

The Relationship between Family Support and Self-Care among Patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency

Resky Awaliah¹, Suarnianti^{2*}, Darwis³

^{1,2,3} Department of Nursing, Institut Nani Hasanuddin, Makassar, Indonesia

*Correspondence: Suarnianti, Email: suarnianti@stikesnh.ac.id

Received: July 1, 2026 ◦ Revised: July 31, 2026 ◦ Accepted: August 1, 2026

ABSTRACT

Background: Type 2 diabetes mellitus is a chronic disease requiring continuous self-care to maintain glycaemic control and prevent complications. Family support plays an important role in facilitating patients' adherence to dietary management, physical activity, medication, and other self-care behaviours. However, the relationship between family support and self-care among patients with type 2 diabetes mellitus requires further assessment in primary healthcare settings.

Objective: To determine the relationship between family support and self-care among patients with type 2 diabetes mellitus at the Blue Community Health Center (UPT) in Bone Regency.

Methods: A quantitative study with a cross-sectional design was conducted among 125 patients with type 2 diabetes mellitus selected using purposive sampling. Data were collected using the Hensarling Diabetes Family Support Scale and the Diabetes Self-Management Questionnaire (DSMQ). Data were analysed using the chi-square test, with statistical significance set at $p < 0.05$.

Results: Most respondents had good family support (94 respondents; 75.2%) and high levels of self-care (82 respondents; 65.6%). The chi-square analysis demonstrated a statistically significant relationship between family support and self-care among patients with type 2 diabetes mellitus ($p < 0.001$).

Conclusion: Family support was significantly associated with self-care among patients with type 2 diabetes mellitus. Strengthening family involvement and support may therefore contribute to improved self-care practices and ongoing diabetes management.

Keywords: family support; self-care; self-management; type 2 diabetes mellitus; diabetes management

INTRODUCTION

Health development in Indonesia is facing increasingly complex challenges as a result of changes in disease patterns, commonly referred to as the *double burden of disease*. This phenomenon reflects a situation in which communicable diseases remain major public health concerns while the prevalence of non-communicable diseases (NCDs) continues to increase substantially. NCDs encompass various chronic conditions, including coronary heart disease, diabetes mellitus (DM), hypertension, cancer, chronic obstructive pulmonary disease (COPD), as well as injuries resulting from accidents and violence (Hidayat et al., 2025). This situation has become an important concern for the government because it contributes to increasing healthcare and economic burdens, reduced productivity, and declining quality of life.

One of the NCDs showing a substantial increase in Indonesia is diabetes mellitus. Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels (hyperglycemia) resulting from abnormalities in insulin secretion, insulin action, or both. This condition disrupts the metabolism of carbohydrates, fats, and proteins. In general, diabetes mellitus develops when the pancreas does not produce sufficient insulin or when the body is unable to effectively utilize the insulin it produces, resulting in persistently elevated blood glucose levels and an increased risk of long-term complications (Sulastri, 2022).

According to the World Health Organization (WHO, 2022), approximately 422 million people worldwide were living with diabetes, making it one

of the leading causes of mortality globally. Projections from the International Diabetes Federation (IDF) indicate that the number of people with diabetes may increase substantially, reaching approximately 783.7 million by 2045, representing a 46% increase from the estimated 536.6 million people in 2021. This trend demonstrates that diabetes mellitus has become a major global public health challenge requiring multisectoral action and sustained preventive efforts (WHO, 2022).

A similar trend has been observed in Indonesia, where the prevalence of diabetes has continued to increase. Data from the Ministry of Health of the Republic of Indonesia (2022) estimated that approximately 19.47 million people in Indonesia were living with diabetes. At the provincial level, the highest prevalence was reported in Jakarta (3.4%), while the lowest was recorded in East Nusa Tenggara (0.9%). In eastern Indonesia, the prevalence of diabetes mellitus was reported to be approximately 12%, with the risk of diabetic foot ulcers reaching 55.4%. South Sulawesi is among the Indonesian provinces with a relatively high burden of diabetes, with approximately 1.6% of cases diagnosed by physicians in the population (Ministry of Health of the Republic of Indonesia, 2022).

Furthermore, data from the South Sulawesi Provincial Health Office (2021) indicated that diabetes mellitus ranked second among NCDs after cardiovascular diseases, with a reported prevalence of 15.79% in 2020. Diabetes mellitus was also reported as the leading cause of death in South Sulawesi, accounting for 41.56% of deaths. Several areas reported relatively high prevalence rates,

including Tana Toraja Regency (6.1%), Makassar City (5.3%), Luwu Regency (5.2%), and North Luwu Regency (4.0%). These figures demonstrate that diabetes is not only a national public health concern but also represents a significant regional challenge, including in Bone Regency and particularly within the service area of UPT Puskesmas Biru (South Sulawesi Provincial Health Office, 2021).

The significance of diabetes mellitus extends beyond its increasing prevalence because uncontrolled blood glucose levels can lead to various serious complications. These include macrovascular complications, such as coronary heart disease and stroke, as well as microvascular complications, including diabetic nephropathy and diabetic retinopathy. Diabetic foot ulcers may also develop as a consequence of peripheral neuropathy and vascular impairment and may eventually lead to amputation if inadequately managed (Wilson et al., 2024). Such complications can substantially affect patients' quality of life across physical, psychological, and social dimensions.

In efforts to prevent complications and improve patient well-being, the ability of individuals with diabetes to perform self-care is an essential component of disease management. Diabetes self-care encompasses a range of behaviors, including dietary management, physical activity, medication adherence, and regular monitoring of health status and blood glucose levels. However, the effectiveness of self-care may be influenced by various external factors, one of which is family support. Family support is particularly important because diabetes requires long-term and complex management involving sustained lifestyle modifications and adherence to treatment recommendations (Marselin et al., 2021).

Diabetes-related conditions and comorbidities, including obesity, hypertension, and impaired physical functioning, may further challenge patients' ability to maintain adequate self-care. In this context, family support can facilitate the consistent implementation of recommended self-care behaviors. Such support may take the form of emotional encouragement, health-related information, and practical assistance that motivates patients to adhere to prescribed treatment, maintain an appropriate diet, and monitor their blood glucose levels regularly. Adequate family support may therefore assist patients in achieving better disease control and reducing the risk of severe complications (Mokoena et al., 2022).

Aryanto et al. (2024) reported a significant association between family support and quality of life among patients with Type 2 Diabetes Mellitus. Their findings suggest that family support plays an important role in helping patients cope with and manage their disease. However, the study did not specifically examine the relationship between family support and self-care among patients with diabetes in Bone Regency. This represents an important gap in the available evidence, particularly in the context of community-based diabetes management.

Preliminary data obtained by the researchers from UPT Puskesmas Biru, Bone Regency, indicated a considerable number of patients with Diabetes Mellitus. In 2024, the recorded number of cases reached 674 patients. Similarly, during January–September 2025, the recorded number was 674 patients, while data from August–September 2025 identified 159 patients with Type 2 Diabetes Mellitus. These figures indicate the substantial burden of diabetes within the service area of UPT Puskesmas Biru.

Considering the high burden of diabetes mellitus in South Sulawesi, particularly within the service area of UPT Puskesmas Biru, Bone Regency, and the importance of optimal self-care in preventing disease complications, research examining factors associated with self-care is warranted. Diabetes mellitus affects not only physical health but also patients' overall quality of life, including psychological and social well-being. Family support may serve as an important factor in facilitating long-term disease management, ranging from medication adherence to the adoption and maintenance of healthy lifestyle behaviors.

This evidence gap highlights the need to investigate the relationship between family support and self-care among patients with Type 2 Diabetes Mellitus within the local context. The findings of this study are expected to provide context-specific evidence regarding the role of family support in promoting diabetes self-care and to serve as a basis for developing targeted and appropriate health interventions within the UPT Puskesmas Biru service area.

METHODS

This study employed a quantitative research design with a cross-sectional approach, in which the study variables were measured at a single point in time to examine the relationship between family support and self-care among patients with Type 2 Diabetes Mellitus. The research methodology included the study design, sample size, eligibility criteria, sampling technique, research instruments, data collection procedures, data processing, and data analysis.

The study population consisted of 182 patients with Type 2 Diabetes Mellitus registered at UPT Puskesmas Biru, Bone Regency. The sample size was determined using Slovin's formula with a 5% margin of error, resulting in a total of 125 respondents. The participants were selected using purposive sampling. This technique involves selecting participants based on predetermined criteria established by the researchers, including specific inclusion and exclusion criteria.

Inclusion Criteria

- Patients who have been diagnosed with Type 2 Diabetes Mellitus by a healthcare professional.
- Patients with Type 2 Diabetes Mellitus who are registered at and receiving treatment at UPT Puskesmas Biru, Bone Regency.
- Patients aged ≥ 18 years who are conscious and able to communicate effectively.

- Patients who are willing to participate as respondents by signing the informed consent form.

Exclusion Criteria

- Patients diagnosed with Type 1 Diabetes Mellitus.
- Patients with severe complications or acute conditions that interfere with their ability to complete the questionnaire.
- Patients with cognitive or communication impairments.
- Patients who decline to participate or withdraw from the study during the research process.

The research instruments consisted of questionnaires, namely the Hensarling Diabetes Family Support Scale (HDFSS) to assess family support and the Diabetes Self-Management Questionnaire (DSMQ) to assess self-care. Both instruments had undergone validity and reliability testing and were therefore considered appropriate for

use in this study. Data were collected by administering the questionnaires to respondents after they had received an explanation of the study and provided informed consent.

The collected data were processed through several stages, including editing, coding, data entry, and data cleaning. Univariate analysis was performed to describe the frequency distribution of each study variable, while bivariate analysis using the Chi-square test was conducted to examine the association between family support and self-care. Statistical significance was set at $p < 0.05$.

This study adhered to relevant research ethics principles, including informed consent, anonymity, and confidentiality, to protect the rights and privacy of the respondents. Ethical approval was granted by the Research Ethics Committee of Institut Nani Hasanuddin on January 28, 2026, under approval number 042/STIKES-NH/KEPK/I/2026.

RESULT

Univariate Analysis

Table 1. Respondents' Characteristics (n=125)

Characteristics	frequency	Percentage (%)
Age		
35-45 years	10	8.0
46-57 years	60	48.0
58-67 years	6	4.8
68-70 years	49	39.2
Gender		
Male	17	13.6
Female	108	86.4
Educational level		
Higher Education	2	1.6
High School	72	57.6
Junior High School	24	19.2
Elementary School	26	20.8
Unschoolled	1	0.8
Occupation		
Housewife	71	56.8
Civil Servant/Retiree	2	1.6
Unemployed	42	33.6
Entrepreneur	10	8.0
Marital Status		
Single	1	0.8
Widowed	26	20.8
Married	98	78.4
Duration of diabetes		
<5 years	81	64.8
>5 years	44	35.2
Complications		
Complicated	59	47.2
Uncomplicated	66	52.8

Based on **Table 1**, the majority of respondents were aged 46–57 years, accounting for 60 respondents (48.0%), with females predominating at 108 respondents (86.4%). Most respondents had completed elementary school education, comprising

72 respondents (57.6%), while the most common occupation was housewife, with 71 respondents (56.8%). In addition, the majority of respondents were married, totaling 98 respondents (78.4%).

Table 2. Distribution of Family Support among Patients with Type 2 Diabetes Mellitus at Biru Community Health Center, Bone Regency, 2025 (n=125)

Dukungan Keluarga	Frequency (f)	Percentage (%)
Kurang Baik	31	24.8
Baik	94	75.2
Total	125	100.0

Based on **Table 2**, the majority of respondents had family support in the good category, comprising 94 respondents (75.2%), while 31 respondents (24.8%) had poor family support. This indicates that most

respondents received good support from their families in managing and undergoing treatment for their illness.

Table 3. Distribution of Self-Care among Patients with Type 2 Diabetes Mellitus at Biru Community Health Center, Bone Regency, 2025 (n=125)

Self care	Frequency (f)	Percentage (%)
Rendah	43	34.4
Tinggi	82	65.6
Total	125	100.0

Based on **Table 3**, the majority of respondents had a high level of self-care, comprising 82 respondents (65.6%), while 43 respondents (34.4%) had a low

level of self-care. This indicates that most respondents were able to perform self-care effectively in managing their diabetes mellitus.

Bivariate Analysis

Table 4. Relationship between Family Support and Self-Care among Patients with Type 2 Diabetes Mellitus at Biru Community Health Center, Bone Regency, 2026

Family Support	Self care				Total		p
	Low	High					
	n	%	n	%	n	%	
Poor	0	0,0	1	50,0	4	8,51	<0.001
Good	6	78,9	22	85,2	27	57,45	

Table 4 shows that among the 31 respondents with poor family support, 19 (61.3%) had low self-care, while 12 (38.7%) had high self-care. In contrast, among the 94 respondents with good family support, 24 (25.5%) had low self-care and 70 (74.5%) had high self-care. These findings indicate that respondents who received good family support were more likely to have a high level of self-care than those who received poor family support. The Chi-square test revealed a statistically significant association between family support and self-care among patients with Type 2 Diabetes Mellitus ($p < 0.001$; $p < 0.05$).

DISCUSSION

Description of Family Support among Patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency

The findings from 125 respondents revealed that most patients with Type 2 Diabetes Mellitus received good family support. A total of 94 respondents (75.2%) were categorized as having good family support, whereas 31 respondents (24.8%) reported poor family support. These findings indicate that the majority of patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency, received adequate support from their families in managing and undergoing treatment for their condition. According to Friedman, Bowden, and Jones (2010), family support refers to the attitudes, actions, and acceptance demonstrated by family members toward a relative experiencing a health problem. Such support encompasses several dimensions, including emotional, informational, instrumental, and appraisal support. Family involvement plays an important role in facilitating the continuity of diabetes management, particularly by encouraging adherence to medication, supporting dietary

regulation, promoting physical activity, and assisting patients in monitoring their health status. The findings of this study are consistent with those reported by Anggrini et al. (2025), who found that the majority of respondents received good family support, with a proportion of 89%. Similar findings were reported by Syafriani et al. (2024), in which 85.2% of respondents were identified as receiving good family support. Furthermore, Damayanti et al. (2014) reported that more than half of the respondents (55.1%) had favorable family support. The consistency of these findings suggests that family support among individuals with Diabetes Mellitus generally tends to be at a good level. From the researchers' perspective, the high proportion of respondents receiving good family support in this study may be associated with strong family values and close relationships among family members in daily life. The involvement of spouses and other family members may provide emotional, instrumental, and informational assistance to patients throughout the course of diabetes management. Such involvement may include reminding patients about medication schedules and health check-ups, assisting with dietary management, providing encouragement, and accompanying patients in carrying out self-care activities. In addition, health education provided by healthcare professionals at the community health center may enhance the family's knowledge and understanding of the importance of supporting diabetes management. Therefore, active family involvement may serve as an important factor in helping patients maintain consistency in managing their condition and adhering to recommended self-care practices. **Self-Care among Patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency** The findings of this study involving 125 respondents showed that the majority of patients with Type 2 Diabetes Mellitus had a high level of self-

care. A total of 82 respondents (65.6%) were categorized as having high self-care, whereas 43 respondents (34.4%) had low self-care. These findings indicate that most patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency, were able to perform self-care activities relatively well as part of managing their condition.

Riegel et al. (2019) conceptualized self-care as a process through which individuals maintain their health and manage illness through three major components: self-care maintenance, self-care monitoring, and self-care management. Self-care maintenance refers to behaviors performed to maintain health stability, while self-care monitoring involves observing changes in one's health condition. Self-care management refers to the responses taken when signs or symptoms occur. For individuals with Type 2 Diabetes Mellitus, the ability to perform appropriate self-care is essential because effective disease management requires active and sustained participation in various health-related behaviors.

The findings are consistent with those of Ramadhani et al. (2019), who reported that most respondents demonstrated good self-care, accounting for 79.1%. Similar findings were reported by Sasombo et al. (2021), in which 54.2% of respondents were categorized as having good self-care. More recently, Kusuma et al. (2025) found that self-care among patients with Type 2 Diabetes Mellitus tended to be at a good level, although several aspects of self-care still required improvement. The consistency of these findings suggests that many individuals with Type 2 Diabetes Mellitus possess relatively adequate abilities to perform self-care, although the extent to which these behaviors are practiced may vary among individuals.

The relatively high level of self-care observed in this study may be associated with several respondent characteristics. Most respondents had been living with Diabetes Mellitus for less than five years (64.8%) and were married (78.4%). The duration of illness may provide patients with opportunities to gain experience and knowledge regarding diabetes management; however, longer or shorter disease duration does not necessarily correspond directly to better self-care practices. Meanwhile, being married may facilitate the involvement of a spouse in providing motivation and assistance with daily disease management. In addition, most respondents reported receiving good family support (75.2%), which theoretically may contribute to the maintenance of appropriate self-care behaviors.

From the researchers' perspective, the high level of self-care observed among patients with Type 2 Diabetes Mellitus may be associated with greater awareness of the importance of disease management, family support, and health education provided by healthcare professionals at the community health center. Health education can improve patients' understanding of medication adherence, dietary management, physical activity, health monitoring, and other self-care practices. Such knowledge may serve as an important foundation for encouraging patients to consistently engage in self-care behaviors.

In addition to external factors, self-care may also be influenced by individual internal factors, including locus of control. Haskas et al. (2020) reported that locus of control had a significant influence on the quality of life of patients with Type 2 Diabetes Mellitus ($p < 0.01$). Individuals with a predominantly internal locus of control tend to believe that their health condition can be influenced by their own efforts and behaviors, which may encourage greater personal responsibility for maintaining health and engaging in self-care. In contrast, individuals with an external locus of control may perceive their health condition as being influenced primarily by factors beyond their control, potentially resulting in less active involvement in disease management.

These findings further suggest that self-care among patients with Type 2 Diabetes Mellitus is not determined solely by external support, such as family involvement and health education, but is also influenced by individual internal factors. Awareness, beliefs, motivation, and a sense of responsibility toward one's health may play an important role in determining the extent to which patients are able to initiate, maintain, and manage self-care behaviors in their daily lives.

The Relationship between Family Support and Self-Care among Patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency

The findings showed that among the 31 respondents who received poor family support, 19 (61.3%) had low self-care, whereas 12 (38.7%) had high self-care. In comparison, among the 94 respondents who received good family support, 70 (74.5%) demonstrated high self-care and 24 (25.5%) demonstrated low self-care. The Chi-square test indicated a statistically significant association between family support and self-care among patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency ($p < 0.001$).

The distribution of respondents indicates a clear tendency for those receiving good family support to demonstrate higher levels of self-care. In the good family support group, 74.5% of respondents had high self-care, compared with only 38.7% among those receiving poor family support. Conversely, low self-care was more prevalent among respondents with poor family support (61.3%) than among those with good family support (25.5%). These findings suggest that the level of family support is associated with patients' ability to engage in appropriate self-care behaviors.

Family support may serve as a source of motivation, reminders, companionship, and practical assistance for individuals with Type 2 Diabetes Mellitus in managing their condition on a daily basis. Such support may encompass emotional, informational, instrumental, and appraisal support. Emotional support can be expressed through attention and concern for the patient's condition, whereas informational support may involve providing relevant information about diabetes management. Instrumental support may include practical assistance with treatment-related needs,

such as reminding patients to take their medication, helping them regulate their diet, or accompanying them to healthcare appointments. These forms of support may facilitate greater consistency in maintaining self-care behaviors.

From a theoretical perspective, family support represents an important component of an individual's social environment that may influence health-related behaviors. For individuals living with chronic conditions such as Type 2 Diabetes Mellitus, family involvement is particularly relevant because disease management requires sustained participation over time. Self-care is not limited to responding to symptoms when they occur but also involves routine health-maintenance behaviors, monitoring of health status, and ongoing management of health problems. Therefore, a supportive family environment may help patients maintain appropriate self-care practices in their everyday lives.

The findings are consistent with Sagala et al. (2023), who reported a significant association between family support and self-care activities among patients with Diabetes Mellitus ($p = 0.001$). Similar findings were reported by Faswita et al. (2022), who identified a significant relationship between family support and self-care ($p = 0.007$). These findings suggest that patients who receive greater support from their families tend to be more capable of maintaining self-care activities appropriately.

Marlinda et al. (2020) also reported a significant association between family support and self-care among patients with Diabetes Mellitus ($p = 0.006$). In their study, low self-care was more common among respondents with poor family support, accounting for 61.9%. This finding is comparable to the present study, in which 61.3% of respondents with poor family support demonstrated low self-care.

Family support may also contribute to specific aspects of diabetes management. Hilyah et al. (2025) found a significant association between family support and medication adherence ($p = 0.003$). Medication adherence is an important component of diabetes self-management; therefore, this finding suggests that family involvement may assist patients in maintaining treatment-related behaviors more consistently.

In addition to family support, self-care among individuals with Diabetes Mellitus may be associated with other factors, including health education. Watidjan et al. (2023) reported that health education had a significant effect on improving knowledge related to self-care ($p = 0.004$). Adequate knowledge may provide a foundation for understanding the importance of self-care and adopting appropriate health behaviors. In the context of the present study, health education delivered by healthcare professionals may have contributed to patients' and families' understanding of diabetes management. However, because health education was not examined as a study variable, its direct effect on self-care cannot be determined from the present findings.

From the researchers' perspective, the significant association between family support and self-care may be explained by the important role of family

members in helping patients manage their condition consistently. Family members can function as sources of motivation and information, provide reminders and companionship, and assist patients with treatment-related needs. When patients receive adequate family support, they may be more encouraged to maintain self-care behaviors, including following an appropriate diet, engaging in physical activity, adhering to prescribed medication, and monitoring their health status. Conversely, inadequate family support may limit the encouragement and practical assistance available to patients, potentially making it more difficult to maintain optimal self-care practices.

Overall, the findings demonstrate a significant association between family support and self-care among patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency. Patients receiving better family support tended to demonstrate higher levels of self-care. Nevertheless, this finding should be interpreted as an association rather than a causal relationship because the study employed a cross-sectional design in which the variables were assessed at a single point in time. Furthermore, self-care is a multidimensional behavior that may be influenced by various internal and external factors.

This study has several limitations. The sample was limited to patients with Type 2 Diabetes Mellitus at the study site; therefore, the findings should be interpreted cautiously and may not be broadly generalizable to all patients with Type 2 Diabetes Mellitus. In addition, the analysis was limited to the relationship between family support and self-care, while other potentially relevant factors, such as knowledge, motivation, duration of illness, socioeconomic status, and psychological factors, were not examined in depth. Future studies should consider these factors to provide a more comprehensive understanding of the determinants associated with self-care among individuals with Type 2 Diabetes Mellitus.

CONCLUSION

The results of this study indicate that the majority of patients with Type 2 Diabetes Mellitus at UPT Puskesmas Biru, Bone Regency, had good family support (75.2%) and high self-care (65.6%). The Chi-square test showed a significant relationship between family support and self-care among patients with Type 2 Diabetes Mellitus ($p = <0.001$; $p < 0.05$). Patients who received good family support tended to have higher levels of self-care than those who received poor family support. These findings support the hypothesis that family support is significantly associated with self-care among patients with Type 2 Diabetes Mellitus. Therefore, family involvement should be strengthened as an important component of diabetes management, particularly through emotional, informational, instrumental, and appreciation support. Health workers at UPT Puskesmas Biru are recommended to involve family members in health education and diabetes management programs to encourage patients to maintain consistent self-care behaviors.

REFERENCES

- Anggrini, G., Mikawati, E., Lusiana, E., Ake, J., & Ismail, H. (2025). Impact of family and nurse support on self-care behavior in diabetes mellitus patients. *Journal of Child, Family, and Consumer Studies*, 4(1), 1–11. <https://doi.org/10.29244/jcfcs.4.1.1-11>
- Aryanto, T. A., Sulastyawati, S., Pujiastuti, N., & Hidayah, N. (2024). Hubungan dukungan keluarga dengan kualitas hidup penderita diabetes melitus. *JUMANTIK (Jurnal Ilmiah Penelitian Kesehatan)*, 9(1), 63–71. <https://doi.org/10.30829/jumantik.v9i1.16986>
- Damayanti, S., Nursiswati, & Kurniawan, T. (2014). Dukungan keluarga pada pasien diabetes melitus tipe 2 dalam menjalankan self-management diabetes. *Jurnal Keperawatan Padjadjaran*, 2(1), 43–50.
- Dinas Kesehatan Provinsi Sulawesi Selatan. (2021). *Profil kesehatan Provinsi Sulawesi Selatan*. Dinas Kesehatan Provinsi Sulawesi Selatan.
- Faswita, W., Nasution, J. D., & Elfira, E. (2022). Hubungan kepatuhan self-care activity dengan dukungan keluarga pada penderita diabetes mellitus. *Jurnal Ilmu Keperawatan (JINTAN)*, 2(2), 120–128.
- Friedman, M. M., Bowden, V. R., & Jones, E. G. (2010). *Family nursing: Research, theory, and practice* (5th ed.). Pearson Education.
- Haskas, Y., Suarnianti, S., Angriani, S., Kadrianti, E., & Restika, I. (2020). Impact of external locus of control on quality of life in patients with type 2 diabetes mellitus. *EAS Journal of Nursing and Midwifery*, 2(4). <https://doi.org/10.36349/EASJNM.2020.v02i04.004>
- Hidayat, U., Indasah, I., & Hasbyalloh, M. S. (2025). Strategi peningkatan cakupan skrining penyakit tidak menular (hipertensi dan diabetes melitus) di UPTD Puskesmas Cislak. *Jurnal Mandala Pengabdian Masyarakat*, 6(1), 47–52. <https://doi.org/10.35311/jmpm.v6i1.526>
- Hilyah, D., Kuswinarti, K., & Ramadhanti, J. (2025). Family support in adherence to oral anti-diabetic medications among patients with type 2 diabetes mellitus. *Althea Medical Journal*, 12(1), 22–27. <https://doi.org/10.15850/amj.v12n1.3454>
- Kementerian Kesehatan Republik Indonesia. (2020). *Produktif, cegah dan atasi diabetes mellitus*. Pusat Data dan Informasi Kementerian Kesehatan RI.
- Kusuma, F. K. D., Prihatiningsih, D., & Widaryati. (2025). Self-care pada pasien lansia diabetes mellitus tipe-2. *Prosiding Seminar Nasional Penelitian dan Pengabdian kepada Masyarakat LPPM Universitas 'Aisyiyah Yogyakarta*, 3, 1452–1457.
- Marlinda, R., Rahayuningrum, D. C., Nofia, V. R., & Trisnadewi, E. (2022). Hubungan dukungan keluarga dengan self-care pada pasien diabetes melitus tipe II dengan komplikasi ketoasidosis diabetikum (DKA). *Jurnal Kesehatan Saintika Meditory*, 5(1), 105. <https://doi.org/10.30633/jsm.v5i1.1500>
- Mokoena, M., Nkuna, P., & Baloyi, O. (2022). Family support in the management of diabetes patients' perspectives from Limpopo Province in South Africa. *BMC Public Health*, 22, 1943.
- Ramadhani, S., Erdiayani, A. F., Andayani, T. M., & Endarti, D. (2019). Pengaruh self-care terhadap kadar glukosa darah puasa pasien diabetes melitus tipe-2. *Jurnal Manajemen dan Pelayanan Farmasi*, 9(2), 118–125. <https://journal.ugm.ac.id/jmpf/article/view/44535>
- Riegel, B., Jaarsma, T., & Strömberg, A. (2019). A middle-range theory of self-care of chronic illness. *Advances in Nursing Science*, 42(2), 194–205.
- Sagala, N. S., Daulay, N. M., Napitupulu, N. F., Yasin, K. A., & Hairani, W. M. (2023). Hubungan dukungan keluarga dengan kepatuhan self-care activity pada penderita DM di Puskesmas Gunung Tua tahun 2023. *Jurnal Kesehatan Ilmiah Indonesia (Indonesian Health Scientific Journal)*, 8(2), 137–140. <https://doi.org/10.51933/health.v8i2.1195>
- Sasombo, A., Katuuk, M. E., & Bidjuni, H. (2021). Hubungan self-care dengan komplikasi diabetes melitus pada pasien dengan diabetes melitus tipe 2 di Klinik Husada Sario Manado. *Jurnal Keperawatan*, 9(2), 54–62. <https://doi.org/10.35790/jkp.v9i2.36781>
- Syafriani, A. M., Siregar, M. A., Kaban, A. R., & Lubis, H. H. (2024). Hubungan dukungan keluarga terhadap penerapan diabetes self-care activity pada pasien diabetes mellitus tipe II di RSUD Mitra Medika. *Jurnal Pembaruan Kesehatan Indonesia*, 1(2), 184–193.
- Watidjan, J. M., Darwis, D., & Hasnita, H. (2023). Pengaruh health education manajemen personal hygiene terhadap peningkatan pengetahuan lansia. *Jurnal Ilmiah Mahasiswa & Penelitian Keperawatan*, 3(3), 77–82.
- World Health Organization. (2022). *Diabetes*. World Health Organization.