



Drug Administration and Nursing Services: The Perspective of Families and Patients with Diabetes Mellitus

Bina Melvia Girsang^{1(✉)}, Eqlima Elfira², and Pretty Angel Artika Sirait³

¹ Department of Maternity and Child, Faculty of Nursing, Universitas Sumatera Utara, Medan, Indonesia

binamelvia@usu.ac.id

² Department of Surgical Nursing, Faculty of Nursing, Universitas Sumatera Utara, Medan, Indonesia

³ Faculty of Nursing, Universitas Sumatera Utara, Medan, Indonesia

Abstract. Drug administration is a form of pharmacist-to-nurse delegation that takes up approximately 40% of a nurse's time, including administration, documentation, administration, and monitoring. The purpose of this study was to examine the experience of caregiver drug administration in patients and their families. The method used is qualitative phenomenology. There are 20 participants, including patients and their families. Participant withdrawal was determined by a targeted sampling method. Data analysis was used in Colaizzi's 7-step approach. The study was done by general hospital Pirngadi Medan, Indonesia, from October to June 2021. Data collection was done through indepth interviews using a question guide. As a result, six themes are clarified, (1) responses of patients and families in administering drugs, (2) the role of nurses in administering drugs to patients and families, (3) communication and information from nurses with patients and families, (4) the application of caring in the care and administration of drugs to patients and families, (5) friendly and courteous service from nurses, (6) and family involvement in patient treatment. Involving the family in administration of medicines to the patient and family, service-friendly and courteous nursing services, and the treatment of the patient were needed to approach.

Keywords: Diabetes Millitus · Drug Administration · Families · Role

1 Introduction

Nursing services are one form of health services in hospitals [1]. This study aim to examine the experience of caregiver drug administration in patients and their families. Drug administration is one of the nursing services provided by nurses to patients treated in hospitals [2]. Giving drugs is a form of delegation from pharmacists to nurses [3]. The task of administering this drug takes about 40% of the nurse's working time, which includes administration, documenting, managing and monitoring [4]. As a practitioner of drug administration to a patient [5, 6], the nurse must ensure the safety of drug

administration [7, 8]. This helps to achieve a very optimal therapeutic effect and avoid drug administration errors [2]. The Joint Committee International (JCI) and the World Health Organization (WHO) reported in 2012 that 70% of dosing mistakes occurred in various countries, causing permanent disability in patients [9]. The states that unsafe injectable drug administration accounts for 40% of the world's drug administration, and it is estimated that 1.5 million people in the United States are caused by unsafe injectable drug administration each year. Dosing mistakes are estimated to occur in 1 in 10 patients worldwide [10].

The types of errors can lead to death include 40.9% wrong dose, 16% wrong drug, and 9.5% wrong route of administration [11]. In Indonesia, data on the occurrence of dosing mistakes were not collected accurately and systematically. Based on a 2019 Ministry of Health report, it was found that there were 25 cases of dosing mistakes that were not reported in the hospital room. Based on 2008 Ministry of Health data, dosing mistakes outnumber the top 10 reported hospital incidents by 24.8% [11]. Perry, Peterson and Potter said that, when administering medication, a nurse needs to observe the 5 correct principles, namely: the right drug, the right dose, the right patient, the right method of administration and the right time [2]. However, now this principle is starting to be abandoned and switch to the 6 true principles. Principle 6 is true in drug administration. The 6 correct principles are: (1) correct patient, (2) correct drug, (3) correct dose, (4) correct time, (5) correct route, and (6) correct documentation [12]. Based on 2018 Indonesian Ministry of Health Regulation No. 14, considering that nurses administer different medicines to different patients in the hospital room [13].

2 Methods

This research method is a qualitative design with a phenomenological approach to describe the experiences of patients and families in the implementation of drug administration by nurses. This research was conducted at General Hospital. Pirngadi Medan, Indonesia, from October to June 2021. Participants in this study were 10 patients and 10 their families.

The data collection method was carried out using a purposive sampling technique in accordance with the criteria of the participants which the researchers determined themselves in obtaining the adequacy of the data. The inclusion criteria established in this study were: (a) patients and their families who were treated at Dr. Hospital. Pirngadi Medan, (b) patients and their families who live in Medan City, (c) patients and families who have received medication administration by nurses in less than a month, (d) families who accompany patients while receiving treatment by nurses, (e) patients and families with an age range of 20–50 years old (f) able to communicate well, (g) willing to become participants, (h) willing to be interviewed and recorded during the interview process, and (i) allow the results of the interviews to be written and published as a result of research. Data collection was carried out using an in-depth interview technique using an interview guide in the form of structured questions to explore the experiences of patients and families in administering drugs administered by nurses. Other supporting tools used in data collection were demographic data questionnaires, digital voice recorders, and field notes.

Table 1. Interview Guide

Interview Guide
– What is the experience of you and your family in administering medication by nurses?
– What problems have you and your family – experienced in administering medicine by nurses
– What problems have you and your family experienced in administering medicine by nurses
– What are the obstacles that you and your family feel in administering drugs by nurses
– How do you and your family expect the nurse to administer medication

The steps of data analysis: (1) reading and typing all interview, (2) reviewing, (3) validating. Data processing was carried out using the Colaizzi method. Data validity or data validation is carried out with credibility, dependability, confirmability, and transferability [14, 15] (Table 1).

3 Findings and Discussion

Participants in this study were 20 people consisting of 10 patients and 10 families. Participants in this study were patients who were treated in the Asoka and Melati inpatient rooms and had met the criteria for participating in the study and were willing to become participants.

Ten patients who became participants had been treated for 3 to 7 days (Tables 2 and 3).

The results of this study obtained 6 themes that describe the experiences of patients and families in the implementation of giving by nurses, namely: (1) Responses of patients and families to drug administration by nurses (2) Supervision of medication administration from nurses (3) Communication of nurses with patients and families (4) Application of caring in the care and administration of drugs to patients and families (5) Friendly service and courtesy of nurses (6) Involving the family in the treatment of patients.

“Medicine on Time”

The right time medication administered by the nurse to the participants was carried out on time according to the time that had been prescribed.

“...Giving the medicine here is always on time...” (P1)

“...if the administration of the drug is never late,...we don’t need to ask the nurse for medicine” (P9)

“...always on time, never late or never have to wait long for the medicine” (P10)

“Proper Administration of Medicine to the Patient”

The ten pairs of participants also revealed that nurses when giving drugs always check the patient’s identity in various ways, which include calling the patient’s name, checking the identity bracelet and matching the name on the identity bracelet with the name on the drug.

“...checked my identity bracelet” (P2)

Table 2. Characteristics of Patient Participants

Participant Code	Initials	Age	Gender	Education	Status	Ethnic group	Long Treated
P1	Mr. J	50 years	Man	Primary	Married	Malay	4 days
P2	Mr. Ir	24 years	Man	Junior high school	–	Javanese	5 days
P3	Mr. F	46 years	Man	Senior High School	Married	Javanese	7 days
P4	Mr. A	28 years	Man	Senior High School	Married	Bataknese	3 days
P5	Mr. K	45 years	Man	Senior High School	–	Bataknese	3 days
P6	Mr. A	50 years	Man	Senior High School	Married	Javanese	3 days
P7	Mr. S	50 years	Man	College	Married	Javanese	3 days
P8	Ms. A	23 years	Woman	Senior High School	–	Bataknese	3 days
P9	Mr. R	22 years	Man	Senior High School	–	Javanese	5 days
P10	Ms. B	27 years	Woman	Senior High School	–	Javanese	3 days

“...yes, the nurse saw the bracelet but at the beginning, then the nurse already knew me, at least she called my name” (P10)

“...yes...the nurse checked the identity bracelet, at the beginning...the nurse saw my name and then she checked the medicine, if my name was not the same as the medication given” (P9).

“Drug Administration is Correct Route of Administration”

Participants also revealed that when nurses gave drugs according to the route of drug administration, it was done by injection route, administering medication orally and by dripping medication and applying medication.

“the nurse gave me medicine, it was injected in the IV line, then there was also medicine to drink, it was directly given to me, told to drink” (P9)

“I was given eye drops, the nurse helped drip the medicine” (P3)

“...then my leg is injured, some are also given ointment by the nurse....they applied it” (P7)

“Observe the Side Effects of Drugs”

Participants said how to observe side effects of drugs by nurses was done by checking the condition of the patient before and after administering the drug, checking the patient’s temperature, evaluating the progress of the patient’s condition.

Table 3. Characteristics of Family Participants

Participant Code	Initials	Age	Gender	Education	Status	Ethnic group	Relationship
K1	Mrs. S	50 years	Woman	Junior high school	Married	Malay	Wife
K2	Mr. S	50 years	Man	Senior high school	Married	Javanese	Father
K3	Mrs. R	44 years	Woman	Senior High School	Married	Javanese	Younger brother
K4	Mrs. V	26 years	Woman	Senior High School	Married	Bataknese	Wife
K5	Mr. R	35 years	Man	Senior High School	Married	Bataknese	Sibling
K6	Mrs. W	26 years	Woman	Senior High School	Married	Javanese	Child
K7	Mrs. D	50 years	Woman	Senior High School	Married	Javanese	Wife
K8	Mr. H	50 years	Man	Senior High School	Married	Bataknese	Father
K9	Ms. I	26 years	Woman	Senior High School	–	Javanese	Older brother
K10	Mr. S	49 years	Man	Senior High School	Married	Javanese	Father

“...ask about your complaint, how is it progressing, is there still pain, how is your sleep” (P7)

“...before giving the medicine, they were asked how my condition was. After giving the medicine, they were asked how the fever had gone down, and checked the temperature again” (P6)

“...usually he asks the progress, then checks of my wound... After giving the medicine, the nurse asks, is it still sick or not” (P10)

“Preventing Drug Allergies”

Participants also revealed that nurses participated in preventing drug allergies.

“...they asked if I had any drug allergies, they also asked me about the history of the drugs I used” (P5)

“The first time I was asked whether there was a drug allergy or not, then the nurse also did an allergy test, so she really knew that there was no drug allergy.” (P6)

“... There is also an allergy test. So the nurse injected it into my skin, then the nurse explained that this is called a drug allergy test, to see if I have allergies, so wait for the test for 15 minute first, if there is itching, it means the medicine can't be given to me” (P7)

“Getting Drug Related Information”

Participants said that the information from the treatment explained by the nurse included

the name of the drug, the type of drug, the benefits of the drug and the possible side effects of the drug.

“...what kind of medicine was given to me...was explained about the benefits, sometimes he said the name of the medicine too...for example, timolol to lower eye tension, now this medicine is given as much as 4 drops 4 times so given one drop every 6 hour” (P3)

“...the nurse was told every time she gave the medicine...for example, the nurse said this was the medicine to reduce the pain and to get rid of the throbbing feeling” (P9)

“...previously the nurse told me and my wife, if later there was itching like that... that was indeed the effect of the medicine, that’s what the nurse said” (P1)

“Receiving Communication from Nurse”

Participants also said that the nurse communicated every time they started giving the drug and also gave the reason for giving the drug.

“The communication about the nurse when giving the medicine was good, obviously” (P2)

“The nurse here gives it, the way you talk or communicate with me to the patient is also clear” (P4)

“There is always excellent communication when starting the job” (P3)

“Nurse Care”

Patients expressed that they felt the care of nurses during their treatment. This is conveyed based on the statements of the following participants.

“...if we call them, they will come right away and give a quick response” (P3)

“The nurse injects the medicine slowly so it doesn’t hurt...” (P5)

“Once in the middle of the night, my wound hurt, I called the nurse, their response was fast. They immediately called the doctor, after that I was given another pain medication by the nurse” (P10)

“They care about us, if we ask questions, the nurse explains and pays attention...because I am one of the patients who are being monitored because of my poor eyesight, they are always watching me, when I stand up, the nurse immediately screams from her desk so that my family will watch over me so I don’t fall” (P2)

“Friendly Attitude”

The friendly service was felt by the participants through the friendly attitude of the nurse which was shown by greeting and smiling, asking how things were, and often inviting patients to joke.

“...they are friendly, yes, they are always greeted, they explain well, the language is easy to understand” (P8)

“...the nurse greets first, then the nurse says excuse me, sir, I want to give you medicine... They are always friendly, the communication is also good” (P9)

“...the nurses are nice and friendly here. Sometimes joking while injecting medicine so it doesn’t hurt” (P10)

“Polite Attitude”

In addition to feeling the friendly service, participants also revealed that they felt the nurse’s polite attitude.

“....they are polite, before they treat me, always give permission, sir, sorry sir, hold on a little, sir ... here while treating me sometimes I am invited to chat or joke” (P3)

“Family Participation”

Participants said that nurses in giving medicine to patients involved their families with family participation.

“The nurse also teaches you how to deal if the infusion gets stuck” (P8)

“Then they also let me know if you want to take medicine from kede, read the indications first, if it says it’s not allowed for glaucoma, I can’t eat it”. (P3)

Administering the drug at the right time follows the label of the drug [16], explained that the correct administration of a drug is one that is administered according to an established and prescribed time. Maintaining the therapeutic effect of the drug in plasma is useful. Timely dosed drugs achieve maximum therapeutic effect, which plays an important role in patient recovery [11, 13]. Identifying a patient is the right principle of drug delivery, that is, applying the right patient. The principle of patient rights is the first key to successful treatment and, if something goes wrong, affects subsequent treatment. This finding is consistent with a study conducted by Anggraeni D, Hakim L. & Widjiati C [17], where nurses can identify patients by searching for the patient’s name and date of birth. Successful treatment occurs when the drug given to the patient matches the drug type and route of administration [11].

Schematics Nurses play a unique role as a function of collaboration with other medical professionals in fulfilling their obligation to administer medicines to patients [18], stated that nurses are responsible for monitoring patient reactions and assessing potential side effects. These results are consistent with the findings here. Caregiver readiness when the patient needs it and the availability of caregiver time for the patient and family [19, 20]. The participants experienced a friendly and courteous experience from their caregivers. Diabetic patients require independent and quality self-care and social support in every stage of their treatment which requires a long time in the treatment process [21].

The friendly attitude felt by the participants was shown by the nurse when they greeted the patient, smiled, joked and encouraged the participants to be kind. Families who support treatment for family members with diabetes can improve patient compliance with therapy regimens and glycemic control and improve **PATIENTS** cognitive. This can help nurses as providers of counseling services to patients and families in the management of treatment delivery in diabetic patients [21]. Participants also felt the polite attitude the caregiver showed when seeking permission when administering medications or other treatment procedures. It was reported by Sari, et al. stated that, is a good category of nurse medications where the nurse greets, the nurse listens to the complaint, pays attention, greets/smiles the patient and family, and asks about the patient’s situation/condition with respect to the family [22].

The friendly and polite attitude of nurses can affect patient and family satisfaction in nursing services. This is so that patients and relatives can feel that they can trust the nurse. Oja, Hubertus, et al. stated that, the politeness of hospital staff promotes patient confidence, which directly affects patient satisfaction [22]. Since the family is part of the patient and is a support system for the recovery of the patient’s care, the family needs to be involved in the patient’s care [23]. Involving the family from the beginning while the

patient is in the hospital will improve the family's ability to care for the patient at home so that the patient does not relapse and is prevented.

4 Conclusion

Pleasant service in terms of accuracy of drug administration, observing side effects and allergy prevention, communication and information provided, caring attitude of nurses, friendly and polite services and involving families in care are things that diabetic patients need in their care. Long diabetes care makes families need more attention from nurses. Care assistance in drug management is the hope of families to assist in monitoring the correct administration of drugs.

Acknowledgments. The researcher expresses his gratitude for the support of various parties in the implementation of this research. This research was supported by facilitation from the Faculty of Nursing, University of North Sumatera.

Authors' Contributions. Researchers tried to explore from all aspects to understand the views of patients and families on the performance of nurses in giving drugs. Treatment services for drug needs need to be delivered comprehensively, including the patient and also the patient's closest family.

References

1. Permana, L. Peningkatan Perilaku Perawat Melalui Pengetahuan Dalam Menjalankan Prinsip Pemberian Obat Dua Belas Benar. *Journal of Health Sciences (Jurnal Ilmu Kesehatan)*, 5(2), 79–85.
2. Adhi Hilmawan, F., et al. (2014). Hubungan antara penerapan standart operational procedure (sop) pemberian obat prinsip enam benar dengan tingkat kepuasan pasien di rsud ungaran, *Karya Ilm STIKES Telogorejo*, 3, 1–10.
3. Feriani, P. (2020). Ketepatan Pemberian Obat Oleh Perawat Dipengaruhi Lingkungan Kerja di Ruang Rawat Inap Rsud Kanujoso Balikpapan. *JIKO (Jurnal Ilmiah Keperawatan Orthopedi)*, 4(1), 34–40. <https://doi.org/10.46749/jiko.v3i2.38>
4. Pirinen, H., Kauhanen, L., Danielsson-Ojala, R., Lilius, J., Tuominen, I., Díaz Rodríguez, N., & Salanterä, S. (2015). Registered nurses' experiences with the medication administration process. *Advances in Nursing*, 2015, 1–10. <https://doi.org/10.1155/2015/941589>
5. Mack, R. (2018). Food and drug administration up scheduling of hydrocodone and the effects on nurse practitioner pain management practices. *Journal of the American Association of Nurse Practitioners*, 30(6), 312–316. <https://doi.org/10.1097/JXX.0000000000000063>
6. Richardson, G. C., Derouin, A. L., Vorderstrasse, A. A., Hipkens, J., & Thompson, J. A. (2014). Nurse practitioner management of type 2 diabetes. *The Permanente Journal*. <https://doi.org/10.7812/TPP/13-108>
7. Edwards, S., & Axe, S. (2015). The 10 'R's of safe multidisciplinary drug administration. *Nurse Prescribing*, 13(8), 398–406. <https://doi.org/10.12968/NPRE.2015.13.8.398>
8. Lappalainen, T., Härkänen, M., & Kvist, M. (2020). The relationship between nurse manager's transformational leadership style and medication safety. *Scandinavian Journal of Caring Sciences*, 34(2), 357–369. <https://doi.org/10.1111/scs.12737>

9. Fatimah, F. S. (2016). Gambaran penerapan prinsip benar pemberian obat di Rumah Sakit PKU Muhammadiyah Yogyakarta Unit II. *JNKI (Jurnal Ners dan Kebidanan Indones. Journal of Nurse Midwifery)*, 2, 79–83, 42AD.
10. Plácido, A. I., Herdeiro, M. T., Simões, J. L., Amaral, O., Figueiras, A., & Roque, F. (2021). Health professionals perception and beliefs about drug- related problems on polymedicated older adults-a focus group study. *BMC Geriatrics*, 21(1), 1. <https://doi.org/10.1186/S12877-020-01972-3>
11. Nurul Mahfudhah, A., & Mayasari, P. (2018). Pemberian Obat Oleh Perawat Diruang Rawat Inap Rumah Sakit Umum Kota Banda Aceh. *Jurnal Ilm Mhs Fak Keperawatan*, 3(4), 1–9.
12. Sigalingging, L. (2020). Evaluasi Sistem Informasi Manajemen Terhadap Persediaan Obat Pada Rumah Sakit Adam Malik Medan. *Jurnal Ilm Simantek*, 4(1), 119–129.
13. Harmiady, R. (2014). Faktor-faktor yang berhubungan dengan pelaksanaan prinsip 6 benar dalam pemberian obat oleh perawat pelaksana di ruang interna dan bedah Rumah Sakit Haji. *Jurnal Ilm Kesehat Diagnosis*, 5(4), 2302–2321.
14. Polit, C., & Beck, D. (2020). *Essentials of nursing research: Appraising evidence for nursing practice*. Lippincott Williams & Wilkins.
15. Creswell, J., & Poth, C. (2016). *Qualitative inquiry and research design: Choosing among five approaches*.
16. Napida Anggraini, A., & Siti Fatimah, F. (2015). Evaluasi Penerapan Patient Safety dalam Pemberian Obat di Wilayah Kerja Puskesmas Kasihan II Kabupaten Bantul Yogyakarta. *JNKI (Jurnal Ners dan Kebidanan Indones. Journal of Nurse Midwifery)*, 3(3), 162–168. [https://doi.org/10.21927/jnki.2015.3\(3\).162-168](https://doi.org/10.21927/jnki.2015.3(3).162-168)
17. Mubarak, W., Indrawati, L., & Susanto, J. (2015). *Buku Ajar Ilmu Keperawatan Dasar: Buku 1*.
18. Lutz, B. J., Young, M. E., Creasy, K. R., Martz, C., Eisenbrandt, L., Brunny, J. N., & Cook, C. (2016). Improving stroke caregiver readiness for transition from inpatient rehabilitation to home. *The Gerontologist*, 57(5), 880–889. <https://doi.org/10.1093/geront/gnw135>
19. Sloprien, R., et al. (2018). Menopause and diabetes: EMAS clinical guide. *Maturitas*, 117, 6. <https://doi.org/10.1016/j.maturitas.2018.08.009>
20. Khosravizade Tabasi, H., Madarshahian, F., Khoshniat Nikoo, M., Hassanabadi, M., & Mahmoudirad, G. (2014). Impact of family support improvement behaviors on anti diabetic medication adherence and cognition in type 2 diabetic patients. *Journal of Diabetes & Metabolic Disorders*, 13(1), 1–6.
21. Sari, L. T., & Suminar, E. (2020). Hubungan Komunikasi Terapeutik Dalam Pemberian Obat dengan Tingkat Kepuasan Pasien. *Indonesian Journal of Professional Nursing*, 1(2), 54–62. <https://doi.org/10.30587/ijpn.v1i2.2304>
22. Oja, H., Tambajong, H., & Pole, N. (2019). Kepuasan Pasien Jasa Pelayanan Kesehatan Mitra Kerja Badan Penyelenggara Jaminan Sosial. *Sosial Jurnal Ilmu Admin dan Sos.*, 8(2), 2354–7693. <https://doi.org/10.35724/sjias.v8i2.2510>
23. Makmun, M., Ismail, S., & Utami, R. S. (2019). Persepsi keluarga terhadap partisipasi keluarga dalam merawat pasien di ruang ICU: studi kualitatif. *Jurnal Perawat Indonesia*, 3(3), 197–200. <https://doi.org/10.32584/jpi.v3i3.232>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

