

SELF MANAGEMENT ON DIABETIC PATIENT FOOT ULCER : A SCOPING REVIEW

Salmia ^{1*}

^{1*} Master of Nursing, Faculty of Nursing, Hasanuddin University

*correspondence Author: salmiautari@gmail.com

Abstract

Background ; Diabetes mellitus (DM) is a chronic disease whose prevalence is increasing every year and has many complications. One of the complications is Diabetic Foot Ulcer (DFU). The handling of DFU is with a self-management strategy. **Objectives**; This study aims to explore and summarize the existing literature on self management in DFU patients, as well as identify the factors that affect self-care behavior. **Method**; This study uses a Scoping Review approach guided by the PRISMA framework. A literature search was conducted through Pubmed, Science Direct and Garuda databases, with inclusion criteria for articles focusing on self-management of DFU patients in the last 10 years. **Result**; Of the total 113 articles identified, 71 articles remained after duplicate screening. After further evaluation, 28 articles were excluded because they did not meet the criteria, so 7 articles were selected for final analysis. The results showed that stress factors, knowledge and sosial support played an important role in the self-care behavior of DFU patients. **Conclusion**; Good self-management in DFU patients is greatly influenced by a variety of factors, including knowledge about diabetes and support from the environment. More research is needed to develop interventions that can improve self-care behaviors and prevent further complications in diabetic patients.

Keywords: *Diabetic Foot Ulcer (DFU), self-management, diabetes, diabetes complications*

BACKGROUND

Diabetes is a chronic disease that affects the metabolism of the human **body** (Gurmu & Dechasa, 2023). Diabetes mellitus has become a major health problem globally impacting social, economic, and development aspects in developing countries. Indonesia is in the top 10 countries with the highest number of diabetics. It is predicted that there will be 14.1 million people with diabetes in Indonesia by 2035. A person's view of a disease can affect their self-care behavior because people with type 2 diabetes in Indonesia have different beliefs that affect how they take care of their feet (Indrayana et al., 2019). Therefore, it is important to hold a program to increase knowledge about foot care and reduce diabetic stress in diabetic patients (Mekonen & Gebeyehu Demssie, 2022).

One type of complication experienced by DM sufferers is Diabetic Foot Ulcer (DFU). Diabetic foot ulcers (DFU) are injuries that involve damage to the epithelium, dermis, and sometimes deeper structures such as muscles, bones, and blood **vessels** (Ferroni et al., 2019). The presence of wounds on the legs increases the burden of self-care that diabetic patients must bear. In addition, this condition also increases the mental demands necessary for patients to comply with medical recommendations (Gupta et al., 2016). Diabetic foot is also a great burden and threat to individuals, families, and society. It is therefore important to encourage good self-management behavior in patients. However, even though nurses have provided good health knowledge to patients, their self-management is still unsatisfactory. Therefore, this study aims to explore how self-management in patients with DFU (Xueqing Wang et al, 2023).

The self-management in the treatment of DFU that is very helpful for maintaining or restoring health is in the form of glycemic control, reducing the number of amputations by treating wounds and also minimizing the risk of cardiovascular disease as a complication by paying attention to blood pressure periodically (Paton et al., 2021)

METHODS

Protocol and registrations

We used Scoping Review, guided by PRISMA questions for coverage review reporting, to collect and summarize the existing literature on **Self Management in Diabetic Foot Ulcer Patients**.

The method used to conduct the review follows a five-stage framework described by Arksey and Malley (2005). To conduct coverage studies and report in accordance with the PRISMA extension for coverage review. Inclusion and exclusion criteria for review are determined at the outset.

Eligibility criteria

Inclusion criteria

1. Articles that focus on self-management of diabetic foot ulcer patients
2. Articles that include quantitative studies
3. Articles of the last 10 years

Exclusion criteria

1. Published before 2014
2. Qualitative study design

Research studies

The search was carried out both electronically and manually. The search strategy consists of three steps. First, the initial search was carried out using the following electronic databases: **Pubmed, Science Direct and Garuda**. The search was carried out using the words diabetic foot ulcer OR diabetic foot wound AND self-management. The article search did the last 10 years of filtering, study research, title and abstract. Selection and inclusion for this review involves two stages: screening abstracts and titles; Read the full text to select the articles that are eligible for final inclusion.

Data extractions, analysis and synthesis

Once the article is eligible for final inclusion, the article will be analyzed using the elicitor application. The results of the analysis of the article on Elicitor will be exported to Microsoft Excel to collect the relevance of the data for further analysis. One place is used to collect information about the characteristics of the research, such as: author's name, research country, research design, research objectives and samples.

The total search includes 113 articles from three databases. After filtering for duplicates, 71 articles remain. Selection based on abstract and title caused 36 articles not to be included, leaving 35 articles left. Of these 35 articles, 28 were excluded in the exclusion process, leaving 7 articles that have been considered after reading the entire text. Finally, 7 articles were included in the end.

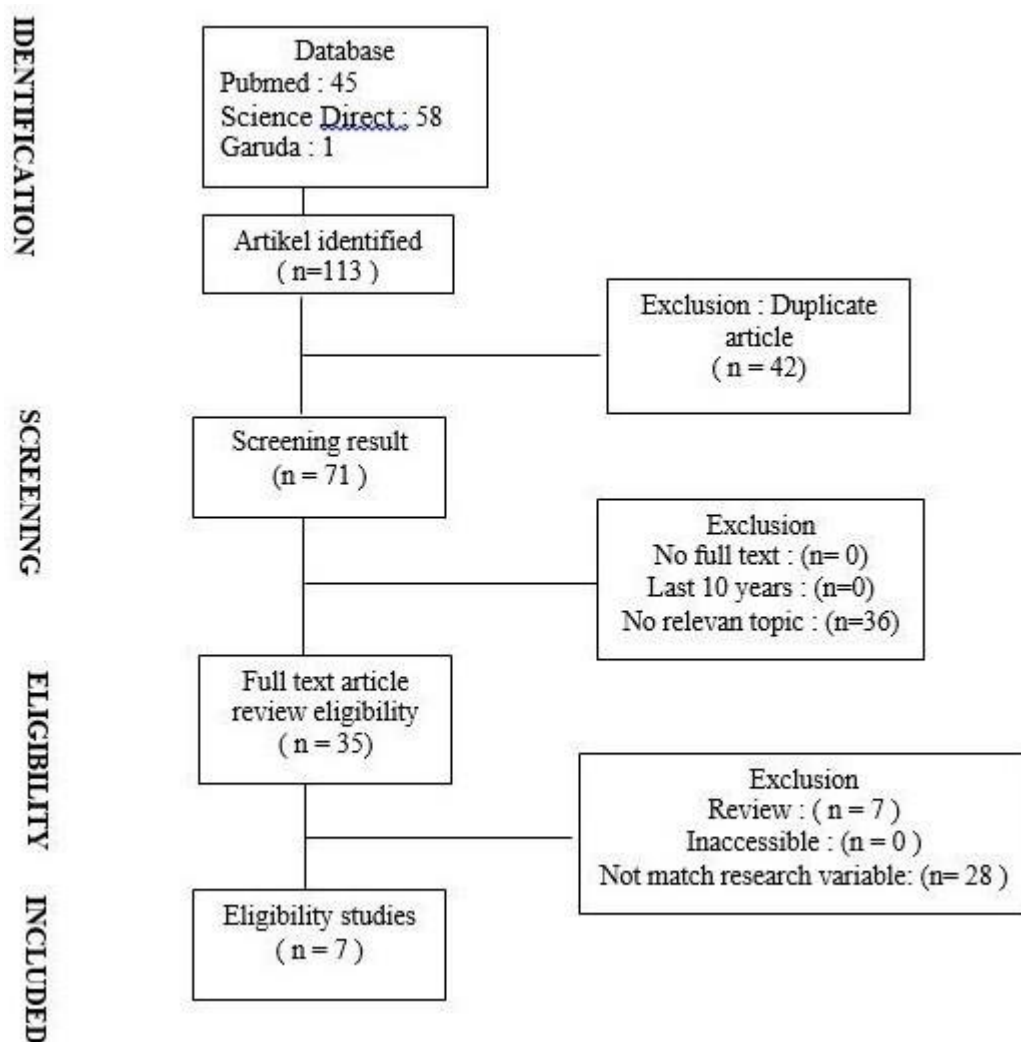


Figure 1. Flowchart of literature search

Table 1. Details Of The Reviewed Papers

Author Title	Year	Country	Study Design and Purpose	Result
Xueqing Wang et al (Exploring the relationship between self-management behaviour, family function and health Information)	2023	China	The study used a sequential mixed-method explanatory research design, which involved the collection and analysis of quantitative data as well as semi-structured interviews to further understand the influence of health information.	The study involved 225 people as a research sample. The data collection methods used include questionnaires and interviews
Sofyan Indrayana (Illness Perception as a Predictor of Foot Care Behavior Among People With Type 2 Diabetes Mellitus in Indonesia).	2018	Taiwan	Research design Cross-sectional study with convenience technique. This study aims to find out the relationship between knowledge of foot care self-management, and foot care behavior in DMT2 patients in Indonesia.	Sampling was used to recruit 200 DMT2 patients from the Outpatient Section of the Islamic Hospital. Foot Care Knowledge Questionnaire, Brief Disease Perception, Local Beliefs and Care Behaviors Legs have been given
Yonas Gurmu et al (Effect of patient centred diabetes self care management education among adult diabetes patient in Ambo town)	2023	Ethiopia	The purpose of this study is to assess the influence of patient centered diabetes self-care management education among adult diabetic patient in the city of Ambo, Ethiopia	Of the 157 diabetes patients who were registered and followed up, 58 diabetic patient were involved and were volunteers to participate in this study
Maulidya et al., (Multifactorial Analysis Related to Self-Management in Diabetic Foot Ulcer (DFU) Patients)	2022	Indonesian	This research method uses the literature review method. The purpose of this study was to analyze factors related to self-management in patients with Diabetic Foot Ulcer (DFU).	Stress factors are the factors that most affect self-management in patients with Diabetic
(Bossman et al., 2021). Patients knowledge of Diabetes foot complications and self-management practices in Ghana: A phenomenological study	2021	Ghana	This study uses a phenomenological research design. To assess the knowledge and experience of adult patients with diabetes regarding diabetes complications and self-management practices with an emphasis on foot care.	Almost all participants showed awareness regarding self-management diet management practices, but only a few had limited knowledge in foot care practices.
(Kelechi et al., 2022) Efficacy of a Self-managed Cooling Intervention for Pain and Physical Activity in Individuals with Recently Healed Chronic Venous Leg and Diabetic Foot Ulcers: A Randomized Controlled Trial	2022	America	Data is analyzed descriptively. The purpose of this study was to evaluate the clinical efficacy in individuals with venous leg ulcers (VLU) and diabetic foot ulcers (DFU) who have recently recovered in pain reduction and increased physical activity	For 81 participants were randomized to the cooling and placebo (VLU n = 26/29) and DFU (n = 12/16) groups. Slight reduction in VLU pain severity (\bar{y} 0.5, \bar{y} 0.2) and impairment (\bar{y} 0.4, \bar{y} 0.5) and minimal reduction in DFU pain severity (0, \bar{y} 0.1) and impairment (0.4/0.1)

Zhu et al (Exploring barriers and enablers of self management behavior in patient with diabetic foot ulcer. A qualitative study from the perceptions of patients, caregivers, and healthcare professionals in primary care	2 023	Singapore	The research method used is qualitative study. Aims to develop interventions to improve self-management in diabetic management	Perceptual and emotional processes are the interaction between low perception of control, low perception of threat, and fatigue due to disease hindering the management of patients' DFU by triggering emotional and physical fatigue and low motivation to implement DFU recommendation
---	----------	-----------	--	--

RESULTS AND DISCUSSION

A literature search yielded a total of 113 articles from three databases. After filtering to eliminate duplicates, 71 articles remained. The selection process based on abstract and title eliminated 36 articles, leaving 35 articles. Of the 35 articles that were read thoroughly, 28 articles were excluded because they did not meet the inclusion criteria, and finally 7 articles were included in the final analysis. The results of the analysis showed that factors such as knowledge about diabetes, stress, and social support had a significant effect on the self-care behavior of DFU patients.

Diabetes mellitus, particularly type 2, has become a significant global health problem, with Indonesia included in the list of countries with the highest number of people with diabetes. DFU is one of the most common and serious complications, which can lead to amputation and increase the burden of care for patients.

The results of the study show that although many diabetic patients have knowledge about foot care, many still have difficulty in implementing effective self-management. The stress experienced by patients, both physical and psychological, is one of the main factors that affect their ability to perform self-care. In addition, social support from families and health workers has also proven to play an important role in increasing patient motivation and adherence to recommended treatments.

The importance of education and interventions that focus on improving knowledge as well as stress reduction should be a major concern in diabetes management programs. More research is needed to develop more effective strategies in supporting DFU patients in managing their condition and preventing further complications.

CONCLUSION

This study identified and analysed various factors that affect self-management in patients with Diabetic Foot Ulcer (DFU). The results showed that although knowledge about foot care and diabetes was quite high among patients, many still had difficulty in implementing effective self-care behaviors. Factors such as emotional stress, social support, and perception of illness contribute significantly to a patient's ability to manage their condition. In addition, interventions focused on patient education and stress reduction proved important in improving self-management. Therefore, it is important to design a comprehensive intervention program that not only improves patient knowledge but also provides emotional and social support. Further research is needed to explore more effective strategies in supporting DFU patients in their efforts to achieve optimal self-management.

REFERENCES

- Bossmann, I. F., Dare, S., Oduro, B. A., Baffour, P. K., Hinneh, T. K., & Nally, J. E. (2021). Patients' knowledge of diabetes foot complications and self-management practices in Ghana: A phenomenological study. *PLoS ONE*, *16*(8 August), 1–15. <https://doi.org/10.1371/journal.pone.0256417>
- Ferroni, L., Gardin, C., Paola, L. D., Campo, G., Cimaglia, P., Bellin, G., Pinton, P., & Zavan, B. (2019). Characterization of dermal stem cells of diabetic patients. *Cells*, *8*(7). <https://doi.org/10.3390/cells8070729>
- Gupta, J., Mitra, N., Townsend, R. R., Fischer, M., Schelling, J. R., & Margolis, D. J. (2016). Variants in genes belonging to the fibroblast growth factor family are associated with lower extremity amputation in non-Hispanic whites: Findings from the chronic renal insufficiency cohort study. *Wound Repair and Regeneration*, *24*(4), 705–711. <https://doi.org/10.1111/wrr.12447>
- Gurmu, Y., & Dechasa, A. (2023). Effect of patient centered diabetes self care management education among adult diabetes patients in Ambo town, Ethiopia: An interventional study. *International Journal of Africa Nursing Sciences*, *19*(November 2021), 100606. <https://doi.org/10.1016/j.ijans.2023.100606>
- Indrayana, S., Guo, S. E., Lin, C. L., & Fang, S. Y. (2019). Illness Perception as a Predictor of Foot Care Behavior Among People With Type 2 Diabetes Mellitus in Indonesia. *Journal of Transcultural Nursing*, *30*(1), 17–25. <https://doi.org/10.1177/1043659618772347>
- Kelechi, T. J., Mueller, M., Madisetti, M., & Prentice, M. (2022). Efficacy of a Self-managed Cooling Intervention for Pain and Physical Activity in Individuals with Recently Healed Chronic Venous Leg and Diabetic Foot Ulcers: A Randomized Controlled Trial. *Journal of Wound, Ostomy and Continence Nursing*, *49*(4), 365–372. <https://doi.org/10.1097/WON.0000000000000880>
- Maulidya, N., Komariah, M., & Nursiswati, N. (2022). Multifactorial Analysis Related to Self-Management in Diabetic Foot Ulcer (DFU) Patients. *Silampari Journal of Nursing*, *6*(1), 609–618. <https://doi.org/10.31539/jks.v6i1.4811>
- Mekonen, E. G., & Gebeyehu Demssie, T. (2022). Preventive foot self-care practice and associated factors among diabetic patients attending the university of Gondar comprehensive specialized referral hospital, Northwest Ethiopia, 2021. *BMC Endocrine Disorders*, *22*(1), 1–11. <https://doi.org/10.1186/s12902-022-01044-0>
- Paton, J., Abey, S., Hendy, P., Williams, J., Collings, R., & Callaghan, L. (2021). Behaviour change approaches for individuals with diabetes to improve foot self-management: a scoping review. *Journal of Foot and Ankle Research*, *14*(1), 1–14. <https://doi.org/10.1186/s13047-020-00440-w>
- Zhu, X., Lee, E. S., Lim, P. X. H., Chen, Y. C., Chen, F. H. F., & Griva, K. (2023). Exploring barriers and enablers of self-management behaviours in patients with diabetic foot ulcers: A qualitative study from the perceptions of patients, caregivers, and healthcare professionals in primary care. *International Wound Journal*, *20*(7), 2764–2779. <https://doi.org/10.1111/iwj.14153>

- Mekonen, E. G., & Gebeyehu Demssie, T. (2022). Preventive foot self-care practice and associated factors among diabetic patients attending the university of Gondar comprehensive specialized referral hospital, Northwest Ethiopia, 2021. *BMC Endocrine Disorders*, 22(1), 1–11. <https://doi.org/10.1186/s12902-022-01044-0>
- Paton, J., Abey, S., Hendy, P., Williams, J., Collings, R., & Callaghan, L. (2021). Behaviour change approaches for individuals with diabetes to improve foot self-management: a scoping review. *Journal of Foot and Ankle Research*, 14(1), 1–14. <https://doi.org/10.1186/s13047-020-00440-w>
- Zhu, X., Lee, E. S., Lim, P. X. H., Chen, Y. C., Chen, F. H. F., & Griva, K. (2023). Exploring barriers and enablers of self-management behaviours in patients with diabetic foot ulcers: A qualitative study from the perceptions of patients, caregivers, and healthcare professionals in primary care. *International Wound Journal*, 20(7), 2764–2779. <https://doi.org/10.1111/iwj.14153>