



## NURSING EDUCATION ON PHARMACOLOGICAL INTERVENTIONS

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### Chapter One: Introduction

#### ❖ Background

Core drug knowledge also includes pharmacotherapeutics, pharmacokinetics, pharmacodynamics, contraindications and precautions, side effects, and drug interactions. It also includes basic pharmacologic information about each drug. Core patient variables are the traits that make a patient stand out at any particular time. (Maciej Serda et al., 2012)

However, in critical care units (ICUs), intensive care nurses are always on hand to supervise the patient's care and keep an eye on their condition. The foundation of contemporary intensive care is interprofessional collaboration. According to Henderson (1966), a nurse's general goal is to assist patients in meeting their basic needs while they are in precarious situations and to aid in their transition to independence.(Harris, Godoy and Nathe, 2014; Larsen, Johannessen and Heggdal, 2022). Drug-related issues, especially the safe transfer of the drug regimen, have been recognized as crucial elements of high-quality therapy in transitional care. Programs for transitional care may help to reduce medication-related problems, improve access to medication therapy, provide in-depth medication counselling, and fill in medication care gaps following hospital discharge. (Mardani, Griffiths and Vaismoradi, 2020). The nurse chooses which of the patient's primary qualities are crucial for a particular pharmacological therapy. They include things like genetic characteristics, life expectancy, gender, lifestyle, food, and daily routines. Which major interactions between the fundamental patient characteristics and the fundamental drug information will occur is decided by the nurse. The nurse then makes recommendations based on such interactions to improve the therapeutic benefit and decrease adverse effects related to pharmaceutical therapy. The nurse incorporates these strategies into a nursing plan of care. (Maciej Serda et al., 2012). Traditionally, nurses have been in charge of preparing and dispensing medications under the direction of doctors. However, as tasks have shifted from doctors to nurses over the past few decades, nurses' roles have increased. (Maier and Aiken, 2016; De Baetselier et al., 2022). Nurses' roles have expanded in the past years for more duties than the ordinary ones. This includes pharmacological intervention and medication management. There is a lack of knowledge of these roles and duties.



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### ❖ Significance of Study

The significance of the study lies in addressing the evolving roles of nurses, particularly in pharmacological interventions. Historically, nurses have been involved in medication administration, but with changing healthcare landscapes, their responsibilities have expanded. Understanding nurses' perceptions and attitudes toward these evolving roles is crucial for optimizing patient care and ensuring effective collaboration among healthcare team members.

### ❖ Main Purpose of the Study

The main purpose of the study is to assess nurses' perceptions and attitudes regarding their duties and roles in pharmacological interventions. By understanding how nurses perceive their roles in medication management, healthcare organizations can tailor educational programs and support systems to empower nurses in their expanded roles.

### ❖ Objective of the Study

- 1) To evaluate nurses' perceptions regarding pharmacological interventions and nursing education.
- 2) To assess the attitudes of nurses toward their roles in medication management.
- 3) To explore any existing gaps in knowledge or understanding among nurses regarding their expanded roles in pharmacological interventions.
- 4) To identify areas for improvement in nursing education and support systems to enhance nurses' effectiveness in medication management.
- 5) To contribute to the body of knowledge on nurses' roles in pharmacological interventions and promote better patient outcomes through collaborative healthcare practices.

## Chapter two: Literature Review

The literature review provides an overview of existing research on nurses' roles in medication management, highlighting key findings and gaps in knowledge. By synthesizing a wide array of scholarly works, this section aims to elucidate the evolving landscape of nursing practice, identify significant trends, and underscore areas requiring further exploration.

### ❖ Literature Review

Nurses play a critical role in ensuring safe and effective medication administration, encompassing a spectrum of responsibilities ranging from drug dispensation to patient education and monitoring. Serda et al. (2012) underscored the multifaceted nature of nursing practice by emphasizing core drug knowledge, including pharmacotherapeutics, pharmacokinetics, and pharmacodynamics. These fundamental aspects enable nurses to make informed decisions regarding medication therapy, taking into account patient-specific factors and potential interactions.

Moreover, the importance of interprofessional collaboration in medication management cannot be overstated. Henderson (1966) posited that nurses serve as advocates for patients, assisting them in meeting their basic needs during periods of vulnerability. In critical care units, intensive care nurses play a central role in patient supervision and care coordination (Harris, Godoy, & Nathe, 2014; Larsen, Johannessen, & Heggdal, 2022). This emphasis on teamwork underscores the

interconnectedness of healthcare delivery and highlights the significance of clear communication and shared decision-making among healthcare professionals.

Transitional care programs have emerged as essential components of post-hospital discharge care, aimed at addressing medication-related issues and optimizing patient outcomes (Mardani, Griffiths, & Vaismoradi, 2020). These programs facilitate the safe transition of patients from hospital to home or other care settings, providing comprehensive medication counseling and support. Nurses play a crucial role in assessing medication regimens, identifying potential discrepancies, and ensuring continuity of care.

The shifting of tasks from physicians to nurses has resulted in expanded roles and responsibilities within the nursing profession (Maier & Aiken, 2016; De Baetselier et al., 2022). Traditionally, nurses were primarily involved in medication administration under the direction of physicians. However, evolving healthcare paradigms have led to increased autonomy and decision-making authority for nurses in medication management. This shift underscores the need for ongoing education and training to equip nurses with the knowledge and skills necessary to fulfill their expanded roles effectively.

#### ❖ Search Strategy

To identify relevant studies for this literature review, electronic databases such as PubMed and MEDLINE were searched using keywords such as "nurses," "medication management," "pharmacological interventions," and "roles." The search was limited to studies published in English within the last decade. Additionally, reference lists of identified studies were reviewed to identify additional relevant literature. The studies retrieved from the search were then reviewed to eliminate any non-relevant studies based on their alignment with the focus of the current research on nurses' perceptions and attitudes toward pharmacological interventions.

#### ❖ Conclusion

In conclusion, the literature review highlights the significant role of nurses in medication management and intervention across various healthcare settings. While previous research has contributed valuable insights into nurses' roles, there remains a need for further investigation to address gaps in knowledge and explore emerging trends in nursing practice. The current study aims to contribute to this body of literature by assessing nurses' perceptions and attitudes toward pharmacological interventions, thereby informing strategies to support and empower nurses in their expanded roles.

### Chapter three: Methodology

#### ❖ Study Design

This study utilized a cross-sectional design, allowing for the collection of data at a single point in time from a diverse group of participants. Cross-sectional studies are valuable for assessing perceptions and attitudes among a population within a specific timeframe.

#### ❖ Study Population

The study population included nurses from various specialties, including students, professors, nursing staff, and nursing educators, working in different healthcare settings such as hospitals. The inclusion of participants from diverse backgrounds ensures a comprehensive understanding of nurses' perceptions regarding pharmacological interventions.

#### ❖ **Sample and Sampling Techniques**

The researchers employed convenience sampling to select participants for the study. Convenience sampling involves selecting individuals who are readily accessible and willing to participate. In this case, the researchers likely reached out to nurses through online platforms or within their healthcare institutions to solicit participation.

#### ❖ **Inclusion Criteria**

Participants included in the study were nurses from different specialties, including students, professors, nursing staff, and nursing educators, regardless of gender or years of experience. This broad inclusion criteria aimed to capture diverse perspectives within the nursing community.

#### ❖ **Exclusion Criteria**

There were no explicit exclusion criteria mentioned in the study. However, it's possible that individuals who did not identify as nurses or were not currently practicing in nursing roles may have been excluded from participation.

#### ❖ **Instrument of Study**

The primary instrument used in the study was an online questionnaire. The questionnaire consisted of two parts: the first part gathered baseline characteristics of participants such as age, gender, years of experience, profession, and study year for students. The second part focused on participants' perceptions toward pharmacological interventions and nursing education, utilizing a Likert scale for responses.

#### ❖ **Pilot Study**

The study may have included a pilot study phase to test the reliability and validity of the questionnaire. During the pilot study, a small subset of participants would have been invited to complete the questionnaire to identify any issues with clarity, comprehensiveness, or response options.

#### ❖ **Data Analysis**

Data analysis was conducted using both Excel and SPSS (Statistical Package for the Social Sciences). Descriptive analysis was performed to calculate frequencies, percentages, means, and standard deviations of participants' responses. Additionally, a one-way ANOVA test was utilized to explore potential associations between participants' baseline characteristics and their perceptions toward pharmacological interventions. Results with a p-value less than 0.05 were considered statistically significant.

#### ❖ **Ethical consideration**

We will obtain an informed consent from each participant and the protocol will be submitted with its full details to the IRB (institutional review board).

## Chapter four: Results

The results section provides a comprehensive overview of the findings obtained from the study conducted on nurses' perceptions and attitudes toward pharmacological interventions. Through the analysis of data collected via an online questionnaire, this section presents key insights into how nurses perceive their roles and responsibilities in medication management. From demographic characteristics of the participants to their perceptions on various aspects of pharmacological interventions and nursing education, the results shed light on important considerations for nursing practice and education. This section aims to summarize the quantitative outcomes of the study, offering valuable insights into the evolving roles of nurses in healthcare delivery.

### ❖ Results

The questionnaire was answered by 50 participants, all of them were females. The majority of them (46%) belonged to the 25-35 age group. 27 (54%) of them were working as nurses and the majority of them (60.5%) had more than five years of experience.

The participants had strong mean perception towards third item with a mean of 3.7, fourth item with a mean of 3.44 and tenth item with a mean of 3.5. They had moderate perception towards other items of the scale with mean of 3.4, 3.18, 3.3, 3.1, 3, 3.14, & 3.1 for the first, second, fifth, sixth, seventh, eighth, and ninth items in the scale. This is fully illustrated in table.2 with frequency and percentage of each answer in the Likert scale.

Regarding one way ANOVA test, we carried out a test of mean perception towards the following variables: age group, profession and years of experience. Highest mean perception was obtained in the following groups: 35-45, nursing educator and <3 years of experience with means of 3.38, 3.73, and 3.6 respectively. However, p-value was >0.05 for the three variables (0.821, 0.283, 0.534 respectively) so there was no statistically significant association between any of the variables and mean perception of the study participants as shown in table.4

## Chapter five: Discussion

The discussion section delves deeper into the implications of the study's findings, providing context, interpretation, and analysis. Building upon the results presented in the previous section, this part of the research paper explores the significance of nurses' perceptions and attitudes toward pharmacological interventions in the broader context of healthcare delivery. By synthesizing the data with existing literature and theoretical frameworks, the discussion section aims to uncover underlying patterns, challenges, and opportunities related to nurses' roles in medication management. Additionally, this section may propose recommendations for nursing practice, education, and future research based on the study's findings. Overall, the discussion serves as a critical reflection on the study's implications and contributes to advancing knowledge in the field of nursing.

### ❖ Discussion

Two of the essential conditions for good collaboration are efficient team communication and distinct roles. The quality of interprofessional communication and collaboration in routine clinical practice, international collaboration in research, education, and innovation, and the mobility of

healthcare professionals' jobs are all hampered by unclear position descriptions. A clear explanation of nurses' duties is frequently absent in pharmaceutical care (PC), which is defined as "the process through which a pharmacist cooperates with a patient and other professionals in designing, implementing and monitoring a therapeutic plan that will produce specific therapeutic outcomes for the patient." (Azhar et al., 2012; Van Bogaert et al., 2013; De Baetselier et al., 2022) In both short-term and long-term healthcare settings, such as hospitals and nursing homes, effective medication administration is a challenging task that calls for teamwork between nurses, doctors, and pharmacists in order to optimize good healthcare outcomes and reduce malpractice. One of the most complicated interdependent clinical difficulties in healthcare is managing medications, and each healthcare provider participating in transitional care has separate, combined, and overlapping duties. One of the most important components of the transitional care team is the nurse. They play a critical role in assessing the transitional care plan, identifying any issues, and solving them to increase patient safety. (Mardani, Griffiths and Vaismoradi, 2020)

Education of the patient and their families is also based on the interplay between fundamental patient characteristics and basic pharmacological knowledge. Nursing management of pharmacological therapy is the process in question. A drug that is a prototype for its class is known as a prototype drug. Knowing the fundamentals of the prototype drug gives the nurse understanding about numerous additional drugs that belong to the same class. Learning about many different medications is organized and made simpler by acquiring fundamental drug knowledge. The steps of the nursing process are applied when providing nursing management of medication therapy. All healthcare settings, including acute care, long-term care, and home and community settings, use nursing management of drug administration. (Maciej Serda et al., 2012)

A comprehensive drug evaluation offers the foundational data required for efficient nursing management of drug therapy. The patient's medical history, physical examination, and review of the medical file are all included. The identified interactions between fundamental patient characteristics and fundamental medication knowledge are referred to as nursing diagnoses and outcomes. Nursing diagnoses for patients undergoing pharmacological therapy take into account any current or upcoming issues that may be connected to the therapy. The units of measurement used to assess the efficacy of medication therapy are defined by the expected results. (Choo, Hutchinson and Bucknall, 2010; Vogelsmeier et al., 2013; Gunadi et al., 2015; Mardani, Griffiths and Vaismoradi, 2020)

Despite the significance of nurse involvement in the success of transitional care and the safety of medication practice, there is no comprehensive understanding of the nursing role in managing medications in transitional care in the worldwide literature. (De Baetselier et al., 2022)

Nursing education on pharmacological interventions is an important aspect due to the lack of enough knowledge in the nursing community regarding their roles related to medicines. Another suggested instructional technique for working nurses was to "repeat the intricacy of the nurse-patient relationship and related cognitive processing" by simulating medicine administration and errors in a controlled environment. Nurses might be trained through simulations to spot and handle pharmaceutical errors when and if they arise. (Hanson and Haddad, 2022)

Participants had strong level of perception towards the following: Medication administration is a collaborative process between all healthcare members including physicians, pharmacists and nurses, nursing education should focus on pharmacological interventions education in the upcoming years, and Senior nurses should educate junior ones and they should also be updated with the latest pharmacological guidelines. This shows the perception of them regarding the importance of nurses in the medication management and the importance of the education of this medication information.

Level of perception was moderate regarding other items: Nurses role had expanded beyond their past roles in healthcare, Nurses have an important role regarding pharmacological interventions, patient and family education are among the pharmacological interventions of nurses, Some of the physicians roles have been shifted to be roles of nurses, Nursing diagnoses for patients undergoing pharmacological therapy take into account any current or upcoming issues that may be connected to the therapy, Nurses are able to make pharmacological recommendations during drug therapy, Nurses are able to make pharmacological recommendations during drug therapy. This shows the importance to focus on these items during nursing education to increase the perception towards them as nurses should know that their roles had expanded and they should do some of the physician's old roles. They should participate in the process of drug prescription based on their information.

## **Chapter 6: Conclusion**

### **❖ Conclusion**

In conclusion, this study provides valuable insights into nurses' perceptions and attitudes toward pharmacological interventions, highlighting the importance of their roles in medication management. The findings underscore the need for ongoing education and support for nurses to fulfill their expanded responsibilities effectively. By understanding nurses' perspectives, healthcare organizations can enhance collaboration among healthcare team members and optimize patient outcomes.

### **❖ Recommendations for Future Research**

For future research, it is recommended to conduct longitudinal studies to track changes in nurses' perceptions over time and assess the effectiveness of interventions aimed at improving medication management practices. Additionally, qualitative studies can offer deeper insights into the underlying factors influencing nurses' attitudes toward pharmacological interventions. Furthermore, comparative studies across different healthcare settings and regions can provide a more comprehensive understanding of variations in nurses' roles and perceptions.

### **❖ Recommendations for Practice**

For practice, it is essential to establish support systems and educational programs that empower nurses to actively engage in pharmacological interventions. This includes providing opportunities for continuing education, mentorship programs, and interdisciplinary collaboration to enhance nurses' competence and confidence in medication management.

### ❖ Recommendations for Nursing Education

In nursing education, curricula should be updated to include comprehensive training on pharmacological interventions, emphasizing the importance of evidence-based practice and critical thinking skills. Simulation-based training can be utilized to enhance students' proficiency in medication management and prepare them for real-world clinical scenarios.

### ❖ Limitations of the Study

Several limitations should be acknowledged. Firstly, the study's reliance on convenience sampling may limit the generalizability of the findings to the broader population of nurses. Secondly, the use of self-reported data via an online questionnaire may introduce response bias and social desirability bias. Additionally, the cross-sectional design of the study limits the ability to establish causal relationships or assess changes over time. Lastly, the study's focus on quantitative data may overlook qualitative insights that could provide a deeper understanding of nurses' experiences and perspectives.

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**Table 1:** Baseline characteristics of the participants

Variables	Categories	Number	%
Age group	<25	10	20
	25-35	23	46
	35-45	17	34
Job	Student	11	22
	Nurse	27	54
	Nursing educator	3	6
	Lecturer	9	18
Years of experience	<3	5	11.6
	3-5	12	27.9
	>5	26	60.5
Study year	1 <sup>st</sup> year	-	-
	2 <sup>nd</sup> year	-	-
	3 <sup>rd</sup> year	4	36.4
	4 <sup>th</sup> year	5	45.5
	5 <sup>th</sup> year	2	18.2

**Table 2:** Likert scale scores

Mean range	Scale	Interpretation
1 – 1.8	1	Very low
1.81 – 2.60	2	Low
2.61 – 3.40	3	Moderate
3.41 – 4.20	4	High
4.21 – 5	5	Very high

**Table 3:** Likert scale responses

No	Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean (SD)
1	Nurses role had expanded beyond their past roles in healthcare.	2	7	18	16	7	3.4 (1)
2	Nurses have an important role regarding pharmacological interventions	7	3	16	22	2	3.18 (1.1)
3	Medication administration is a collaborative process between all healthcare members including physicians, pharmacists and nurses	2	4	10	27	7	3.7(1)
4	Nursing education should focus on pharmacological interventions education in the upcoming years.	4	6	8	28	4	3.44 (1.1)
5	patient and family education are among the pharmacological interventions of nurses.	5	4	12	28	1	3.3 (1)

6	Some of the physicians roles have been shifted to be roles of nurses	6	6	17	20	1	3.1 (1)
7	Nursing diagnoses for patients undergoing pharmacological therapy take into account any current or upcoming issues that may be connected to the therapy.	7	5	21	14	3	3 (1.1)
8	Nurses are able to make pharmacological recommendations during drug therapy.	4	9	17	16	4	3.14 (1.1)
9	Nurses use medical records, genetic information, gender, food and daily routines to decide which drug will make drug interactions.	7	5	17	17	4	3.1 (1.2)
10	Senior nurses should educate junior ones and they should also be updated with the latest pharmacological guidelines.	5	4	12	19	10	3.5 (1.2)

**Table 4:** One way ANOVA mean perception by different variables

Variables	Categories	Mean	Test	P-value
Age	<25	3.26	One way ANOVA	0.821
	25-35	3.21		
	35-45	3.38		
Job	Student	3.18	ANOVA	0.283
	Nurse	3.41		

	Nursing educator	3.73		
	Lecturer	2.86		
<b>Years experience</b>	<3	3.6	ANOVA	0.534
	3-5	3.31		
	>5	3.17		