visiting the health center, it also indicates that the sample may not fully represent the wider population of type 2 diabetes patients.

Data were collected during outpatient follow-up visits using a structured questionnaire. The instrument consisted of three main sections: (1) knowledge of diabetes mellitus and dietary management, (2) family support measured with a Likert scale, and (3) dietary adherence assessed according to established dietary guidelines. The questionnaire was tested for validity using the Pearson Product Moment correlation, and reliability was confirmed prior to data collection.

RESULTS

1. Univariate Analysis

Table 1. Univariate Analysis of Respondent Characteristics (n = 75)

Variable	Category	Frequency (n)	Percentage (%)
Age	< 45 year	20	26,7%
	≥ 45 year	55	73,3%
Gender	Men	28	37,3%
	Female	47	62,7%
Knowledge of DM	Good	41	54,7%
	Less	34	45,3%
Family Support	Height	44	58,7%
	Low	31	41,3%
Diet Compliance	Obedient	46	61,3%
	Disobedient	29	38,7%

The results showed that most respondents were aged 45 years and above (73.3%), indicating that type 2 diabetes mellitus is more common among older adults. In terms of gender, women dominated the sample (62.7%), suggesting that they are more frequently diagnosed or more likely to attend follow-up visits at health facilities. Regarding knowledge, 54.7% of respondents had good knowledge of diabetes mellitus and dietary recommendations, while 45.3% still had limited understanding, which highlights the need for additional education. In terms of family support, 58.7% of patients reported receiving strong support in managing diet and treatment, whereas 41.3% received less optimal support. With respect to dietary adherence, 61.3% of respondents were classified as compliant, while 38.7% were non-compliant.



2. Relationship Between Knowledge and Family Support with Dietary Adherence

Bivariate analysis using The Chi-Square test to determine the relationship between variables.

Table 2. Bivariate Analysis: The Relationship Between Knowledge and Family Support with Diet Compliance (N = 75)

Variable	Diet Compliance	Obedient (n)	Disobedient (n)	Total (n)	Percentage	
					Of Compliance	p-value
Knowledge of DM	Good	33	8	41	80,5%	0,012*
	Less	13	21	34	38,2%	
Family Support	Height	36	8	44	81,8%	0,001*
	Low	10	21	31	32,3%	

*p-value < 0,05 shows a statistically significant relationship.

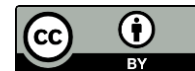
The bivariate analysis revealed a significant association between knowledge level and dietary adherence among diabetes mellitus patients. Of the 41 patients with good knowledge, 33 (80.5%) adhered to the diet, whereas only 13 (38.2%) of the 34 patients with limited knowledge were compliant, with a chi-square test showing a p-value of 0.012. A very strong relationship was also found between family support and dietary adherence (p = 0.001); among 44 patients who received high family support, 36 (81.8%) adhered to the diet, compared to only 10 (32.3%) of the 31 patients with low family support. These findings highlight that both adequate knowledge and strong family support play crucial roles in improving patient adherence to recommended dietary management.

DISCUSSION

1. Univariate Analysis

The findings of this study showed that the majority of respondents (73.3%) were in the age group of 45 years, consistent with global and national evidence indicating that type 2 diabetes mellitus (T2DM) is more prevalent among the elderly. According to the International Diabetes Federation (IDF, 2023), the prevalence of T2DM rises significantly with age due to declining insulin function and increased insulin resistance. Similarly, a national study by Sari et al. (2024) reported that most DM patients in Indonesia were aged over 45 years, with lifestyle factors and comorbidities contributing to their risk. These findings highlight the importance of prioritizing education and management interventions for older adults to achieve better outcomes.

By gender, the majority of respondents were women (62.7%), a result consistent with the findings of Hilyah et al. (2023), who reported higher treatment adherence among women due to their active role in family health management and greater awareness of chronic disease control. Putri et al. (2022) also noted that women are more likely than men to adopt healthy lifestyles and engage in decision-making regarding health behaviors, which positively influences diabetes management. Such evidence suggests the need to design gender-sensitive education and support programs.



In terms of knowledge, 54.7% of respondents demonstrated good understanding of DM and dietary management, a proportion comparable to findings reported by Putri et al. (2022). However, 45.3% of patients still showed insufficient knowledge. A meta-analysis by Wijaya et al. (2025) emphasized that limited knowledge remains one of the main barriers to dietary compliance and optimal disease management. This indicates the need for continuous, tailored education to address knowledge gaps and support long-term treatment success.

Family support was reported as high by 58.7% of patients. This differs from the findings of Roni et al. (2024) in Pekanbaru, who reported lower levels of family support (36.7%), although both studies confirmed its critical role in shaping dietary behavior. Family involvement is widely recognized as a key factor in DM management, serving as a source of motivation and reminders for diet and treatment adherence, as supported by Tampubolon et al. (2023). The relatively high family support in this study may reflect strong socio-cultural characteristics that encourage family participation in health management.

Dietary adherence was observed in 61.3% of respondents, a figure comparable to previous studies by Asnaniar et al. (2024) and Ariyani et al. (2024), which reported adherence rates between 63% and 74%. This relatively high compliance may result from the combined effects of adequate knowledge and strong family support. Nevertheless, the proportion of non-adherent patients remains significant, underscoring the need for interventions to further strengthen adherence and reduce the risk of serious DM complications.

Overall, the univariate analysis highlights the distribution of key variables—age, gender, knowledge, family support, and dietary adherence—that reflect the real conditions of DM patients in the community. These findings align with both national and international studies, reinforcing the importance of targeted educational and social interventions. Strengthening education, particularly among the elderly, and empowering families to provide consistent support are strongly recommended to enhance comprehensive diabetes management.

2. Relationship Between Knowledge and Family Support with Dietary Adherence

The results showed that patient knowledge had a significant correlation with dietary adherence ($p = 0.012$), and family support also demonstrated a highly significant relationship ($p = 0.001$). These findings are consistent with Osa Putri et al. (2022), who reported a significant link between knowledge and adherence ($p = 0.040$), confirming that good understanding of diabetes and dietary recommendations enhances patient compliance. According to the Health Belief Model (Rosenstock, 2023), knowledge serves as the foundation for health decision-making, where perceived risks and benefits strongly influence patient behavior.

In addition, strong family support was shown to significantly improve dietary and medication adherence, as reported by Hilyah et al. (2023), Roni et al. (2024), Asnaniar et al. (2024), and Tampubolon et al. (2023). Family support provides not only emotional motivation but also practical assistance, such as preparing healthy meals, reminding medication schedules, and accompanying patients to health check-ups. However, studies by Salsabilla et al. (2024) emphasize



that knowledge alone is insufficient; without adequate family involvement, patients often struggle to follow dietary recommendations. This suggests that interventions focusing solely on patient education are less effective than those integrating both education and family engagement.

A meta-analysis by Kurniawan et al. (2025) further strengthens this argument, showing that patients with both good knowledge and strong family support were three times more likely to adhere to dietary recommendations compared to those with only one of these factors. Psychosocial aspects also play a role; Prasetyo and Nugroho (2024) found that family support helps reduce stress, one of the main barriers to adherence, thereby facilitating better self-management. Moreover, different types of support contribute differently: Sari et al. (2023) noted that instrumental and emotional support had a stronger impact on compliance than informational support alone.

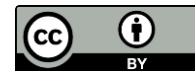
Nonetheless, cultural and social contexts may influence the effectiveness of family support. Rahmawati et al. (2024) highlighted that in some communities, stigma surrounding chronic disease can limit family involvement, underscoring the need for culturally sensitive intervention programs. Furthermore, factors such as access to health services, economic status, and education level also affect adherence, suggesting the importance of a multidisciplinary and holistic approach to diabetes management.

Overall, this study confirms that dietary adherence among patients with Diabetes Mellitus is shaped not only by individual knowledge but also by family support. Therefore, education and intervention programs should be designed to strengthen both aspects simultaneously, integrating knowledge enhancement with family empowerment to ensure sustainable adherence and reduce the risk of complications.

CONCLUSIONS

The univariate analysis showed that most respondents were aged 45 years and above, with women as the majority, reflecting the general characteristics of Type 2 Diabetes Mellitus patients who are commonly found in the elderly and highlighting the active role of women in family health management. Most respondents demonstrated good knowledge regarding Diabetes Mellitus and dietary management, as well as receiving relatively high levels of family support. These conditions contribute to a fairly good level of dietary adherence, confirming that demographic factors, knowledge, and family support each influence the dietary behavior of patients.

The analysis further confirmed a significant relationship between patient knowledge and family support with dietary adherence. Adequate knowledge enhances patients' awareness and understanding of dietary regulation, while family support plays a crucial role in facilitating and maintaining healthy dietary behavior. Nevertheless, the findings emphasize that knowledge alone, without sufficient family support, is less effective in achieving optimal adherence. Thus, comprehensive management of Diabetes Mellitus should integrate patient education with family empowerment to create a supportive environment for sustainable behavior change and reduce the risk of complications.



From a policy perspective, diabetes education and dietary management programs need to be developed in an integrated manner through both family- and community-based approaches, and embedded within routine primary health care services. Implementation can be strengthened through health cadre training, family counseling by primary health care providers, and reinforcement of community-based programs such as *posyandu* and the Chronic Disease Management Program (*Prolanis*). Moreover, regulatory support is essential to ensure active family involvement in patient education sessions, for example through structured home visits and culturally adapted educational modules. With such an approach, synergy between patients, families, health workers, and communities can be established to enhance dietary adherence and improve long-term Diabetes Mellitus control.

ACKNOWLEDGMENT

The author would like to thank all those who have provided support in the process of research and writing this article. Thank you to all respondents who have been willing to take the time to participate in this study. The weakness in this study is the demographic characteristics of respondents who are mostly women and over 45 years of age make the results of this study less generalizable to younger age groups or men with Type 2 Diabetes mellitus. Finally, this study was conducted in only one location, namely the Ambacang Padang Health Center, so the results do not reflect the condition of the wider population, especially in areas with different socio-cultural characteristics and health care systems.

REFERENCES

- Ariyani, N., Iskandar, M., & Hasanah, N. (2024). *The role of social support in diabetes mellitus management*. *Journal of Health Sciences*, 20(1), 55–63.
- Asnaniar, Y., Wulandari, D., & Santoso, B. (2024). Dietary adherence and influencing factors in type 2 diabetes mellitus patients. *Journal of Public Health Faculty UMI*, 16(2), 120–129. <https://jurnal.fkm.umi.ac.id/index.php/jkkm/article/view/789>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Thousand Oaks, CA: SAGE Publications.
- Hilyah, D., Rahayu, S., & Nugroho, T. (2023). The role of gender in medication adherence among diabetes mellitus patients in Indonesia. *Faculty of Medicine Unpad Journal*, 12(2), 101–110.
- International Diabetes Federation. (2023). *IDF diabetes atlas* (11th ed.). Brussels: International Diabetes Federation. <https://diabetesatlas.org/>
- Kurniawan, A., Santosa, H., & Dewi, R. (2025). Meta-analysis of the effect of knowledge and family support on dietary adherence in diabetes mellitus patients. *Scientific Journal of Health*, 18(1), 33–46.



This work is licensed under a [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/)

Professional Evidence-based Research and Advances in Wellness and Treatment (PERAWAT)

Vol. 02, No. 3, September 2025

- Osa Putri, F., Rahman, S., & Lestari, D. (2022). The relationship between patient knowledge and dietary adherence in diabetes mellitus patients. *AISKA University Journal*, 5(2), 77–85. <http://journal.aiska-university.ac.id/index.php/jika/article/view/138>
- Prasetyo, B., & Nugroho, A. (2024). The effect of family support on stress and dietary adherence in diabetes mellitus patients. *Journal of Health Psychology*, 11(2), 74–83.
- Putri, M., Sari, L., & Rahman, A. (2022). The effect of knowledge on dietary adherence in type 2 diabetes mellitus patients. *Kendal Health Journal*, 8(1), 45–53. <https://jurnal.umpwr.ac.id/index.php/khj/article/view/2675>
- Rahmawati, E., Fauzi, M., & Putri, R. (2024). Social stigma and family involvement in diabetes mellitus management. *Journal of Social and Health Sciences*, 6(1), 22–31.
- Roni, M., Hartono, E., & Pratama, D. (2024). Family support and dietary adherence in diabetes mellitus patients in Pekanbaru. *Pekanbaru Health Journal*, 10(3), 89–98. <https://jurnal.htp.ac.id/index.php/PHJ/article/view/1654>
- Salsabilla, I., Ramadhan, F., & Putra, J. (2024). Knowledge and family support in dietary adherence of diabetes mellitus patients: A study in urban areas. *Thamrin Journal*, 7(1), 12–21.
- Sari, M., Wulandari, P., & Pranata, L. (2023). Types of family support and dietary adherence in diabetes mellitus patients. *Indonesian Health Journal*, 9(3), 101–110.
- Sari, R., Wijaya, F., & Putra, A. (2024). Risk factors and management of type 2 diabetes mellitus in elderly patients in Indonesia. *Indonesian Public Health Journal*, 15(1), 23–34.
- Sugiyono. (2019). *Quantitative, qualitative, and R&D research methods*. Bandung: Alfabeta.
- Tampubolon, P., Situmorang, R., & Pangaribuan, R. (2023). The effect of family support on dietary behavior in diabetes mellitus patients. *Medical Health Journal*, 14(4), 150–159.