

## Family Nursing Care for Clients With Diabetes Mellitus in Community Health Center

**Annasikah Sustyo Hastutik<sup>1\*</sup>, Ulfa Husnul Fata<sup>2</sup>, Wimar Anugrah Romadhon<sup>3</sup>**

<sup>1,2,3</sup> Department of Nursing, Patria Husada College of Health Sciences, Indonesia

Email: [annasikah2@gmail.com](mailto:annasikah2@gmail.com)

### ABSTRACT

Diabetes Mellitus (DM) is a growing public health problem in Indonesia, particularly among the elderly. Type 2 DM develops slowly and is closely linked to unhealthy lifestyles. Elderly people with DM require family support to prevent complications and improve their quality of life. This study aims to describe the implementation of family nursing care for DM patients at the Sananwetan Community Health Center in Blitar City. The research design was a case study involving four families with elderly people with DM. The nursing care process consisted of assessment, diagnosis, planning, implementation, and evaluation. The instruments used included the family assessment format, the Indonesian Nursing Diagnosis Standards (SDKI), the Indonesian Nursing Outcome Standards (SLKI), and the Indonesian Nursing Intervention Standards (SIKI). Implementation was carried out through an educational approach using leaflets and calendars containing information about acupressure therapy and DM management. This study identified six nursing diagnoses: ineffective family health management, readiness to improve family coping, unstable blood glucose levels, knowledge deficit, readiness to improve knowledge, and non-compliance. The interventions provided demonstrated improved family knowledge, active involvement in care, and patient adherence to diabetes treatment and management. Family nursing care with an educational approach and supporting media has proven effective in enhancing the family's role in diabetes management in the elderly. Family support is a key factor in successful disease control. It is recommended that families continue to develop health management skills, healthcare providers improve family education, and community health centers strengthen ongoing education programs.

**Keywords:** family nursing care, diabetes mellitus, elderly, health education

### Background

Diabetes Mellitus (DM) is a major public health challenge in Indonesia, particularly among the elderly, with incidence increasing with age. As age increases, the risk of insulin resistance and decreased pancreatic function naturally increases, which plays a major role in the development of DM <sup>[1]</sup>. As a chronic disease, DM is characterized by metabolic disorders that cause high blood sugar levels (hyperglycemia) and can trigger serious complications affecting various organs if not properly managed. Therefore, a comprehensive nursing approach is crucial for optimal DM management, particularly in the elderly, who often experience symptoms slowly and rely more on diet to control the disease <sup>[2]</sup>.

Diabetes mellitus is one of the many diseases that threaten the lives of many people. According to the International Diabetes Federation (IDF), in 2019 there were 463 million people, or 9.3% of the world's population, suffering from diabetes with an average age between 20 and 79 years, with a prevalence difference of 9% in women and 9.65% in men. The IDF

estimates that the incidence of diabetes will continue to increase, namely to 578 million people in 2030 and 700 million people in 2045. The IDF has also identified 10 countries with the highest number of diabetes sufferers, one of which is Indonesia <sup>[3]</sup>. According to the International Diabetes Federation (IDF), in 2021 the number of diabetes sufferers in Indonesia is estimated to reach 19.47 million people, with a prevalence rate of 10.6% of the total adult population. This makes Indonesia the country with the fifth-highest number of diabetes sufferers in the world <sup>[4]</sup>. Type 2 Diabetes Mellitus has now become one of the most serious public health problems in Indonesia, with prevalence rates continuing to increase every year. In 2019, East Java Province was recorded as the region with the highest number of Diabetes Mellitus (DM) cases in Indonesia. Based on data compiled from national health reports, the number of DM sufferers in this province reached 841,994 cases <sup>[5]</sup>. Based on data from the Blitar Regency Health Office, the number of diabetes mellitus sufferers is relatively high and shows an increase. In July 2024, there were 2,765 cases recorded, while in 2023 the number of sufferers reached 10,499 people, a sharp increase from 1,729 cases in 2022. The 25 to 59 age group is the age range most affected by this case. This high incidence is related to changes in people's dietary patterns leading to unhealthy lifestyles <sup>[6]</sup>.

Diabetes mellitus is a condition in which sugar accumulates in the blood, preventing it from entering cells. This failure can occur due to insulin deficiency or impaired function. Insulin is a hormone that helps regulate blood sugar. This is caused by environmental and hereditary factors. Environmental factors include urbanization, which has shifted lifestyles from healthy eating to consuming fast food. Predisposing factors include age, gender, education level, employment status, duration of the condition, and level of knowledge <sup>[7]</sup>. Type 2 diabetes generally develops slowly, especially in adults and the elderly, and is closely related to unhealthy lifestyles such as lack of physical activity, consumption of foods high in sugar and fat, and high rates of overweight or obesity.

Given this, it is crucial for the government, health workers, and the wider community to immediately implement more extensive and structured prevention and control efforts. These efforts can include ongoing education about the importance of a healthy lifestyle, early detection through routine blood sugar checks, promotion of physical activity, and weight and diet management. Family involvement plays a crucial role in diabetes management, as active participation by family members can help patients adhere to treatment plans and reduce the risk of long-term complications. Furthermore, family involvement in diabetes education programs also provides positive psychosocial benefits, underscoring the importance of the family's role in managing this disease <sup>[2]</sup>.

Based on the explanation above, the researcher is interested in conducting research with the title Family Nursing Care for Diabetes Mellitus (DM) Clients in the Sananwetan Community Health Center Work Area, Blitar City.

## Method

This study used a case study design, conducted in July 2025 in the working area of the Sananwetan Community Health Center in Blitar City. Case selection was carried out during the researcher's practice at the community health center, with the patient's consent through informed consent without a separate ethical approval form because it is under the auspices of the community health center as the institution where the practice is carried out. The sample consisted of four families with elderly members with diabetes mellitus (DM) who were selected purposively. The study variables included family health management, as well as efforts to prevent and manage DM. Data collection was carried out through interviews, observation, and documentation using the SDKI, SLKI, SIKI instruments and a family assessment format. The intervention provided was education with leaflets and calendars containing information about acupressure therapy and steps to prevent and manage DM, while data analysis was carried out

using descriptive qualitative methods.

## Results and Discussion

### Analysis of Family Nursing Assessment in Patients with Diabetes Mellitus

Based on data from the four patients treated, it is known that their ages ranged between 60 and 75 years. The first patient, Mrs. F, was 63 years old; the second patient, Mrs. L, was 67 years old; the third patient, Mrs. S, was 75 years old; and the fourth patient, Mrs. W, was 70 years old. According to the classification, individuals aged 60–74 years are included in the elderly category, while those aged 75–90 years are included in the elderly category. Generally, someone who has entered the age of 60 years and above is classified as elderly, which is the final phase in the life cycle marked by the physiological aging process. As they age, the elderly tend to be more susceptible to various physical disorders, both as a result of natural degenerative processes and due to comorbidities that often appear in old age <sup>[8]</sup>. Therefore, it is important for health workers to provide a more holistic and continuous nursing approach. Because at this age, patients tend to need support not only physically, but also psychologically and socially. The role of the family and ongoing education is very important for the success of care in this age group.

Based on data from the four patients suffering from diabetes, all of them were female. This finding is in line with a number of research results showing that the prevalence of diabetes mellitus tends to be higher in women, especially in the elderly group. Data from the International Diabetes Federation shows that globally, women contribute around 50% of total diabetes cases, and this figure increases significantly in those over 60 years of age. In Indonesia, according to the 2018 Basic Health Research (Riskesdas), the prevalence of diabetes is higher in women (2.0%) than in men (1.8%), especially in the age group 55 years and above <sup>[9]</sup>. Based on the above data, the high incidence of diabetes in elderly women is thought to be related to a number of risk factors, including postmenopausal hormonal changes, a sedentary lifestyle, and metabolic changes that occur with age. In addition, a tendency towards less physical activity and an unbalanced diet also increase the risk of type 2 diabetes mellitus in elderly women.

Based on the four patients treated, there were three patients, namely Mrs. L, Mrs. S, and Mrs. W, who had elementary school education and one patient, Mrs. F, who had junior high school education. The low level of education of the elderly is one of the factors contributing to the lack of knowledge about the prevention and management of diabetes mellitus <sup>[10]</sup>. This can result in low awareness of the importance of a healthy diet, regular physical activity, and adherence to treatment, thereby increasing the risk of complications.

There were four differences in the medical histories of the four patients treated. The first patient, Mrs. F, suffered from diabetes. Mrs. F and her husband (Mr. S) stated that there was no history of diabetes from their parents. Because they had suffered from diabetes for a long time, Mrs. F complained of frequent tingling in the feet that came and went and tired easily. In the second patient, Mrs. L complained of swollen feet, frequent hand cramps and tired easily. Mrs. L stated that there was no history of hereditary diseases from her parents. Mrs. L regularly attended the elderly posyandu/ILP. In the third patient, Mrs. S complained of feeling hungry easily and tired easily. Mrs. S also stated that there was no history of diseases from her parents. Currently, Mrs. S suffers from uncontrolled diabetes, despite regularly attending the elderly posyandu. This is because Mrs. S easily forgets to take her diabetes medication, only relying on close relatives to remind her to take her medication. Then, in the fourth patient, Mrs. W has controlled diabetes. Mrs. W always regularly takes her diabetes medication and regularly visits the elderly posyandu. Of the four patients, they have in common that they have no history of diabetes from their parents. This can be triggered by unhealthy eating habits and lack of physical activity. An unbalanced diet, such as irregular meal schedules and inadequate food

intake, can affect stable blood glucose levels <sup>[11]</sup>. On the other hand, lack of physical activity is also a risk factor, as it can cause insulin resistance, which ultimately contributes to increased blood sugar levels in people with type 2 diabetes mellitus.

In the family development stage of the 4 patients managed, the first managed patient, Mrs. F, with a nuclear family type, lives with his wife and child. In the second managed patient, Mrs. L, with a single-parent family type, Mrs. L lives with her only child. Where Mrs. L adapts to the loss of a partner and maintains relationships with children. Here the first and second managed patients have the same stage of family development, namely at the stage of families releasing young adult children/launching families. Inpatient Mrs. S is the third managed patient, and Mrs. S adapts to the loss of her married partner and children who live in different houses with her. Besides Mrs. S is able to maintain relationships with her children and maintain a pleasant home atmosphere because she lives alone. Mrs. W was the fourth managed patient where Mrs. W lives with her husband and child.

The family launch stage is the stage when children begin to leave home to build their own lives. Parents at this stage are expected to be able to let go of their children in an emotionally healthy way and maintain positive relationships with them. The aging family stage occurs when parents no longer have children living at home and begin to face significant changes such as retirement, loss of a spouse, and social isolation. Adjustment at this stage is very important to maintain the psychosocial balance of the elderly <sup>[12]</sup>. Based on the data above, it can be assumed that understanding the stages of family development is important in providing an appropriate nursing approach, especially for elderly patients. Patients like Mrs. S, who live alone, need more emotional and social support than other patients who still live with their families. Meanwhile, patients like Mrs. L and Mrs. F may need role reinforcement in letting go of their children without losing their identity as parents. The role of nurses in understanding family dynamics is very important in helping patients adapt to each stage of family development.

The four patients we cared for experienced different short-term and long-term stressors, but they had similar patterns, such as difficulty managing their diet, psychological distress, and challenges in maintaining medication adherence. According to Roy's family adaptation theory, families face stressors as part of the adaptation process to changing circumstances or the illness of a family member. Both short-term and long-term stressors will affect the family's coping system in maintaining stability and social support function <sup>[13]</sup>. The family's ability to cope with the stressors faced by the patient depends greatly on the level of awareness, knowledge, and involvement of all family members in supporting the patient's treatment efforts and lifestyle adjustments.

The four patients underwent physical examinations in the form of blood pressure measurements, random blood sugar (ABG) examinations, and exploration of subjective complaints felt by each patient. In the first patient, Mrs. F complained of difficulty sleeping for  $\pm 7$  days due to tingling in the feet and fatigue. Blood pressure was 170/100 mmHg and ABG 292 mg/dL. In the second patient, Mrs. L complained of swollen feet, fatigue, and hand cramps despite regularly taking medication. BP: 135/70 mmHg, ABG: 222 mg/dL. In the third patient, Mrs. S complained of feeling hungry and tired easily, with BP: 130/85 mmHg and ABG: 236 mg/dL. In the fourth patient, Mrs. W complained of frequent drowsiness and fatigue during activities. BP: 110/60 mmHg and ABG: 299 mg/dL. According to the American Diabetes Association (ADA), hyperglycemia can occur due to non-compliance with diabetes management, such as not taking medication regularly, an unhealthy diet, and lack of physical activity. High blood pressure is also a common complication in diabetes patients, especially if an unhealthy lifestyle persists <sup>[14]</sup>. In all four patients, there was a tendency that unhealthy lifestyle and non-compliance with disease management were the main causes of uncontrolled high blood sugar levels. Although some patients, such as Mrs. L., regularly took their medication, an uncontrolled diet still triggered elevated glucose levels. Therefore, educational



interventions about a healthy lifestyle are crucial and must be tailored to each patient's needs.

## Analysis of Family Nursing Diagnoses in Patients with Diabetes Mellitus

The first patient, Mrs. F, and the third patient, Mrs. S, had similar issues/diagnoses during their assessments: ineffective family health management. Mrs. F, using subjective data, stated that she had previously had regular check-ups with her doctor but recently had been busy with her activities and had not had time to take her diabetes medication when it had run out. Objective data indicated that she had failed to take action to reduce risk factors. Meanwhile, Mrs. S, using subjective data, reported that she sometimes forgot to take her diabetes medication due to forgetfulness (her medication was supervised by a relative), and objective data indicated that she had failed to take action to reduce risk factors.

Three patients admitted demonstrated readiness to improve family coping. The first patient, Mrs. F, using subjective data, reported that she rarely went for check-ups and only went when her medication ran out. She expressed a desire to improve her healthy lifestyle. The second patient, Mrs. L, using subjective data, reported that she regularly takes her medication but is unable to restrict her food intake and only eats what her child cooks. The third patient, Mrs. W, using subjective data, reported regular check-ups at the community health center and regular visits to the Integrated Health Post (Posyandu/IPL). The patient expressed a desire to improve her healthy lifestyle and regularly take her diabetes medication. Objective data indicated that her family was not actively involved in managing Mrs. W's diet.

All patients admitted experienced unstable blood glucose levels. The first patient, Mrs. F, using subjective data, reported having had diabetes for the past 5 years. She complained of frequent tingling in her feet and fatigue. Objective data showed a blood glucose level of 292 mg/dL and a blood pressure of 170/100 mmHg. The second patient, Mrs. L, using subjective data, reported a history of diabetes for the past 11 years, complaining of swollen feet for approximately 2 days, frequent hand cramps, and fatigue. Objective data showed a blood glucose level of 222 mg/dL and blood pressure of 135/70 mmHg. The third patient, Mrs. S, subjectively stated that she had suffered from diabetes for the past six years, frequently feeling hungry and easily fatigued. Objectively, her blood glucose level was 236 mg/dL and her blood pressure was 130/85 mmHg.

In the third patient, Mrs. S, and the fourth patient, Mrs. W, knowledge deficits were detected during assessment. Subjectively, the patients continued to consume sweet foods and drinks despite taking medication. Objectively, the patients exhibited behaviors inconsistent with recommendations and misperceptions about the problem.

In Mrs. L's care, there was a readiness to receive knowledge. Subjectively, the patients stated that they had limited their consumption of sweets and sugar, but still occasionally ate and drank. They also regularly checked themselves at the Integrated Health Post and took their diabetes medication regularly. Objectively, the patients' behaviors were consistent with their knowledge.

A patient, Mrs. F, had had diabetes for 5 years at the time of assessment. Subjectively, the patient had not taken her blood sugar medication for approximately 2 weeks, but had previously taken it regularly. Objective data indicated that the patient was non-compliant with the medication/treatment program, not following recommendations, continuing to experience signs and symptoms of health problems (frequent tingling and fatigue), and experiencing complications (hypertension: 170/100 mmHg).

## Analysis of Family Nursing Interventions in Patients with Diabetes Mellitus

In developing nursing interventions for the patients, the researchers used the Indonesian Nursing Intervention Standards. Based on the table, the interventions prescribed for all four families were the same: hyperglycemia management and health education.

The table shows that all families received interventions in the form of hyperglycemia management. One of the important roles of nurses in providing nursing care to families of people with diabetes mellitus (DM) is hyperglycemia management, namely efforts to maintain stable blood glucose levels to prevent severity and complications <sup>[15]</sup>. By implementing comprehensive hyperglycemia management interventions, it is hoped that blood glucose levels in DM patients can be better controlled, thereby minimizing the risk of complications and improving the patient's quality of life.

Based on the table, it is known that all four families have received intervention in the form of support in care planning, and all families received intervention in the form of health education. Family involvement in the care planning process is very important, considering that the family has a primary role in the prevention and recovery process for family members who experience health problems <sup>[2]</sup>. Therefore, it is important for each family member to understand the health conditions that occur in the family environment, be able to make the right decisions when faced with illness, and utilize available health facilities.

Education was provided through leaflets and calendars containing a brief explanation of Diabetes Mellitus (DM) to patients and their families. After the education was provided, patients and families were asked several questions to assess their understanding of the material presented. Education for families and DM patients is crucial for increasing their knowledge of the disease, as it has been proven effective in shaping attitudes and behaviors that support efforts to prevent complications and control the disease. The family, as the closest group and support system for patients, is expected to participate in providing care to family members with DM <sup>[16]</sup>. Therefore, interventions in the form of health education are considered appropriate and in line with existing theory. The intervention actions that were and were not performed on the four patients managed were:

1. For interventions related to ineffective family health management provided to Mrs. F and Mrs. S, some measures were implemented in accordance with the SIKI (Sharia Health Insurance) guidelines, while others were not implemented, including utilizing existing family resources and facilities. This was due to limited resources and the family's lack of understanding of existing facilities.
2. For interventions related to family coping readiness provided to Mrs. F, Mrs. L, and Mrs. W, all were implemented in accordance with the SIKI.
3. For interventions related to unstable blood glucose levels, some measures were implemented in accordance with the SIKI, while others were not implemented, including consulting a doctor if signs and symptoms of hyperglycemia persist or worsen. This was because the patients still regularly checked their blood glucose levels at a health facility.
4. Interventions related to knowledge deficits were implemented in accordance with the SIKI.
5. Interventions related to readiness to improve knowledge were implemented in accordance with the SIKI.
6. Interventions related to non-compliance were implemented in accordance with the SIKI.

## **Analysis of Family Nursing Implementation in Patients with Diabetes Mellitus**

Implementation within families is in accordance with predetermined interventions and tailored to the family's circumstances and environment. Implementation is carried out by visiting each family's home within the Sananwetan Community Health Center's work area in Blitar City.

Based on the table, it can be seen that the four families with nursing problems related to unstable blood glucose levels were given the same implementation, namely identifying possible causes of hyperglycemia, checking blood glucose levels, teaching diabetes management with acupressure therapy, encouraging dietary compliance by providing health education media in the form of leaflets and calendars, and encouraging exercise. For health education, illustrated

leaflets were provided, using lecture and discussion methods. Researchers explained to patients and families about risk factors that can worsen diabetes, taught patients to diet, motivated patients to take diabetes medication regularly, taught diabetes acupressure techniques, and motivated families to use the nearest health facility. Researchers treated patients by providing acupressure therapy for six days, each for 10 minutes per day, which aimed to motivate patients to undergo additional treatment, namely non-pharmacological therapy <sup>[17]</sup>. Based on previous research, it has been proven that hyperglycemia management has a significant effect on reducing blood glucose levels <sup>[18]</sup>. And education about diabetes also has an effect on dietary compliance in Diabetes Mellitus patients <sup>[19]</sup>. Thus, it can be said that the implementation that has been carried out is in accordance with previously determined interventions and there are no gaps.

Based on the table, it is also known that in 2 families with ineffective family health management problems and in 3 families with readiness problems to improve family coping. For the problem of ineffective family health management, family support was provided in planning care by identifying family needs and expectations related to health, identifying actions that the family can take, motivating the family to support health development efforts, and encouraging the family to use the nearest health facility. Meanwhile, for the problem of readiness to improve family coping, family involvement interventions were provided by identifying the family's readiness to be involved in the care/treatment process, creating a therapeutic relationship between the patient and the family being treated, facilitating the family in making care decisions, explaining the patient's condition to the family, and encouraging the family to be involved in the care/treatment process. Based on previous research, it has been shown that family support and involvement influence health care for sick family members and influence patient compliance in taking diabetes medication <sup>[20]</sup>. Thus, the implementation carried out is in accordance with predetermined interventions and in accordance with existing theory.

## **Analysis of Family Nursing Evaluation in Patients with Diabetes Mellitus**

After the nursing care was implemented, the researcher conducted an evaluation on the family with diabetes mellitus. The evaluation was conducted to determine whether the nursing problem had been resolved, partially resolved, or not resolved. The evaluation was conducted using SOAP (Subjective, Objective, Analysis, and Planning). Based on the table, it can be seen that the nursing problem experienced by the four patients, namely unstable blood glucose levels, was resolved in all families, with subjective data showing that the patients no longer complained of cramps or fatigue, and subjective data of GDA <250 mg/dL. Based on previous research, it was found that there is a relationship between family support and self-management with blood sugar levels in diabetes patients <sup>[21]</sup>. Thus, it can be said that the nursing problem of unstable blood glucose levels can be resolved due to family support after the implementation of nursing care for the family and patient.

Based on the table, it is also known that 2 families with ineffective family health management nursing problems can be resolved with subjective data of family and patient understanding of DM, symptoms do not worsen, and can avoid risk factors that can worsen the disease. It is also known that 3 families with nursing problems of readiness to improve family coping can be resolved with subjective data in the form of families starting to be actively involved in health monitoring, and participating in maintaining the patient's diet/eating patterns as well as objective data of families attending education and appearing enthusiastic in supporting the patient's care/treatment program. Based on previous research, it states that coping mechanisms and support from the family have a strong relationship with patient motivation and compliance in undergoing diabetes mellitus treatment. Both aspects contribute positively to effective diabetes management <sup>[22]</sup>. Thus, it can be said that the results of the evaluation of nursing problems experienced by families can be resolved after implementation.

## Conclusions and Recommendations

A comprehensive family nursing assessment of patients with diabetes mellitus was conducted, encompassing physical, psychological, and social aspects. Based on the assessment results, six primary nursing diagnoses were identified: ineffective family health management, readiness to improve family coping, unstable blood glucose levels, knowledge deficit, readiness to improve knowledge, and non-compliance. Nursing planning was developed based on the family's priority needs using a promotive and educational approach. Interventions were implemented through leaflets and calendars containing information about acupressure therapy and knowledge about the prevention and control of diabetes mellitus. Evaluation showed an increase in family knowledge, involvement in the care process, and patient compliance with diabetes treatment and management, as demonstrated by the family's active role and improvement in the patient's clinical condition.

Families are expected to continue developing skills in independently managing the health of the elderly, complying with medical recommendations, and maintaining consistent therapeutic support. Health workers are expected to continue educational activities tailored to social background, educational level, and family type, so that interventions can be more targeted and have a significant impact on the six identified diagnoses. Community health centers are expected to strengthen the implementation of routine counseling as part of the Prolanis program and evaluate the success of interventions based on nursing diagnoses that emerge in the field. For future researchers, it is recommended to conduct long-term evaluations to assess changes in the health status of the elderly and examine the effect of ongoing education on reducing non-compliance rates and improving blood glucose control.

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## References

1. Yudianti NN. Gambaran Derajat Luka Diabetikum Kronis Pada Lansia. *Br Med J* 2020;2(5474):1333–6.
2. Rahayu S. Evaluasi Asuhan Keperawatan Keluarga dalam Penanganan Diabetes Mellitus pada Ny. N (61 Tahun) di RS.Kebonjati. *Heal J “Love That Renews”* 2024;11(1):236–51.
3. Yunita A, Novera M, Apriatin Y. Jurnal Keperawatan Medika Asuhan Keperawatan Keluarga dengan Diabetes Mellitus Tipe II Di. *J Keperawatan Med* 2024;3(1):67–73.
4. Pamela DA. Kasus Diabetes di Indonesia Posisi 5 Besar Dunia, Indikator Kandungan Gula pada Produk Bantu Intervensi » Diabetes Indonesia [Internet]. 2023 [cited 2025 Jul 8]; Available from: <https://diabetes-indonesia.net/2023/02/kasus-diabetes-di-indonesia-posisi-5-besar-dunia-indikator-kandungan-gula-pada-produk-bantu-intervensi/>
5. Kurdi F, Abidin Z, Surya VC, Anggraeni NC, Alyani DS, Riskiyanti V. Angka Kejadian Diabetes Mellitus Pada Lansia Middle Age Di Masa Pandemi Covid-19. *J Ilm Keperawatan (Scientific J Nursing)* 2021;7(2):282–8. <https://doi.org/10.33023/jikep.v7i2.834>
6. Wardana FA. Diabetes Melitus Tembus 10 Ribu Kasus di Kabupaten Blitar, Dinkes: Akibat Konsumsi Makan dan Minuman Manis - Blitar Kawentar [Internet]. 2024 [cited 2025 Jul 21]; Available from: <https://blitarkawentar.jawapos.com/kawentaran/2275017444/diabetes-melitus-tembus-10-ribu-kasus-di-kabupaten-blitar-dinkes-akibat-konsumsi-makan-dan-minuman-manis>.



7. Kurniawati, Puspitaningsih D. Asuhan Keperawatan Keluarga Diabetes Mellitus Dengan Masalah Ketidakstabilan Kadar Glukosa Darah. *Medica Majapahit* 2021;6(2):59–77.
8. Raudhoh S, Pramudiani D. Lansia Asik, Lansia Aktif, Lansia Poduktif. *Med Dedication J Pengabd Kpd Masy FKIK UNJA* 2021;4(1):126–30. <https://doi.org/10.22437/medicaldedication.v4i1.13458>
9. Zakiudin A, Nur Janah E, Karyawati T. Laporan Penyuluhan Kesehatan Tentang Diabetes Melitus Dan Senam Kaki Diabetik Pada Warga Desa Kutayu Kecamatan Tonjong Kabupaten Brebes. *J Locus Penelit dan Pengabd* 2023;2(1):27–37. <https://doi.org/10.58344/locus.v2i1.837>
10. Anggraeni, Silvia Nora & Lahagu EL. Pengaruh Pendidikan Kesehatan Tentang Diabetes Melitus Terhadap Sikap Pasien Diabetes Melitus Tipe 2 Di Wilayah Puskesmas Rejosari Pekanbaru. *Menara Ilmu [Internet]* 2021;XV(02):62–71. Available from: <http://www.jurnal.umsb.ac.id/index.php/menarailmu/article/view/2950>
11. Astutisari IDAEC, AAA Yuliaty Darmini AYD, Ida Ayu Putri Wulandari IAPW. Hubungan Pola Makan Dan Aktivitas Fisik Dengan Kadar Gula Darah Pada Pasien Diabetes Melitus Tipe 2 Di Puskesmas Manggis I. *J Ris Kesehat Nas* 2022;6(2):79–87. <https://doi.org/10.37294/jrkn.v6i2.350>
12. Klaudia BR Semimbing. ASUHAN KEPERAWATAN KELUARGA PADA TAHAP PERKEMBANGAN KELUARGA DENGAN ANAK USIA SEKOLAH. 2021;6.
13. Haumahu JJM, Desi, Anwar MA. Proses Adaptasi Dan Mekanisme Koping Pasien Kanker Paru Menurut Teori Callista Roy. *J Ilm Keperawatan (Scientific J Nursing)* 2023;9(2):378–86. <https://doi.org/10.33023/jikep.v9i2.1541>
14. Erdaliza E, Mitra M, Rany N, Harnani Y, Rienarti Abidin A. Faktor risiko yang berhubungan dengan komplikasi Diabetes Mellitus Tipe 2. *J Kesehat komunitas (Journal community Heal* 2024;10(3):534–45. <https://doi.org/10.25311/keskom.Vol10.Iss3.2039>
15. Dewi RE, Suriadi. Asuhan Keperawatan Pada Pasien Diabetes Mellitus: Literatur Review. *J Rev Pendidik dan Pengajaran* 2024;7(4):18644–8.
16. Maulinda D. Hubungan Dukungan Keluarga Dengan Kepatuhan Melakukan Kontrol Rutin Pada Penderita Diabetes Melitus. 2024. <https://doi.org/10.54460/jifa.v9i1.92>
17. Rahmadiyah V. Penerapan Terapi Akupresur Dalam Menurunkan Kadar Glukosa Darah Pada Pasien Diabetes Melitus Tipe 2 Diwilayah Puskesmas Kuala Lempuing Kota Bengkulu. *Sekol Tinggi Ilmu Kesehat Sapta Bakti* 2023;12–3. <https://doi.org/10.36577/jkhh.v12i2.711>
18. Elyta T, Martha R, Eni E. Manajemen Hiperglikemia Pada Pasien Diabetes Melitus Dengan Masalah Ketidakstabilan Kadar Glukosa Darah. *J 'Aisyiyah Med* 2025;10(1):68–82. <https://doi.org/10.36729/jam.v10i1.1310>
19. Restuning D. Pengaruh Edukasi Diabetes Terhadap Kepatuhan Pengaturan Diet Pasien Diabetes Melitus Tipe 2 Di Kelurahan Wirogunan Dan Brontokusuman Kota Yogyakarta. *J Ilm dan Teknol Kesehat [Internet]* 2023;3(1):1–5. Available from: <http://journal.uwhs.ac.id/index.php/jitk/article/view/69>
20. Afifah SL, Erlyn P, Suarni E, Fitriani N, Saraswati NA. Dukungan Keluarga Meningkatkan Kepatuhan Minum Obat Pada Penderita Diabetes Melitus Tipe Ii. *MESINA (Medical Sci Journal)* 2024;5(1):45. <https://doi.org/10.32502/msj.v5i1.9082>
21. Umar N, Sabil FA. Hubungan Dukungan Keluarga Dengan Peningkatan Self Care Management Pasien DM Tipe II. *J Ilm Mhs Penelit Keperawatan* 2022;2(1):111–6.
22. Mustamu AC, Sjarfan S, Hasim NH. Dukungan Dan Koping Keluarga Dalam Motivasi Pengobatan Penderita Diabetes Melitus. *J Kesehat Terpadu (Integrated Heal Journal)* 2020;11(1):22–7. <https://doi.org/10.32695/jkt.v11i1.68>