

Original Research Article

Analysis of the Relationship between the Role of Nurses as Educators and Self-Care of Type-2 Diabetes Mellitus Patients at Royal Prima Hospital Medan in 2024

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Abstract: Type-2 diabetes mellitus is one of the chronic diseases that continues to increase in prevalence, including in Indonesia, with a projection of reaching 10 million sufferers by 2030. The management of diabetes mellitus requires a holistic approach that involves the patient's active role in their self-care. This study aims to analyze the relationship between the role of nurses as educators and the self-care of type-2 diabetes mellitus patients at Royal Prima Hospital Medan. The method used in this study is a quantitative approach with a cross-sectional design. The study population consisted of 522 patients with diabetes mellitus who were registered at the Internal Medicine Poly of Royal Prima Hospital Medan. The sample was 85 respondents, and the purposive sampling technique was used based on the inclusion and exclusion criteria set. Data were collected through questionnaires that measured patients' self-care knowledge and behavior and analyzed using the Chi-Square test to assess the relationship between nurse roles and self-care. The analysis results showed a p-value of 0.001, indicating a significant relationship between the role of nurses as educators and the quality of patient self-care. These findings show that effective education by nurses contributes positively to the understanding and application of self-care by patients. This research is expected to provide deeper insights into the importance of the role of nurses in the management of type-2 diabetes mellitus and provide recommendations to improve the quality of nursing services, and optimize patient care in hospitals.

Keywords: Type-2 Diabetes Mellitus, the Role of Nurses, Health Education, Self-Care.

INTRODUCTION

Diabetes mellitus is a chronic disease whose prevalence is increasing around the world, including in Indonesia, with a projected number of sufferers reaching 10 million by 2030, according to the Indonesian Ministry of Health. Type-2 diabetes mellitus is the most common, often associated with an unhealthy lifestyle, poor diet, and lack of physical activity, all of which increase the risk of the disease as well as its complications (Anggraeni *et al.*, 2020). The management of diabetes mellitus requires a holistic and sustainable approach in which patients are expected to practice self-care, including dietary management, physical activity, blood sugar monitoring, and medication adherence to improve quality of life and reduce complications (Tambunan *et al.*, 2023).

Nurses play an essential role in supporting patients through education and motivation, providing relevant information and emotional support to encourage healthy behaviors in diabetes management. A collaborative approach between patients and healthcare professionals, especially nurses, is necessary for successful, effective, and sustainable diabetes management, hoping patients can be active in self-care (Nadia Nurdinilah *et al.*, 2024). Through the role of nurses as educators, patients can acquire the knowledge and skills needed for self-care, including diet management, blood sugar monitoring, stress management, and increased physical activity (Inda Mutiara *et al.*, 2023).

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Education from nurses plays an essential role in increasing the knowledge of diabetes mellitus patients, which affects their behavior and compliance with self-management. The nurses' communication skills influence the effectiveness of this education, good relationships with patients, and understanding of their needs (Pranata *et al.*, 2020). At Royal Prima Hospital Medan, nurses' educative role is crucial in managing complex type-2 diabetes. However, challenges such as education levels and family support still affect the understanding and implementation of patient self-care. This study aims to analyze the relationship between the role of nurse educators and patient self-care to provide insight into improving the quality of nursing and supporting the self-management of type-2 diabetes patients. The results are expected to identify the supporting and inhibiting factors of the role of nurses as educators, as well as contribute to nursing science and patients' quality of life.

RESEARCH METHODS

This study uses a quantitative approach with a cross-sectional design to observe the relationship between the role of nurses as educators (independent variables) and the self-care of type-2 diabetes mellitus patients (dependent variables) simultaneously. This activity was held at Royal Prima Hospital, Medan, North Sumatra, in September 2024. The study population is type-2 diabetes mellitus patients recorded at the Internal Medicine Poly of Royal Prima Hospital for the last 3 months, totaling 522 people, with a minimum sample of 85 people calculated through the Slovin formula. The sampling technique used is non-probability sampling with the purposive sampling method, where samples are selected based on inclusion criteria such as diagnosis of type-2 diabetes mellitus, ability to communicate in questionnaire language, and consent to participate. Exclusion criteria include patients with type-1 diabetes mellitus, severe comorbidities, and unwillingness to be a respondent. Data processing is done through editing, coding, and data entry using SPSS, cleansing, and processing. Data analysis included univariate for variable description and bivariate using a t-dependent test (paired t-test).

RESEARCH RESULTS

Respondent characteristics illustrate the diversity of respondents based on gender, age, education, and occupation. Based on these characteristics, it is hoped that it can provide a better and more precise description of the condition of the 30 respondents and their connection to the problem and research objectives.

Table 1: Overview of Research Respondents, by Age, Gender, Education, and Employment Status Type-2 Diabetes Mellitus Patients at Royal Prima Hospital Medan in 2024

Characteristic	Category	Sum	Percentage
Age	30 to 40 years	11	12.9%
	41 to 50 years	27	31.8%
	>50 Years	47	55.3%
	Total	85	100%
Gender	Man	51	60%
	Woman	34	40%
	Total	85	100%
Education	SMP	11	12.9%
	SMA	28	32.9%
	Higher Education	46	54.1%
	Total	85	100%
Employment Status	PNS	23	27.1%
	Private	34	40%
	Entrepreneurial	28	32.9%
	Total	85	100%

Source: Primary Data processed in 2024

Table 1 displays the characteristics of the respondents in this study, including age, gender, education, and occupational status of type-2 diabetes mellitus patients at Royal Prima Hospital Medan in 2024. The age group over 50 years dominated with 47 respondents (55.3%), followed by 41–50 years (31.8%) and 30–40 years (12.9%), indicating that type-2 diabetes mellitus is more common in the elderly. Most respondents were men (60%), with women as many as 40%. In education, 54.1% have higher education, while the rest have high school education (32.9%) and junior high school (12.9%). Employment status varies, consisting of civil servants (27.1%), private workers (40%), and self-employed (32.9%), reflecting the diversity of patients' backgrounds and potentially affecting their self-care.

Table 2: Results of the Chi-Square Test on the Relationship between the Role of Nurses as Educators and Self-Care of Type-2 Diabetes Mellitus Patients at Royal Prima Hospital Medan in 2024.

Variable	Self-Care for Diabetes Mellitus Patients		Total	df	p-value
	Good Self-Care	Poor Self-Care			
The Role of Good Nurses	50	5	55	1	0.001
	59%	6%	65%		
The Role of Bad Nurses	10	20	30		
	12%	24%	35%		
Total	60	25	85		
	71%	29%	100%		

Source: Primary Data processed in 2024

Table 2 shows the Chi-Square test results regarding the relationship between the role of nurses as educators and self-care for type-2 diabetes mellitus patients at Royal Prima Hospital Medan in 2024. There were 55 respondents (65%) with a good nurse role, of which 50 (59%) had good self-care, while five others (6%) were bad. In the group with a lousy nurse role, only ten respondents (12%) had good self-care, and 20 (24%) had lousy self-care. Overall, out of 85 respondents, 71% showed good self-care. The p-value of 0.001 shows a significant relationship between the educational role of nurses and the quality of patient self-care, confirming the contribution of nurse educators to the quality of self-care of type-2 diabetes mellitus patients at Royal Prima Hospital Medan.

DISCUSSION

This study identifies the characteristics of respondents of type-2 diabetes mellitus patients at Royal Prima Hospital Medan in 2024, including age, gender, education, and employment status. Based on age, the age group over 50 years dominated with 47 respondents (55.3%), followed by 41–50 years old (27 respondents, 31.8%), and 30–40 years old (11 respondents, 12.9%). These findings are consistent with the theory that the risk of type-2 diabetes increases with age, especially over 45 (Siwi *et al.*, 2023). Most respondents were men (51 people, 60%), while women amounted to 34 people (40%). These differences may reflect lifestyle factors and health access that affect the prevalence of diabetes between the sexes (Italy, 2022). In the education category, most of the respondents had higher education (46 people, 54.1%), followed by high school (28 people, 32.9%) and junior high school (11 people, 12.9%). Higher education can improve patients' understanding of health and motivation to self-care, which aligns with the theory that knowledge better supports disease prevention behaviors (Sintia, Nazhira Arifin, 2022).

Respondents based on employment status were divided into civil servants (PNS), as many as 23 people (27.1%), private workers, 34 people (40%), and entrepreneurs, 28 people (32.9%), reflecting the variety of jobs that affect access to health information and medical services. Socioeconomic theory explains that employment status and income play a role in access to health services and diabetes management (Purba *et al.*, 2021); (Oktavia *et al.*, 2024). Understanding this demographic profile is essential for designing appropriate interventions and educational programs to improve the quality of life of type-2 diabetic patients.

The Chi-Square test showed a p-value of 0.001, which was significantly below the limit of 0.05, indicating a strong relationship between the role of nurse education and the improvement of self-care of type-2 diabetes patients at Royal Prima Hospital Medan. These results are supported by research by Indra Mutiara (2023), which found a significant relationship with Spearman's rho value of 0.002 between the role of nurse education and self-care for type-2 diabetes patients at Vita Insani Pematang Siantar Hospital (Inda Mutiara *et al.*, 2023). Mursidah Dewi (2022) also found that diabetes care education improves the self-management ability of type II diabetes patients at the Kandis Health Center, Merangin (Mursidah Dewi, 2022).

Education from nurses is essential in increasing patients' understanding of diabetes mellitus management, including diet, blood sugar monitoring, and a healthy lifestyle (Nadia Nurdinilah *et al.*, 2024). This increased knowledge encourages patients to be more proactive in self-care, which has implications for disease management disciplines and lowers the risk of complications such as neuropathy, retinopathy, and cardiovascular disease (Rosdina *et al.*, 2024). As educators, nurses empower patients to make better health decisions, not just provide information. This study underscores the importance of education in managing type-2 diabetes while also showing that investing in nurse training will improve their skills and confidence in supporting patients. The benefits of this investment include higher patient satisfaction and better health outcomes, which positively impact healthcare institutions—strengthening the capacity of nurses as educators is the key to successful, effective, and sustainable diabetes management (Astari *et al.*, 2022).

CONCLUSION

This study shows a significant relationship between the role of nurses as educators and the self-care of type-2 diabetes mellitus patients at Royal Prima Hospital Medan in 2024. Chi-Square's analysis found that 59% of respondents with good nursing roles had good self-care, while only 6% experienced poor self-care. With a total of 85 respondents, 71% succeeded in doing good self-care, and a p-value of 0.001 showed a significant contribution to the role of nurses in education. This study emphasizes the importance of the role of nurses in improving patients' ability to perform effective self-care, thereby reducing the risk of complications and improving quality of life.

BIBLIOGRAPHY

- Adelia, I., Mutmainnah, M., & Mulyani, S. (2023). The Relationship Between Workload and Work Stress Levels in Female Nurses at Dr. Bratanata Hospital, Jambi City. *Nurse's Journal*, 7(2), 1534–1542. <https://doi.org/10.31004/jn.v7i2.16631>
- Anggraeni, N. C., Widayati, N., & Sutawardana, J. H. (2020). The Role of Nurses as Educators on Pain Perception in Type 2 Diabetes Mellitus Patients in Jember Regency. *Indonesian Journal of Nursing Education*, 6(1). <https://doi.org/10.17509/jpki.v6i1.24364>
- Astari, D. W., Noviantani, A., & Pramukti, I. (2022). The Relationship between the Role of Nurses as Educators and Knowledge and Awareness in Diabetic Retinopathy Patients. *Journal of Nursing*, 14(1), 71–78. <https://doi.org/10.32583/keperawatan.v14i1.19>
- Deswarta, & Kasmalena. (2022). The Effect of Job Training and Competency on the Performance of Nurses at Sansani Hospital Pekanbaru. *KIAT Journal of Economics*, 33(1), 73–78. [https://doi.org/10.25299/kiat.2022.vol33\(1\).9923](https://doi.org/10.25299/kiat.2022.vol33(1).9923)
- Dian Ariani, D. A. (2020). Analysis of Determinants of Job Satisfaction of Implementing Nurses in the Langsa Inpatient Installation. *J-KESMAS: Journal of Public Health*, 6(1), 23. <https://doi.org/10.35329/jkesmas.v6i1.650>
- Fahriza, L., Mohammad Basit, & Angga Irawan. (2023). Career Development on Nurse Performance in Nursing Care Documentation. *Journal of Health (JoH)*, 10(2), 244–252. <https://doi.org/10.30590/joh.v10n2.545>
- Itriyeva, K. (2022). The effects of obesity on the menstrual cycle. *Current Problems in Pediatric and Adolescent Health Care*, 52(8), 101241. <https://doi.org/10.1016/j.cppeds.2022.101241>
- Mokodompit, H. K. N., Tendean, L. E. N., & Mantik, M. F. J. (2021). Analysis of the Relationship between Welfare Level, Responsibility and Motivation to Job Satisfaction of Nurses and Midwives. *E-CliniC*, 9(2), 517. <https://doi.org/10.35790/ecl.v9i2.36066>
- Murni, D., Sidaria, Annisa, & Maharani. (2022). Factors Affecting Job Satisfaction of Nurses at the Islamic Hospital of Surakarta (RSIS). *NERIS: Journal of Nursing*, 18(1), 1–7. <http://ners.fkep.unand.ac.id/index.php/ners/article/view/419/243>
- Mursidah Dewi. (2022). EDUCATION ON DIABETES MANAGEMENT AND SELF-CARE MANAGEMENT OF TYPE II DIABETES MELLITUS PATIENTS. *Journal of Silampari Nursing*, 9, 356–363.
- Mutiara, I., Hutapea, S. O., Chalid, R. M., Harefa, L., & Nababan, T. (2023). Hubungan Peran Perawat Sebagai Edukator dengan Perawatan Diri pada Pasien Diabetes Melitus Tipe 2 di RS Vita Insani Pematang Siantar Tahun 2022. *Abdi Cendekia: Jurnal Pengabdian Masyarakat*, 2(1), 101-107.
- Nadia, N., Erna, S., & Ernawati, H. (2024). The Relationship between the Role of Nurses as Educators and Dietary Adherence of Type II DM Patients in the Emerald Room of Kartika Kasih Hospital, Sukabumi City. *Indonesian Journal of Medical and Health Sciences*, 4(1), 102–110. <https://doi.org/10.55606/jikki.v4i1.2950>
- Oktavia, S., Budiarti, E., Marsa, F., Rahayu, D., & Setiaji, B. (2024). Socio-demographic factors associated with the incidence of type 2 diabetes mellitus. *Permas Scientific Journal: STIKES Kendal Scientific Journal*, 14(3), 75–82. <https://journal2.stikeskendal.ac.id/index.php/PSKM/article/view/1979/1260>
- Pamungkas, M. A. (2024). Analysis of Factors That Affect the Motivation of Batch Viii Students Not to Continue the Nurse Profession Program. *Journal of Nursing and Health (JNH)*, 9(3), 329–340.
- Pangulimang, I., Pandelaki, K., & Porotu'o, J. (2019). Factors related to the job satisfaction of nurses in the inpatient room of the Sawang Field Hospital. *KESMAS - Journal of Public Health*, 8(6), 1–12.
- Pranata, L., Indaryati, S., & Daeli, N. E. (2020). Educational and Family Tools with Booklet Media. *Journal of Silampari Nursing*, 4(1), 105.
- Purba, D. M., Nadapdap, T. P., & Siahaan, J. M. (2021). Relationship between diet, physical activity, BMI, stress, work, and family support with the incidence of diabetes mellitus. *Journal of Methodist Medicine*, 14(2).
- Ridwan, M., Harahap, P., Sujito, Indarto, & Sulistyawati, A. I. (2023). Determinants of Nurses' Job Satisfaction Through Work Stress. *Journal of Economics*, 28(1), 60–79. <https://doi.org/10.24912/je.v28i1.1398>
- Rosdina, S., Saputra, B., & Roslita, R. (2024). The Relationship of Self-Efficacy to Physical Exercise Compliance in Patients with Type 2 Diabetes Mellitus. *Health Care: Journal of Health*, 13(1), 47–58.
- Sintia, Nazhira Arifin, T. M. (2022). Factors related to the participation of older people in POSBINDU activities in the PUSKESMAS Bintang, Central Aceh Regency work area in 2022. *Journal of Health and Medical Science*, 1, 85–102.
- Siwi, K., Hilail, H. S. A., & Arafiq, M. F. (2023). Literature Review: Type 2 Diabetes Mellitus and Osteoarthritis

Implications for Physiotherapy Management. *Scientific Journal of Nursing*, 9(1), 61–76. <https://doi.org/10.33023/jikep.v9i1.1396>

- Tambunan, F. T. A., Octavia, D., & Sari, R. M. (2023). The role of nurses in increasing family independence in caring for families with diabetes mellitus. *Cerdika: Indonesian Scientific Journal*, 3(10), 989–997. <https://doi.org/10.59141/cerdika.v3i10.664>