



IMPLEMENTATION OF HEALTH EDUCATION ON DIABETES FOOT EXERCISES USING BOOKLET MEDIA FOR A DIABETES MELLITUS SUFFERER IN KARANGTURI VILLAGE BANYUMAS REGENCY: CASE REPORT



Lusi Setiawati*, Nuriya, Ridlwan Kamaluddin, Agis Taufik
Department of Nursing, Faculty of Health Sciences, Jenderal Soedirman University, Purwokerto

ABSTRACT

Introduction: Diabetes mellitus is also known as a "lifelong disease," but it can be managed. Indonesia ranks fifth in the world for the highest number of sufferers, with 19.5 million sufferers in 2021, and this number is predicted to increase by 2045. Management is needed to improve the quality of life and prevent complications in diabetes mellitus sufferers. Foot exercises are considered a simple treatment option, but many people are unfamiliar with it. Therefore, health education is needed using media that can increase knowledge, such as booklets. **Objective:** This study aims to determine the effect of implementing health education in the form of diabetic foot exercises using booklets as media on diabetes mellitus sufferers. **Methods:** This research method used a case report and the DKQ-24 (Diabetes Knowledge Questionnaire), a questionnaire assessing knowledge about diabetic foot exercises. Descriptive data analysis was then conducted by comparing pretest and posttest scores. **Discussion:** After health education using a booklet during one meeting and demonstration of diabetic foot exercises during three meetings, there was an increase in respondents' knowledge as evidenced by an increase in posttest results. **Conclusion:** Implementation of health education on diabetic foot exercises using booklets for Mrs. TM can increase the knowledge of diabetes mellitus sufferers.

Keywords: booklet, diabetes mellitus, health education, diabetic foot exercises

Citation: Setiawati, L., Nuriya, N., Kamaluddin, R. & Taufik, A. 2025. 'Implementation of Health Education on Diabetes Foot Exercises Using Booklet Media for A Diabetes Mellitus Sufferer in Karangturi Village Banyumas Regency: Case Report'. *International Journal of Biomedical Nursing Review*. 4(2). p36-40. <https://doi.org/10.20884/1.ijbnr.2025.4.2.17397>

INTRODUCTION

Diabetes mellitus (DM) is a metabolic disorder resulting from increased blood glucose levels. DM is also known as a "lifelong disease" because it cannot be cured but can be controlled by managing blood glucose levels to avoid potential complications (Handayani et al., 2024). Although classified as a non-communicable disease, DM is a leading cause of death, with a steadily increasing global prevalence, often diagnosed only after symptoms or complications appear.

DM can be triggered by various risk factors such as heredity, obesity, unhealthy lifestyle, poor diet, snacking habits, stress, smoking, and lack of physical activity (Anwar et al., 2024).

According to the International Diabetes Federation (IDF) 2021, there were 536.6 million cases worldwide, with projections reaching 783.2 million by 2045. Almost one in two adults (20–79 years) with diabetes are unaware of their condition (44.7% of 239.7 million cases). The highest proportion of undiagnosed cases is in Africa (53.7%), the Western Pacific (52.8%), and Southeast Asia (51.3%), including Indonesia (Ramadhan et al., 2025). Indonesia ranks fifth worldwide, with 19.5 million cases in 2021, expected to rise to 28.6 million by 2045 (Ministry of Health, 2021).

Managing diabetes is essential to reduce complications. Based on the Indonesian Ministry of Health Decree No. HK.01.07/MENKES/603/2020, type II DM

*Correspondence Author :
Lusi Setiawati; Department of
Nursing, Faculty of Health
Sciences, Jenderal Soedirman
University, Purwokerto
lusisetia11@gmail.com

Received: 22-11-2024
Approved: 21-02-2025
Published: 20-04-2025

management includes education, physical activity, diet, regular blood glucose monitoring, and medication. The goal is to improve patients' quality of life and prevent complications (Prawinda et al., 2024).

Diabetic foot exercise is a physical activity that strengthens and stretches the lower extremities, prevents wounds, improves blood circulation, prevents deformities, and helps overcome joint mobility limitations. These benefits occur as muscle contractions improve glucose sensitivity (Sanjaya et al., 2023). Educating DM patients about foot exercises is crucial to prevent severe complications. Many with neuropathy are unaware of preventive measures and are reluctant to seek care, considering symptoms "normal." Thus, health education about DM and foot exercises is essential (Harmawati & Patricia, 2020).

Booklets are effective media for health education as they combine text and illustrations to spark curiosity, making information easier to understand (Muskananfolo & Feoh, 2023). They also provide complete information in an engaging way, encouraging self-study, and serve as effective counseling tools.

A preliminary study in Karangturi Village found that most DM patients were adult women. Interviews revealed that one patient experienced numbness and tingling in her feet, rarely engaged in physical activity, and lacked knowledge about her illness. Therefore, this case study was conducted to

examine the application of diabetic foot exercise health education using booklets and to report nursing care related to this problem.

METHOD

This study used a case report design to identify the effect of health education using booklet media on knowledge about diabetes mellitus and diabetic foot exercise in one client, Mrs. TM (28 years old), diagnosed with diabetes mellitus with neuropathy symptoms.

The intervention was conducted in Karangturi Village, Sumbang Sub-district, on May 12–15, 2025. The procedure included assessment, nursing diagnosis, intervention planning based on literature, health education using a booklet, and demonstration of foot exercises. Instruments: SAP, booklet, foot exercise SOP, DKQ-24, and a diabetic foot exercise knowledge questionnaire. Data collection: interviews, observation, documentation, pretest, and posttest. Analysis: descriptive-comparative, comparing pretest and posttest results to evaluate knowledge improvement.

RESULT

The foot exercise demonstration was conducted over three days, from May 4–6, 2025, and the health education program was conducted over one day, on May 12, 2025. Evaluation was conducted after the implementation was completed. The author conducted regular visits to the clients without representation.

Table 1. Results of the DKQ-24 (Diabetes Knowledge Questionnaire)

Client	Results				
	<i>Pre-test</i>	%	<i>Post-test</i>	%	Difference
Ny. TM	10	41,6%	17	70,8%	29,2%

Table 1 shows a 29.2% increase in questionnaire results. Based on the knowledge level category, before health education, the pretest results were 41.6%, indicating that clients' knowledge regarding diabetes mellitus was in the poor knowledge

category. After health education, there was an increase, with a posttest result of 70.8%, indicating that clients' knowledge regarding diabetes mellitus was in the sufficient knowledge category.

Table 2. Results of the Diabetic Foot Exercise Knowledge Questionnaire

Client	Results				
	<i>Pre test</i>	%	<i>Post test</i>	%	Difference
Ny. TM	12	66,6%	15	83,3%	17,3%

Table 2 shows a 17.3% increase in questionnaire results. Based on the knowledge level category, before health education, the pretest results were 66.6%, indicating that clients' knowledge regarding diabetic foot exercises was in the sufficient knowledge category. After health education, there was an increase with the posttest results of 83.3%, indicating that clients' knowledge regarding diabetes mellitus was in the good knowledge category.

DISCUSSION

Nursing care for Mrs. TM began with an assessment using interview and observation methods. Then, knowledge was measured using the DKQ-24 (Diabetes Knowledge Questionnaire) and a foot exercise knowledge questionnaire. Based on the results of the assessment, Mrs. TM experienced a knowledge deficit regarding her disease, namely diabetes mellitus. Mrs. TM had never received any other intervention other than medication during routine monthly check-ups at the community health center and clinic. According to Sutomo & Purwanto (2023), the management of diabetes mellitus aims to control blood glucose levels to stabilize and reduce the risk of complications and recurrence. According to Pratiwi et al., (2025), education is the main basis for the treatment and prevention of diabetes mellitus, so education is very necessary to increase knowledge in carrying out diabetes treatment both pharmacologically and non-pharmacologically.

This study proves that booklet media can increase knowledge about diabetes mellitus and diabetic foot exercises because there is a difference in pretest and posttest knowledge scores of 29.2% related to diabetes mellitus knowledge and 17.3% related to diabetic foot exercise knowledge. Tables 4.1 and 4.2 prove that there is a difference that can be caused by knowledge can be increased through health education supported by the media used and also has a significant influence on increasing knowledge. Booklet media was chosen because it can influence a person's knowledge and has advantages such as more detailed and clear information delivered, can be used in independent learning, easy to make, reproduce, repaired as needed, can be made simply at a relatively low cost compared to audiovisual media, booklets can

be stored for a long time, easy to carry and reread without forgetting the contents of the booklet (Hasanah & Permadi, 2020).

This study includes the results of the pretest and posttest questionnaires administered before and after the intervention. Prior to the intervention, there were still insufficient knowledge scores on the diabetes mellitus knowledge questionnaire. This may be due to the fact that the client had not yet received the intervention before completing the pretest questionnaire, thus indicating that the client's knowledge was insufficient due to the lack of impact of the intervention. After the intervention, there was an increase in posttest scores on both questionnaires. This indicates that the intervention using the booklet can improve the client's knowledge about diabetes mellitus and diabetic foot exercises.

This study also includes the implementation and evaluation stages of nursing care for Mrs. TM regarding knowledge deficits through health education. This implementation focused on knowledge about diabetes and diabetic foot exercises. The client was able to complete the questionnaire independently. She was also able to perform the diabetic foot exercises independently, but required occasional guidance from the author. The client was then able to explain the knowledge she gained when the author asked questions. The client also began to understand the perceptions and problems she faced after the health education.

CONCLUSION

Health education using booklet media for Mrs. TM began with an assessment of the client's general condition and complaints. The assessment found that the client had never received health education about diabetes mellitus and had never received non-pharmacological therapy. The nursing diagnosis taken was knowledge deficit related to lack of exposure to information d.d the client seemed confused about her condition and had never received health education related to diabetes mellitus. The intervention carried out to address the knowledge deficit in the client was health education using booklet media on knowledge about diabetes mellitus and diabetic foot exercises for diabetes mellitus sufferers. The intervention was carried out

once for health education and three meetings for demonstrations of diabetic foot exercises and the results showed an increase in knowledge with a difference in pretest and posttest results of 29.2% regarding knowledge of diabetes mellitus and 17.3% regarding knowledge of diabetic foot exercises. The client was also able to do diabetic foot exercises independently, was able to explain the knowledge he had gained, began to understand the perceptions and problems faced after health education.

REFERENCES

- Anwar, C., Asyura, F., & Novia, D. (2024). Hubungan Pola Makan dan Stres dengan Kejadian Diabetes Mellitus di Rumah Sakit Bhayangkara Banda Aceh The Relationship between Diet and Stress in Outpatients at Bhayangkara Hospital in Banda Aceh. *Journal of Healthcare Technology and Medicine*, 10(1), 2615–109.
- Handayani, I., Siregar, I. S., & Ramadan, C. P. (2024). Hubungan Pola Makan Dengan Kejadian Diabetes Mellitus Di Puskesmas Binjai Kota Kota Binjai. *Jintan: Jurnal Ilmu Keperawatan*, 4(1), 94–104.
- Harmawati, & Patricia, H. (2020). Pengaruh pendidikan kesehatan melalui media audio visual terhadap pengetahuan pelaksanaan senam kaki diabetes melitus. *Jurnal Kesehatan Medika Saintika*, 11(2), 263–270.
- Hasanah, U., & Permadi, M. R. (2020). Pengaruh Media Booklet Terhadap Pengetahuan Remaja Putri Mengenai Stunting Di Kabupaten Probolinggo. *Harena : Jurnal Gizi*, 1(1), 56–64.
- Kementrian Kesehatan, R. (2021). Saatnya Mengatur Simanis. *Artikel Diabetes Mellitus*.
- Muskananfol, I. L., & Feoh, F. T. (2023). Pengaruh Pendidikan Kesehatan Dengan Booklet Tas Siaga Bencana Terhadap Pengetahuan Penyintas Siklon Seroja Di Kabupaten Kupang. *Jurnal Keperawatan Suaka Insan (Jksi)*, 8(1), 30–35. <https://doi.org/10.51143/jksi.v8i1.422>
- Pratiwi, N. H., Wahyudi, D. A., & Sadhana, W. (2025). Hubungan Lima Pilar Pengelolaan Diabetes Mellitus Dengan Kadar Glukosa Darah Pada Pasien DM Tipe II di Puskesmas Bernung. 3(3), 120–126.
- Prawinda, Y. D., Minahussanyyah, Setiya Ningrum, D. E., Listiana, Mujirahayu, V., Noviana, D. W., Zuliyanti, E., Devica Permatayaya, K. K., & Pranata, S. (2024). Penatalaksanaan Lima Pilar Diabetes Melitus Oleh Diabetisi : Studi Fenomenologi. *Journal Nursing Research Publication Media (NURSEPEDIA)*, 3(1), 12–25. <https://doi.org/10.55887/nrpm.v3i1.52>
- Ramadhan, D., Koerniawan, D., Kesehatan, F. I., Katholik, U., & Charitas, M. (2025). Efektivitas Aktivitas Senam Kaki terhadap Penurunan Kadar Glukosa Darah pada Pasien Diabetes Mellitus. 3(April).
- Resti, H. Y., & Cahyati, W. H. (2022). Kejadian Diabetes Melitus Pada Usia Produktif Di Puskesmas Kecamatan Pasar Rebo. *Higeia Journal Of Public Health Research And Development*, 6(3), 350–361. <http://journal.unnes.ac.id/sju/index.php/higeia>
- Safutri, N. A., Naziyah, N., & Helen, M. (2023). Pengaruh Pendidikan Kesehatan melalui Media Leaflet tentang Senam Kaki Diabetik terhadap Pencegahan Kaki Ulkus Diabetikum pada Pasien Diabetes Mellitus di Wilayah Puskesmas Kecamatan Kebayoran Baru Kelurahan Cipete Utara. *Malahayati Nursing Journal*, 5(8), 2437–2450. <https://doi.org/10.33024/mnj.v5i8.9080>
- Sanjaya, I., Inayati, A., & Hasanah, U. (2023). Penerapan Senam Kaki Diabetes Terhadap Nilai Ankle Brachial Index Pasien Diabetes Melitus Tipe 2 Di Ruang Bedah Rsud Jend. Ahmad Yani Metro. *Jurnal Cendikia Muda*, 3(3), 355–363. <https://www.jurnal.akperdharmawacana.ac.id/index.php/JWC/article/view/479>
- Sutomo, & Purwanto, N. H. (2023). Pengaruh Konsumsi Tisane Daun Belimbing Wuluh Terhadap Perubahan Kadar Gula Dalam Darah Pada Penderita Diabetes Mellitus Tipe 2. *Jurnal Keperawatan*, 16(1), 1–15. [https://doi.org/10.1016/s1138-3593\(01\)73932-9](https://doi.org/10.1016/s1138-3593(01)73932-9)
- Yulita, R. F., Waluyo, A., & Azzam, R.

(2019). Pengaruh Senam Kaki terhadap Penurunan Skor Neuropati dan Kadar Gula Darah pada Pasien DM Tipe 2 di Persadia RS. TK. II. Dustira Cimahi.

Journal of Telenursing (JOTING), 1(1), 80–95. <https://doi.org/10.31539/joting.v1i1.498>



This work is licensed under a Creative Commons Attribution



is work is licensed under a Creative Commons Attribut