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The relationship between blood sugar levels and wound healing time in patients with diabetic ulcers

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Abstract

Background: Diabetes mellitus is a chronic disease that often leads to complications, one of which is diabetic ulcers. These wounds occur as a result of neuropathy, vascular disorders, and infection, causing the healing process to tend to be prolonged.

Purpose To analyze the relationship between blood glucose levels and wound healing time in diabetic ulcer patients, identify the picture of patient blood glucose levels, determine the distribution of wound healing time, and determine the strength of the relationship between blood glucose levels and the wound healing process in diabetes mellitus patients with diabetic ulcers.

Method: This study used a quantitative analytical design with a cross-sectional approach. The sample consisted of 54 patients selected through purposive sampling. Data were obtained from observation sheets, blood glucose tests, and records of wound healing duration. Analyses were performed using univariate and bivariate methods with the Chi-Square test at a significance level of $p < 0.05$.

Results: The majority of respondents were aged 56–65 years (38.9%), female (57.4%), had lived with diabetes for 5–10 years (44.4%), had a high school education (35.2%), and were homemakers (33.3%). A total of 68.5% of respondents had uncontrolled blood sugar, while 40.7% experienced wound healing taking more than 8 weeks. Statistical analysis showed a p-value of 0.003 with a contingency coefficient of 0.462, indicating a significant association of moderate strength. Discussion: Hyperglycemia disrupts microcirculation, oxygen supply, collagen formation, and leukocyte function, thereby slowing wound healing.

Conclusion: The more uncontrolled blood sugar levels are, the longer wound healing takes. Optimal glycemic control is essential to prevent complications.

Keywords: Blood Sugar Levels; Diabetes Mellitus; Diabetic Ulcers; Wound Healing.

BACKGROUND

Diabetes mellitus is a noncommunicable disease that poses a global health challenge, as its incidence continues to rise each year. This disease results from impaired metabolism of carbohydrates, fats, and proteins caused by issues with insulin production, insulin effectiveness, or a combination of both (Abel, Gloyn, Evans-Molina, Joseph, Misra,

Pajvani, & Drucker, 2025). Prolonged hyperglycemia in diabetic patients has the potential to lead to various complications, both acute and chronic. One of the most common and severe chronic complications is diabetic ulcers. Data from the International Diabetes Federation indicate that the number of people with diabetes worldwide continues

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to rise, placing a significant burden on healthcare systems. In Indonesia, diabetes mellitus is also a disease with high prevalence, necessitating more serious management and attention (Alazhar, Kusuma, Pujiati, & Mailatunnazza, 2025).

Diabetic ulcers are chronic lesions on the feet commonly experienced by individuals with diabetes mellitus. This condition arises from a combination of factors, such as peripheral neuropathy, impaired blood flow, infection, and repeated trauma (Nalls, 2023). Wound healing is typically slow, prone to infection, and can progress to gangrene or even result in amputation if not properly managed. The impact of diabetic ulcers is not limited to physical impairment but also significantly affects patients' quality of life. Furthermore, this condition contributes to increased hospitalizations, high treatment costs, and rising rates of morbidity and mortality. Therefore, the prevention and management of diabetic ulcers must be a primary focus in healthcare, particularly within medical-surgical nursing practice (Vanlalhlua, 2022).

Wound healing is a series of biological processes that occur in stages, encompassing the hemostasis, inflammation, proliferation, and maturation phases. In patients with diabetes mellitus, each of these phases may be impaired, particularly when blood glucose levels are not well-controlled (Gallagher, 2020). Persistent hyperglycemia can trigger damage to small blood vessels (microangiopathy), thereby reducing the delivery of oxygen and nutrients to tissues. Additionally, hyperglycemia disrupts leukocyte function, lowers immune resistance, and inhibits the formation of collagen and granulation tissue, which play a crucial role in wound repair. As a result of these various impairments, the wound healing process in diabetic patients generally proceeds more slowly compared to individuals without diabetes (Nath, Kumar, & Narayan, 2024).

Blood glucose levels are a key parameter in the management of diabetes mellitus. Persistent hyperglycemia can worsen wound conditions and increase the risk of infection. Conversely, glucose levels within a controlled range play a role in accelerating new tissue formation and supporting the wound healing process (Burgess, Wyant, Abdo Abujamra, Kirsner, & Jozic, 2021). Therefore, blood glucose control is an essential component in the

management of patients with diabetic ulcers. Regular blood glucose monitoring is also important to help healthcare providers assess the effectiveness of the therapy provided and determine the most appropriate actions or interventions (Li, Wen, Zhang, Cao, Li, Hu, & Cai, 2025).

The duration of wound healing in patients with diabetic ulcers is influenced by many factors, such as age, nutritional status, adherence to therapy, wound site hygiene, the presence of infection, peripheral circulation, and blood glucose levels. However, blood glucose levels are often considered the most dominant factor because they are closely related to the mechanisms underlying diabetes and the process of tissue regeneration. In clinical practice, it is still common to encounter patients with diabetic ulcers whose healing process takes longer due to fluctuating or poorly controlled blood glucose levels. This situation underscores the importance of blood glucose monitoring and control as a key component in the management of diabetic wounds (Bautista, Haruka, Mai, Ngan, & Charlotte, 2025; Xiang, Wang, He, Xu, & Zhang, 2019).

Preliminary studies at several healthcare facilities indicate that there are still patients with diabetic ulcers who have high blood glucose levels and require relatively long-term wound care. In some cases, the condition of the wound even worsens due to delayed healing (Kartika, Widyatuti, & Rekawati, 2021). This situation poses a unique challenge for healthcare workers, particularly nurses, in providing comprehensive care through education, monitoring, and optimal nursing interventions. In this management, nurses play a strategic role, ranging from assessing wound conditions, applying modern wound care, providing health education related to blood sugar control, to encouraging patient adherence to therapy and healthy lifestyle changes (Zhu, Lee, Chan, Yin, Koh, Lim, & Griva, 2025).

A study on the relationship between blood glucose levels and wound healing duration in patients with diabetic ulcers is necessary because it can provide scientific evidence regarding the significant role of glycemic control in the tissue repair process (Hegde, Kamaraddi, & Kajagar, 2022). The findings of this study are expected to serve as a foundation for improving the quality of nursing care, designing more effective strategies to prevent

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complications, and fostering patients' understanding of the importance of maintaining blood glucose levels within the normal range. Furthermore, the results of this study also have the potential to serve as a reference for educational institutions and future researchers in the advancement of medical-surgical nursing science (Komut, Pertin, Singha, Beyong, Perme, Hazarika, & Tago, 2024).

METHOD

This study employed a quantitative method with a correlational analytical design and a cross-sectional approach. The primary objective was to analyze the relationship between blood sugar levels and wound healing duration in patients with diabetic ulcers. The study population included all diabetic ulcer patients receiving care at the healthcare facilities where the study was conducted. The sample was selected using a purposive sampling technique based on predetermined inclusion and exclusion criteria.

Data collection tools included observation sheets to record respondent characteristics, blood sugar test results, and data on wound healing duration obtained through medical records and direct observation. Data processing was performed through univariate analysis to describe respondent characteristics and the distribution of each studied variable.

Bivariate analysis was then used to test the relationship between variables using the Spearman Rank or Pearson Product Moment correlation tests, selected based on the results of the data normality test. The significance level used in this study was $p < 0.05$. The entire research process was carried out while prioritizing the principles of research ethics, including providing informed consent, maintaining the confidentiality of respondents' identities, and obtaining ethical approval from the authorities.

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RESULTS

Table 1. Distribution of Respondents (N=54)

Variable	Results
Age (n/%)	
36–45	8/14.8
46–55	19/35.2
56–65	21/38.9
>65	6/11.1
Gender (n/%)	
Male	23/42.6
Female	31/57.4
Long-term DM Suffering (n/%)	
< 5	14/25.9
5–10	24/44.4
>10	16/29.6
Education (n/%)	
Elementary School	12/22.2
Junior high school	15/27.8
Senior High School	19/35.2
College	8/14.8
Work (n/%)	
Housewife	18/33.3
Farmer	11/20.4
Self-employed	13/24.1
Government Employees	5/9.3
Doesn't work	7/13.0
Blood Sugar Levels (n/%)	
Controlled (<200 mg/dL)	17/31.5
Not controlled (≥200 mg/dL)	37/68.5
Wound Healing Time (n/%)	
Fast (<4 minggu)	14/25.9
Currently (4–8 minggu)	18/33.3
Long (>8 minggu)	22/40.7

Table 1. shows that the majority of respondents were in the 56–65 age group, totaling 21 respondents (38.9%), while the smallest group was in the >65 age group, totaling 6 respondents (11.1%). Based on Table 1. it shows that the majority of respondents were female, namely 31 respondents (57.4%). Based on Table 1. it shows that the majority of respondents have suffered from diabetes mellitus for 5-10 years, as many as 24 respondents (44.4%).

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Based on Table 1. it shows that the majority of respondents have a high school education level of 19 people (35.2%), work as housewives (IRT), as many as 18 respondents (33.3%). Based on Table 1. it shows that the majority of respondents had uncontrolled blood sugar levels, as many as 37 respondents (68.5%). The majority of respondents experienced a long wound healing period (>8 weeks) as many as 22 people (40.7%).

Table 2. Relationship Between Blood Sugar Levels And Length Of Wound Healing

Blood Sugar Levels	Fast	Currently	Long	p-value	Contingency Coefficient
Controlled	9	6	2	0.003	0.462
Not controlled	5	12	20		

Based on Table 2. it shows that respondents with uncontrolled blood sugar levels experienced more slow wound healing, namely 20 people. The results of the statistical test using Chi-Square obtained the following p-value = 0.003 and Contingency Coefficient = 0.462

The results of the analysis using the Chi-Square test showed a p-value of 0.003 or less than 0.05. This finding indicates that the alternative hypothesis is accepted, while the null hypothesis (H0) is rejected. Thus, it can be concluded that there is a significant relationship between blood sugar levels and wound healing time in patients with diabetic ulcers. In addition, the contingency coefficient value of 0.462 indicates a moderate level of closeness of the relationship. This illustrates that patients with poorly controlled blood sugar levels tend to experience a longer healing process for diabetic ulcers.

DISCUSSION

Based on a study of 54 respondents, it was found that blood sugar levels were significantly associated with wound healing duration in patients with diabetic ulcers. This discussion is structured based on the analysis of respondent characteristics, blood sugar variables, wound healing duration, and the relationship between the variables studied. These findings indicate that blood sugar control plays a critical role in supporting successful wound healing in patients with diabetes mellitus.

The research findings show that the majority of respondents, 21 respondents (38.9%), were aged 56–65. This data indicates that diabetic ulcers are more common in older individuals. Increasing age is associated with various physiological changes, such as decreased organ function, reduced insulin sensitivity, impaired peripheral blood flow, and slowed tissue repair and regeneration. Furthermore, older adults are more likely to experience long-term complications of diabetes mellitus, which can worsen wound conditions. This condition makes elderly patients more likely to develop diabetic foot ulcers and require longer healing times than younger or more productive age groups (Aliyu, Gezawa, Uloko, & Ramalan, 2023; Yan, Dou, Claire, Ellen, & Caroline, 2025).

Judging from gender characteristics, the majority of respondents were female, 31 respondents (57.4%). This condition is thought to be related to several factors, including hormonal changes, physical activity levels, eating habits, and the tendency for women to undergo more regular health checks than men (Kautzky-Willer, Leutner, Abrahamian, Frühwald, Hoppichler, Lechleitner, & Harreiter, 2023). Furthermore, women, especially those who have entered menopause, are at greater risk of experiencing glucose metabolism disorders due to decreased estrogen levels, which affect insulin sensitivity. However, diabetic ulcers are not only experienced by women; they can occur in both men and women if blood glucose levels are uncontrolled and foot care is not carried out properly (Wahab, Setiyawati, & Safitri, 2025).

Most respondents, 24 (44.4%), had had diabetes mellitus for 5–10 years. Longer duration of diabetes is associated with an increased likelihood of developing chronic complications, such as peripheral neuropathy, blood vessel disorders (angiopathy), and decreased immune system function. These conditions make sufferers more susceptible to injury, slow tissue regeneration, and increase the chance of infection. Therefore, the duration of diabetes is an important factor to consider in the management and care of diabetic ulcers (Atinafu, Tarekegn, Mulu, Kebede, Abinew, & Mossie, 2022; Husna, Akmal, Syarif, & Agustina, 2024).

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The majority of respondents, 19 (35.2%), had a high school education. Education level is a factor that can influence an individual's knowledge of their disease, adherence to treatment, adoption of a healthy lifestyle, and ability to perform self-care. Respondents with higher education tend to be more receptive to health information, particularly regarding diabetes diet management, blood sugar monitoring, and wound care. Conversely, limited knowledge can result in poor adherence to therapy, resulting in slower wound healing. In terms of employment status, the majority of respondents, 18 (33.3%), were housewives (Husna, Akmal, Syarif, & Agustina, 2024). A person's occupation can influence their daily physical activity level, economic situation, stress levels, and accessibility to healthcare. Some occupations increase the risk of repeated foot trauma, delays in routine check-ups, and limited funding for wound care. These findings confirm that social and economic factors contribute to the success of diabetic ulcer management (Simonsen, Christiansen, Pedersen, Røikjer, Croosu, Leutscher, & Ejskjaer, 2024).

Based on the research results, the majority of respondents were found to have uncontrolled blood sugar levels (≥ 200 mg/dL), amounting to 37 people (68.5%). This data indicates that the majority of patients with diabetic ulcers are still experiencing hyperglycemia (Kim, 2023). High blood sugar levels can be influenced by various factors, such as non-adherence to recommended dietary patterns, irregular medication use, lack of physical activity, stress, and a lack of regular blood sugar checks. Prolonged hyperglycemia can exacerbate damage to blood vessels and peripheral nerves, increasing the likelihood of wound formation and delaying healing (Zhu, Hu, Luo, Liu, Luo, Du, & Peng, 2024).

Physiologically, elevated blood glucose levels can impair the ability of leukocytes to fight infection, reduce fibroblast migration, inhibit collagen synthesis, and reduce angiogenesis. This condition makes wounds more difficult to close, slows granulation tissue formation, and increases the risk of infection. Therefore, blood sugar control is a crucial component in the management of patients with diabetic ulcers (Burgess et al., 2021; Sharma & Kishen, 2025).

The study results showed that the majority of respondents, 22 people (40.7%), fell into the category of long-healing wounds (>8 weeks). This finding indicates that diabetic ulcers are chronic wounds, which generally require a longer recovery time than acute wounds. The length of the healing process is influenced by various factors, including vascular conditions, the presence of infection, nutritional status, adherence to wound care, repeated pressure on the wound area, and blood glucose control (Maharani, Sicilia, Ilmi, Gumilar, 2025). In people with diabetes mellitus, the inflammatory phase tends to last longer, delaying the transition to the proliferative phase. Furthermore, blood flow to the injured tissue is reduced due to disruption of peripheral blood vessels. This condition results in suboptimal distribution of oxygen and nutrients to the wound area, slowing the process of epithelialization and new tissue formation. If this condition is accompanied by infection, the healing time is further prolonged and the risk of amputation increases (Putri, Wibawa, & Sudarsa, 2025; Cahyaningtyas & Werdiningsih, 2022).

Based on the results of the bivariate analysis using the Chi-Square test, a p-value of 0.003 was obtained, or less than 0.05. This finding indicates a statistically significant relationship between blood sugar levels and wound healing time in patients with diabetic ulcers. Therefore, the research hypothesis was accepted, namely that there is a relationship between blood sugar levels and wound healing time (Hegde et al., 2022). The cross-tabulation results showed that respondents with controlled blood sugar levels tended to experience faster wound healing. Of the 17 respondents in this group, 9 fell into the fast healing category. Conversely, in the group of respondents with uncontrolled blood sugar levels, the majority experienced slow wound healing, namely 20 out of a total of 37 respondents. This finding indicates a tendency that the higher or uncontrolled a person's blood sugar levels, the longer the wound healing process will take. Conversely, good blood sugar control has the potential to accelerate the wound healing process in patients with diabetic ulcers (Hegde et al., 2022).

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The contingency coefficient of 0.462 indicates a moderate relationship between the variables. This indicates that blood sugar levels are not the sole determinant of the wound healing process, but they still have a significant influence. Furthermore, various other factors play a role, such as patient age, nutritional status, the presence of infection, wound severity, adherence to therapy, and the quality of wound care provided. Nevertheless, blood sugar control remains a crucial factor that can be intervened upon, potentially accelerating the wound healing process (Maharani et al., 2025).

The findings of this study support the concept that hyperglycemia can disrupt microcirculation, reduce the effectiveness of the immune system, and inhibit collagen formation, thus slowing tissue regeneration (Mieczkowski, Mrozikiewicz-Rakowska, Kowara, Kleibert, & Czupryniak, 2022). Clinically, patients with controlled blood sugar levels generally exhibit faster wound healing, reduced exudate, reduced signs of inflammation, and the formation of healthy granulation tissue. Conversely, in patients with high blood sugar levels, wounds tend to be difficult to heal, more prone to necrosis, and are at risk of recurrent infection (Zhao, Zhao, Xu, Liu, & Chang, 2024).

The findings of this study provide important implications for the application of nursing practice, particularly in medical-surgical nursing. Nurses need to regularly monitor blood glucose levels, provide education on adherence to diet and drug therapy, perform proper wound care, and recognize early signs of infection. Furthermore, nurses play a strategic role in motivating patients to adopt a healthy lifestyle and undergo regular health check-ups. A comprehensive, integrated, and sustainable approach is essential to reduce the risk of further complications, including the possibility of amputation.

This study still has several limitations. The study only focused on the relationship between two main variables: blood sugar levels and wound healing duration. Therefore, other factors that could potentially influence the healing process were not thoroughly examined. These factors include nutritional status, ulcer severity, body mass index, adherence to therapy, and the presence of infection. Furthermore, the use of a cross-sectional design only illustrates the relationship between variables at a

specific point in time and cannot explain causality. Therefore, future research is recommended to use a cohort or experimental design to obtain a more comprehensive picture and more robust results.

CONCLUSION

Based on research findings on the relationship between blood sugar levels and wound healing duration in diabetic ulcer patients involving 54 respondents, it can be concluded that the majority of respondents were aged 56–65 years, female, had suffered from diabetes mellitus for 5–10 years, had a high school education, and were housewives. Most respondents also had uncontrolled blood sugar levels (≥ 200 mg/dL) and experienced a prolonged wound healing process, i.e., more than 8 weeks. The results of statistical analysis using the Chi-Square test showed a p-value of 0.003 ($p < 0.05$), indicating a significant relationship between blood sugar levels and wound healing duration in diabetic ulcer patients. Meanwhile, the contingency coefficient of 0.462 indicated a moderate level of closeness.

REFERENCES

- Abel, E. D., Gloyn, A. L., Evans-Molina, C., Joseph, J. J., Misra, S., Pajvani, U. B., & Drucker, D. J. (2024). Diabetes mellitus—Progress and opportunities in the evolving epidemic. *Cell*, 187(15), 3789-3820.
- Alazhar, K. K., Kusuma, I. Y., Pujiati, A., & Mailatunnazza, N. (2025). A Bibliometric Analysis Of Global Trends In Interprofessional Approaches To Diabetes Self-Management Education And Support (Dsmes): Integration, Sustainability, And Digital Transformation Perspectives. In *International Conference On Interprofessional Health Collaboration And Community Empowerment* (Vol. 7, No. 1, pp. 65-77).
- Aliyu, R., Gezawa, I. D., Uloko, A. E., & Ramalan, M. A. (2023). Prevalence and risk factors of diabetes foot ulcers in Kano , northwestern Nigeria. *Clinical Diabetes and Endocrinology*, 1–10.

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The relationship between blood sugar levels and wound healing time in patients with diabetic ulcers

- Atinafu, B. T., Tarekegn, F. N., Mulu, G. B., Kebede, W. M., Abinew, Y., & Mossie, Y. (2022). The magnitude and associated factors of diabetic foot ulcer among patients with chronic diabetic mellitus in northeast Ethiopia, 2021. *Chronic Wound Care Management and Research*, 13-21.
- Bautista, A. P., Haruka, I. M., Mai, N. T., Ngan, K. H., & Charlotte, C. S. (2025). Effectiveness of Comprehensive Therapy vs. Standard Treatment in Diabetic Foot Ulcer Healing: A Retrospective Cohort Study. *Journal of Wound Research and Technology*, 2(1), 1-6.
- Burgess, J. L., Wyant, W. A., Abdo Abujamra, B., Kirsner, R. S., & Jozic, I. (2021). Diabetic wound-healing science. *Medicina*, 57(10), 1072.
- Cahyaningtyas, U., & Werdiningsih, R. (2022). Analisis faktor lama penyembuhan kaki diabetes/ulkus diabetikum pada pasien dm tipe 2. *Jurnal Media Administrasi*, 7(1), 28-39.
- Gallagher, K. A. (2020). Dysregulated inflammation in diabetic wounds. In *Wound healing, tissue repair, and regeneration in diabetes* (pp. 81-95). Academic Press.
- Hegde, P., Kamaraddi, S. V., & Kajagar, B. M. (2022). Glycosylated hemoglobin (HbA1c) levels and wound healing in diabetic foot ulcers—an observational study. *Int J Pharma Clin Res*, 14(6), 239-247.
- Husna, C., Akmal, A., Syarif, H., & Agustina, S. (2024). Exploring the connection between diabetes duration, HbA1c levels, and peripheral neuropathy in type 2 diabetes patients. *International Journal of Advanced and Applied Sciences*, 11(4), 236-240.
- Kartika, A. W., Widyatuti, W., & Rekawati, E. (2021). The effectiveness of home-based nursing intervention in the elderly with recurrent diabetic foot ulcers: A case report. *Journal of public health research*, 10(2), jphr-2021.
- Kautzky-Willer, A., Leutner, M., Abrahamian, H., Frühwald, L., Hoppichler, F., Lechleitner, M., & Harreiter, J. (2023). Sex and gender-specific aspects in prediabetes and diabetes mellitus—clinical recommendations (Update 2023). *Wiener Klinische Wochenschrift*, 135(Suppl 1), 275.
- Kim, J. (2023). The pathophysiology of diabetic foot: a narrative review. *Journal of Yeungnam Medical Science*, 40(4), 328-334.
- Komut, O., Pertin, M., Singha, B., Beyong, T., Perme, O., Hazarika, A., & Tago, N. (2023). Association Of Glycosylated Haemoglobin And Wound Healing In Diabetic Foot Ulcer: A Prospective Cohort Study. *Journal Of Clinical & Diagnostic Research*, 17(11).
- Li, H., Wen, H., Zhang, H., Cao, X., Li, L., Hu, X., & Cai, X. (2025). A multifunctional dihydromyricetin-loaded hydrogel for the sequential modulation of diabetic wound healing and glycemic control. *Burns & Trauma*, 13, tkaf024.
- Maharani, T. A., Sicilia, A. G., Ilmi, I., Gumilar, D. (2025). Faktor-Faktor yang Mempengaruhi Lama Penyembuhan Luka Diabetes Mellitus di Klinik Pratama Hanifah Kota Tangerang 2024. *Universitas Bhakti Asih Tangerang , Indonesia Pratama Hanifah Kota Tangerang* .
- Mieczkowski, M., Mrozikiewicz-Rakowska, B., Kowara, M., Kleibert, M., & Czupryniak, L. (2022). The problem of wound healing in diabetes—from molecular pathways to the design of an animal model. *International Journal of Molecular Sciences*, 23(14), 7930.
- Nalls, V. (2023). Caring for Diabetic Foot Ulcers. *Caring for the Ages*, 24(8), 7.
- Nath, K. K., Kumar, S., & Narayan, R. (2024). Comparative Study of Wound Healing in Patients with Diabetes versus Non-Diabetic Patients ' Post-Surgery. 16(5), 2417–2423.

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The relationship between blood sugar levels and wound healing time in patients with diabetic ulcers

- Putri, I. A. D. O., Wibawa, I. K., & Sudarsa, I. W. (2025). The Correlation Between Duration of Diabetes Mellitus, Ulcer Grading, HbA1C Levels, and Peripheral Arterial Occlusion to Amputation in Patients with Diabetic Foot Ulcers at Prof. Dr. IGNG Ngoerah Hospital. *Medicina*, 58(10), 1200.
- Sharma, S., & Kishen, A. (2025). Dysfunctional crosstalk between macrophages and fibroblasts under LPS-infected and hyperglycemic environment in diabetic wounds. *Scientific Reports*, 15(1), 17233.
- Simonsen, M. B., Christiansen, S. L., Pedersen, M. K., Røikjer, J., Croosu, S. S., Leutscher, P. D. C., & Ejksjaer, N. (2024). Health literacy and cognitive function in people with diabetic foot ulcer with focus on knowledge, attitude, and practice in relation to foot self-care. *SAGE open medicine*, 12, 20503121241258841.
- Vanlalhlua, C. (2022). Subdermal Plexus as a Guide for Skin Flap Thickness in Modified Radical Mastectomy in Breast Cancer. *Zenodo (CERN European Organization for Nuclear Research)*.
- Wahab, I., Setiyawati, D., & Safitri, Y. B. (2025). Kadar glukosa darah pada wanita menopause: Studi di Puskesmas Muara Dua Kota Lhokseumawe. *Jurnal SAGO Gizi dan Kesehatan*, 6(2), 452-456.
- Xiang, J., Wang, S., He, Y., Xu, L., & Zhang, S. (2019). Reasonable Glycemic Control Would Help Wound Healing During the Treatment of Diabetic Foot Ulcers. *Diabetes Therapy*, 10(1), 95–105.
- Yan, T., Dou, Z., Claire, M., Ellen, K., & Caroline, M. (2025). Risk Factors for First-Ever Diabetes-Related Foot Ulcer: A Systematic Review and Meta-Analysis. *International Wound Journal*, 22(8), e70728.
- Zhao, Y., Zhao, Y., Xu, B., Liu, H., & Chang, Q. (2024). Microenvironmental dynamics of diabetic wounds and insights for hydrogel-based therapeutics. *Journal of tissue engineering*, 15, 20417314241253290.
- Zhu, J., Hu, Z., Luo, Y., Liu, Y., Luo, W., Du, X., & Peng, S. (2024). Diabetic peripheral neuropathy: pathogenetic mechanisms and treatment. *Frontiers in endocrinology*, 14, 1265372.
- Zhu, X., Lee, E. S., Chan, F. H., Yin, R., Koh, R. W., Lim, P. X., & Griva, K. (2025). Healing through empowerment and active listening: experience-based co-design of a nurse-led personalised self-care support intervention for primary care patients with diabetic foot ulcers. *Health Expectations*, 28(4), e70386.

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