Nurses' Knowledge, Expressed Practices and Barriers regarding Protection of Patients' Rights during Medication Administration

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Abstract

Background: Medication administration is an important element of healthcare, and nurses have several obligations relating to giving medications and ensuring that the ten rights are adhered for clients. **Aim of the study:** To assess nurses' knowledge, expressed practices and barriers regarding protection of patients' rights during medication administration. **Design:** A Descriptive Design **Setting:** At Sohag University Hospital. Included every nursing staff in each Medical and Surgical Unit **Sample:** All nursing staff (204) nurses at medical or surgical departments **Tools:** Three tools were utilized for gathering data. Tool (I): Structured Interview Questionnaire sheet: This tool will consist of two parts: Part (I): Demographic data, Part (II): Knowledge assessment tool. Tool (II): Expressed practice tool. Tool (III): Barriers to apply medication administration rights tool **Results:** Showed that one fifth (18.6%) of nurses had good knowledge, less one of third (29.9%) had moderate knowledge, more than half (51.5%) had poor knowledge regarding medication administration rights, more than one fifth(22.5%) of nurses had satisfactory practices, more than three quarters (77.5%) with unsatisfactory, the majority(60.8%) of The nursing staff faced barriers to implementing drugs administration rights, There are substantial negative associations between the assessed nurse's entire barriers, knowledge, and practices concerning administration medication rights, statistically significant positive correlation between the studied nurse's total knowledge and practices. **Conclusion:** The outcomes of the research indicated that over 50% of the participants had no training and had no understanding of the importance of medication rights. **Recommendations:** Nurses need continuing education, courses, training program about medication administration to enhance their knowledge and practice.

Keywords: Barriers, Nurse's knowledge, Medication administration rights, Practices

Introduction

The basic standard for contemporary nursing is to offer safe, high-quality nursing care, which is contingent on following acceptable nursing procedures in practice. However, studies from several countries indicate that healthcare delivery is closely linked to the risk of damage. International sources report a wide range of adverse effects. It is vital that all healthcare practitioners fully understand and apply patient safety concepts and principles. Today's nursing students must be adequately trained by the educational system in order to effectively reduce patient risk and medication delivery errors **(Brabcová et al., 2023).**

Most people in the world will use medication at some point in their life to protect or treat illness. However, if drugs are provided incorrectly, they can cause significant harm, disability, and even deaths. Medication administration is mostly the responsibility of nurses, who expend up to 40% of their time on administering medication **(Wondmieneh et al., 2020).**

Safe medication administration is crucial for patient safety and quality of life. This multidimensional system is a multidisciplinary concept that involves healthcare personnel such as physicians, nurses, and pharmacists who innocently administer medication to patients. Medication errors occur often in clinical settings and can raise patient morbidity, mortality, and healthcare costs. Observational research indicated that 79% of prescriptions were not properly labeled by nurses, 82% failed to use two patient identities in the delivered medications, and 91% of medication administrations did not correspond to rights (**Al-Nasri, 2023).**

The World Health Organization (WHO) established the "Medication Without Harm" global patient safety challenge in 2017, with the goal of improving medication safety. The medication administration stage of the medication process is recognized to be an error-prone component. Drug administration errors, which are described as "a deviation from the prescriber's medicine order as noted on the patient's chart, suppliers' preparation/administration

instructions, or appropriate organization policies," account for at least half of all medication events (**Härkänen et al., 2019).**

The World Health Organization characterizes client protection as the elimination of possible injury to patients and the reduction of avoidable harm by health-care providers. Nurses are in charge of maintaining security for patients and avoiding danger, while delivering care in both short- and long-term settings. Nurses are expected to implement organizational strategies for identifying injuries and hazards through patient evaluation, care planning, and evaluating, with the goal of reducing practice errors and ensuring sustainable and safe medical facilities **(Vaismoradi et al., 2020).**

The first and most fundamental rule of drugs administration is the "Do No Harm" commitment. The medication administration is guided by five "rights". Right patient, right medication, dose, time, and route. In addition to the traditional "rights," the following "rights" have been added: Correct documentation, assessment, drug response, patient education, and right to refuse the drug (**Arivazhahan., 2019).**

Significance of the study

Globally, there are an estimated 42.7 million medical occurrences involving assessment, ordering and distributing medication, documenting administration, surgery, and choice-making (**Jafaru & Abubakar, 2022).** Every year, 7,000 to 9,000 persons in the United States die as a result of drug errors. Also, hundreds of thousands of other individuals suffer bad reactions or other issues as a result of a medicine, but rarely report them **(Tariq, Vashisht & Sinha, 2023).** According to a study conducted at Alexandria University Hospital (2019), nearly 40% of recorded errors resulted in substantial injury or death to the implicated patients **(Eltaybani, Mohamed & Abdelwareth, 2019).** As well as through field training at Sohag University Hospital and the nurses' observation that the patient's rights were not applied while giving the medication.

Purpose of the Study

The aim of this study is to assess nurses' knowledge, expressed practices and barriers regarding protection of patients' rights during medication administration.

Research Questions

1-What are the nurses' knowledge levels and expressing practices regarding protection of patients' rights during medication administration?

2- What are the barriers of the nurses regarding protection of patients' rights during medication administration?

Research design

A descriptive, research design was utilized to conduct this study. Descriptive research design can use a wide variety of research methods to investigate one or more variables. un like in experimental research; the researcher doesn't control or manipulate any of the variables, but only observe and measure them **(McCombes, 2020)**

Setting

The study was conducted at Sohag University Hospital. It encompassed all nurses in Medical and Surgical Units (N=12 unit) namely (general medical, intermediate intensive care unit, tropical, general surgical, orthopedics, urology, plastic, burn, ICU, CCU, stroke care unit and traumatology unit.

Subjects

The study sample included all nursing staff (204) who are working at Medical or Surgical departments.

Duration of data collection

Data was collected from Medical and Surgical departments at Sohag University Hospital. The data collection procedure was begun from April 2024 to August 2024.

Inclusion criteria

Both genders, with different age, educational levels, and years of experience, and willing to participate in the study.

Tools for Data Collection

Three tools were used for data collection

Tool (I): Structured Interview Questionnaire sheet: This tool consisted of two parts:

Part (1): Demographic data: It includes questions related to nurse's code, gender, age, years of experiences and level of education.

Part (2): Knowledge Assessing Tool:

An investigator developed this tool after reviewing the relevant material to assess nurses' expertise about medication administration rights. It is composed of 10 questions including the name of the patient, the name of the medication, the expiry date, the prescription, taking medications, checking medication sheet and doctor's order, checking medication's side-effects or reactions, the patient right to refuse the medication, and the patient's history of drug interaction and allergies.

Scoring system: the nurse's answered regarding the knowledge questions scored on 2 points scale (yes, no) ranged from one to two. The right response has an average of two, whereas the inaccurate response

has a grade of one. Total score is (20). Furthermore, the scale will be categorized into levels considering nurses with knowledge scores below 50% are considered to have inadequate knowledge levels, but others who have score between 50< 75% will be labeled as having an acceptable knowledge level, while those with ≥75% will be classified as having a strong knowledge level.

Tool (II): Expressed practice Tool:

The observational questionnaire was developed by **(Fathy et al., 2020),** to evaluate nurses' medication administration procedures. The full checklist included 35 action steps. The checklist has three major sections: nursing performance during medication preparation (20 items), nursing practices during medication delivery (9 items), and nursing practices following medication administration (6 items).

Scoring system: Each finished and correct done step receives one score, but "not done" or faulty action steps receive zero points. The appropriate practice level was 80% or higher. The undesirable practice level was <80%.

Tool (III): Barriers to apply medication administration rights Tool:

This tool is designed by **(Jafaru & Abubakar, 2022)** and adapted by the researcher through add 2 items from **(Sayed, 2023)** and 2 items from **(Alblowi et al., 2021),** it composed of (17 items) of closed-ended questions ('Yes' or 'No' response) to assess the constraints or restrictions that impact nurse professionals to apply medication administration rights include a shortage of experience and competence, Nurses' unprofessional practice to help maintain drug administration rights, lack of supervision from superiors, fear of consequences, lack of encouragement from the nursing directors, no positive feedback, no easy way to look up information on medications. **Scoring system:** The scoring system for barriers to apply medication administration rights was calculated as follows: 1 if the answer is Yes, and 0 if the answer is No. The cutoff point for satisfactory was set at 60% of total score.

Data collection procedure

This study was carried in two phases:

A. Planning and Preparation phase

B. Data collection phase

A. Planning and Preparation phase

Content Validity

Content validity was established by four experts in Critical and Medical – Surgical Nursing field from Sohag University they were asked to examine knowledge questionnaire, medication administration observational checklist and barriers to apply medication administration rights questionnaire for clarity, relevance, comprehensiveness, understanding and applicability.

Reliability of the tools

Testing the reliability of the tools through Alpha Cronbach reliability analysis which revealed that each of the tools consisted of relatively homogenous items. The Alpha Cronbach test was 0.893 for nurses' knowledge questionnaire and 0.931 for practices questionnaire and barriers questionnaire was 0.864.

Ethical considerations

- Research proposal was approved by Research Ethics Committee of the Faculty of Nursing Sohag University was approved by IRB. No (162) on February 12th ,2024.
- An official permission was taken from hospital administrators to conduct the study.
- Written consent was obtained from nurses included in the study.
- The purpose and nature of the study as well as the importance was explained to the participants who met the inclusion criteria.
- Anonymity and confidentiality were assured.
- Participants were assured that participants in this study were voluntary and they have the right to withdraw from the study at any time without any penalty.
- Study sample privacy was considered during data collection.
- No risk for the Participants.

Pilot study

A pilot study was carried out in April, 2024 that was conducted on (10%) of the study sample (n=20) before investigating and ensuring applicability, efficiency, clarity of tools, the evaluation of field work feasibility, and to discover any potential hurdles that could confront the investigator and interfere with data collection. Based on the outcomes of the pilot research, necessary adjustments were made, such as the omission of certain questions from the tool in order to reinforce their content or for greater simplicity and clarity. so that the involved numbers of pilot sample (20) nurses were added to the entry of the study sample.

B. Data collection Phase

At the initial interview, the researcher identified herself in order to establish a line of communication and assist the implementation of the tools. And explained purpose of the study nurses prior to answering the questions. Then taken written consent

from nurses. Nurses were asked to fill out self-administrative questionnaire by using **(Tool no. I part I)** The time needed to complete the questionnaire was (5 -10 minutes).

The researcher assessed nurses' knowledge regarding medication administration rights by using **(Tool no. I part II).** It took (10 – 15 minutes). Also, each nurse was observed directly to fill observational checklist sheet by using **(Tool no. II)**. It took (20 – 30 minutes). Also, the researcher assessed barriers that influence the nursing staff to carry out the medication administration rights by using **(Tool no. III).** It took (10 – 15 minutes). The study was carried out during shifts that are available for nurses.

Administrative design

Before conducting the study, an official permission was taken from Dean of the Faculty of Nursing -Sohag University to the director of Sohag University Hospital and the director of Medical-Surgical department, in order to obtain approval to conduct the study after explanation the title and purpose of the study.

Statistical design

The collected data were organized, coded, computerized, tabulated and analyzed by using the "Statistical Package for Social Science" (SPSS) version 26. Data were presented using descriptive statistics in the form of frequencies and percentages for categorical data: Arithmetic mean (X) and standard deviation (SD) for quantitative data. While qualitative variables were compared using Chi-Square test (X^2) which was used for relation tests, and the Pearson correlation coefficient (r) was used for correlation analysis. The p value > 0.05 indicates non-significant result while, the p value < 0.05 is significant and the p value ≤ 0.01 is highly significant.

Limitation of the study

Sometimes interviewing and assessment of nurses were postponed as many nurses were most of the time busy with the patients during data collection.

Results

Table (1): Demonstrates 42.2% of the studied nurses worked at Intensive Care Unit, 79.4% of them were female and 66.7% of them had 20-29 years old. Also, 62.7% of them had Nursing Institute, 65.2% of them were married 40.2% of them had 5-10 years of experience, 91.7% of them hadn't information about medication administration rights and 52.9% of them didn't take any training courses on medication administration.

Table (2): Demonstrates 42.6% & 38.7% of them had the right response relating. "Check the treatment ticket and doctor's instructions before giving the medication" and " When giving the medication, you should be sure of the name of the medicine, expiration date, and prescription" respectively. While 87.3% & 86.8% of them had incorrect answer regarding "Confirm the dates of administration of the prescribed medication" and " confirm the patient's history of drug interactions and allergies" respectively.

Figure (1): Demonstrates that 51.5% of the nursing staff showed low levels of knowledge, 29.9% had fair level, while 18.6% of the them had good level of knowledge about medication administration rights.

Table (3): Clarifies that 92.2%, 86.8%, 81.4%, 78.4% & 76% & 72.1% of the studied nurses had correct practices regarding " Checks that the medication administration documentation, authorized by the treating doctor, includes an accurate, clear order for each drug. " and "The nurse ensures the use of crushed medicines, which have been approved by a medical practitioner or pharmacist, using a clean pestle and mortar."," Checks the prescribed route and form of each drug", " Verifies whether that person has a history of allergies. ", " Checks the prescribed time each drug is to be." and " Administers dose correctly " respectively. While, 95.1% & 85.8%, 87.3%, 83.8%, 81.9% & 80.4% of them had incorrectly/not done regarding " retrieves a drug instructions without problem", " Labels the medication"," Check that medication is administered at the right time that is not ≥60min earlier or late", " Checked drugs for the same name and strength if in a monitored dosage system" ," Uses medicine pots, cups or spoons to avoid making contact with the drug"," Determines when the medication was last delivered" and " Observe the patients for occurrence of side effects " "respectively.

Table (4): Demonstrates that, 71.1%, 68.6%, 68.1%, 62.7% & 61.3% of the studied nurses had correct practices regarding " Documents any delay or omission in the nursing notes."," Reviews responsibilities related to the supplied drug.", " Demonstrate knowledge related to administered medication with patient." and " Not to leave medicines for the patients to self-administer at a later time." and " Records monitoring data relating to prescribed medications." respectively. While 91.7%, 81.4% 80.9% & 68.1% & 67.6% of the studied nurses had incorrectly/not done regarding " Signs their usual abbreviations on the medication administration record / prescription sheet as soon as the medication has been administered.,", " Make sure that information is soundly understood by

patients", "Administered all medicines are personally by the dispensing nurse immediately following preparation", and " Verifies the patient's identity prior to administering medication" , " Cleans their hands between patients " and " Stay with patient for several minutes, and observe for any allergic reaction" respectively.

Figure (2): Demonstrates that 77.5% of the nursing staff had unsatisfactory level of practices regarding medication administration, while 22.5 % of them had satisfactory level of practices regarding medication administration.

Table (5): Reveals that 93.1%, 76.5%, 71.6% ,66.7% & 66.2% of the studied nurses reported " Overload or patient-to-nurse ratio " and " Lack of favorable policies and facilities", " challenges with the physical work environment ", " Lack of appropriate coordination between physicians and nurses ", " Fear of consequences producing side effects to patients" and " On this unit, there is no easy way to look up information on medications." respectively. While, 55.9% 54.4% & 52.9 &52.0% of them did not mention" Lack of patient monitoring after drug administration", " I don't have any challenge"," Nurses' poor working experience ", " Nurses' unprofessional practice " and " Lack of supervision from superiors " accordingly.

Figure (3): Shows that 60.8% of the nursing staff had high level of barriers to apply the medication administration rights, 34.8% of them had moderate level, while 4.4% of the studied nurses had low level of barriers to apply the medication administration rights.

Table (6): Reveals that there was relation between the studied nurse's total knowledge level and their department, sex, years of significant experience and any training courses on medication administration at ($P<0.05$).

Table (7) Reveals that there was no relation between the studied nurses' total barriers level and their demographic data at ($P> 0.05$)

Table (8): Illustrates that there was no relation between the studied nurses' total practices level and their demographic data at ($P> 0.05$)

Table (9): Shows that there was statistically significant negative correlation between the studied nurse's total barriers, knowledge and practices levels regarding administration medication rights at ($P=0.001$). While, there was statistically significant positive correlation between the studied nurse's total knowledge and practices levels regarding administration medication rights at ($P=0.001$).

Results

Table (1): Frequency Distribution of the studied nurses' according to demographic data (n=204)

Demographic data	No	%
Department:		
Medical unit	45	22.1
Surgical unit	69	33.8
Traumatology	4	2.0
Intensive care unit	**86**	**42.2**
Sex		
Male	42	20.6
Female	**162**	**79.4**
Age years old		
>20 Years	3	1.5
20-29 Years	**136**	**66.7**
30-39 Years	59	28.9
≥40 years	6	2.9
Educational level		
Diploma	41	20.1
Nursing Institute	**128**	**62.7**
Bachelor	35	17.2
Marital status		
Married	**133**	**65.2**
Single	71	34.8
Years of experiences		
<5year	78	38.2
5-10years	**82**	**40.2**
10:14 years	23	11.3
>14 years	21	10.3
Are you have information about medication administration rights		
Yes	17	8.3
No	**187**	**91.7**
Have you taken any training courses on medication administration?		
Yes	96	47.1
No	**108**	**52.9**

Table (2): Frequency Distribution of the studied nurse's knowledge regarding medication administration rights (n=204)

Nurse's Knowledge	Correct		Incorrect	
	No	%	No	%
The patient's data and ID card be checked before administering the medication	71	34.8	133	65.2
When giving the medication, you should be sure of the name of the medicine, expiration date, and prescription	79	**38.7**	125	61.3
Medications can be given to patients in many different ways.	77	37.7	127	62.3
Check the treatment ticket and doctor's instructions before giving the medication	87	**42.6**	117	57.4
Confirm the dates of administration of the prescribed medication	26	12.7	178	**87.3**
Make sure that the patient understands the side effects or interactions of the drug	44	21.6	160	78.4
The patient's condition be evaluated before and after the treatment is given	48	23.5	156	76.5
The patient has the right to refuse to take the drug if he is conscious after explaining its effects	41	20.1	163	79.9
Confirm the patient's history of drug interactions and allergies	27	13.2	177	**86.8**
Check the effectiveness of the drug and make a review of the prescribed medications on a regular basis	34	16.7	170	83.3

Figure (1): Frequency Distribution of the studied nurse's knowledge level (n=204)

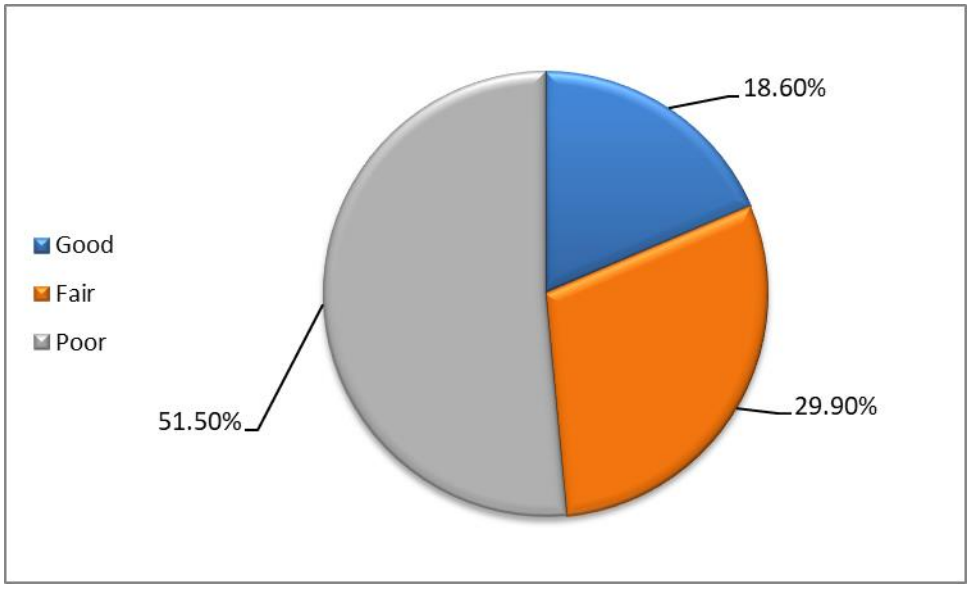

Table (3): Frequency Distribution of the studied nurse's practices regarding before medication administration rights (n=204)

Before administration of drug	Not done/Not done correctly		Done Correctly	
	No	%	No	%
Checks that there is a valid, clear prescription for each drug on the medication administration record signed by the prescribing doctor	16	7.8	**188**	**92.2**
Washes hands prior to handling medication	110	53.9	94	46.1
Prepares tray for the drug with the necessary equipment for the drug round	78	38.2	126	61.8
Double checks the drug name and dosage with the prescription sheet	157	77.0	47	23.0
Reads the medication prescription without difficulties	**194**	**95.1**	10	4.9
Labels the medication	**175**	**85.8**	29	14.2
Label syringes and bags with the medication name	101	49.5	103	50.5
Checks the expiry date of the drug				
Checks the specific instructions regarding administration of certain drugs are adhered to e.g. If medications are favorably ingested on an empty stomach.	124	60.8	80	39.2
Administers dose correctly	57	27.9	**147**	**72.1**
Observe the patients for occurrence of side effects	164	80.4	40	19.6
Checks if the resident has any known allergies	44	21.6	**160**	**78.4**
Checks the prescribed time each drug is to be.	49	24.0	**155**	**76.0**
Checks when the drug was last administered.	**167**	**81.9**	37	18.1
Check that medication is administered at the right time that is not ≥60min earlier or late	**175**	**85.8**	29	14.2
Checks the prescribed dose of each drug in the chart	65	31.9	139	68.1
Checks the prescribed route and form of each drug	38	18.6	**166**	**81.4**
Uses medicine pots, cups or spoons to avoid making contact with the drug	**171**	**83.8**	33	16.2
The nurse ensures the use of crushed medicines, which have been approved by a medical practitioner or pharmacist, using a clean pestle and mortar.	27	13.2	**177**	**86.8**
Checked drugs for the same name and strength if in a monitored dosage system.	**178**	**87.3**	26	12.7

Table (4): Frequency Distribution of the studied nurse's practices during and after medication administration rights(n=204)

During and after administration of drug	Not done/Not done correctly		Done Correctly	
	No	%	No	%
A. During administration of medication				
Verifies the patient's identity prior to administering medication.	**139**	**68.1**	65	31.9
Communicates information sensitively to the patients prior to and during administration of medication.	85	41.7	119	58.3
Administered all medicines are personally by the dispensing nurse immediately following preparation	**165**	**80.9**	39	19.1
Stays with the patients until the drug has been swallowed.	118	57.8	86	42.2
Not to leave medicines for the patients to self-administer at a later time.	76	37.3	**128**	**62.7**
Documents any delay or omission in the nursing notes.	59	28.9	**145**	**71.1**
Dispose non administered and wasted drugs or sharps in the appropriate designated sealed container.	129	63.2	75	36.8
Signs their usual abbreviations on the medication administration record / prescription sheet as soon as the medication has been administered.	**187**	**91.7**	17	8.3
Cleans their hands between patients	**138**	**67.6**	66	32.4
B. After administration of medication				
Stay with patient for several minutes, and observe for any allergic reaction	**138**	**67.6**	66	32.4
Monitors the tasks to the administered medication.	64	31.4	**140**	**68.6**
Records monitoring data related to administered medication.	79	38.7	**125**	**61.3**
Reports the abnormal findings to physician.	85	41.7	119	58.3
Demonstrate knowledge related to administered medication with patient.	65	31.9	**139**	**68.1**
Make sure that information is soundly understood by patients	**166**	**81.4**	38	18.6

Figure (2): Frequency distribution of the studied nurses' practices level (n=204)

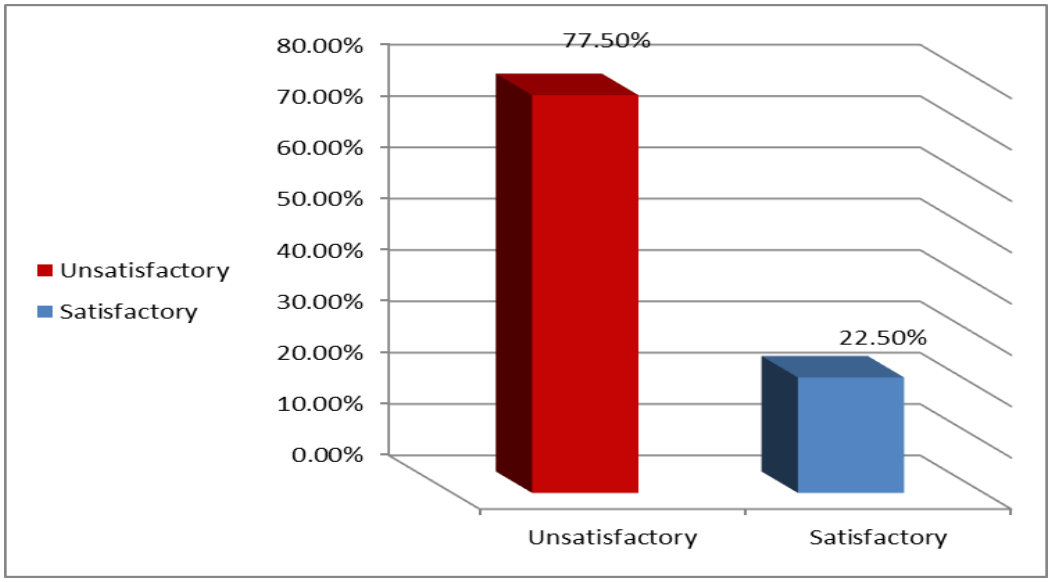

Table (5): Frequency distribution of the studied nurse regarding barriers in applying medication administration rights (n=204)

Barriers in applying medication administration rights	Yes		No	
	No	%	No	%
High workload or patient-nurse ratio	**190**	**93.1**	14	6.9
Insufficient nurses' knowledge of medication safety rules.	115	56.4	89	43.6
Nurses' unprofessional practice	98	48.0	**106**	**52.0**
Nurses' poor working experience	96	47.1	**108**	**52.9**
Lack of supervision from superiors	98	48.0	**106**	**52.0**
Lack of appropriate coordination between physicians and nurses	**136**	**66.7**	68	33.3
Lack of appropriate coordination between pharmacists and nurses	105	51.5	99	48.5
Lack of appropriate coordination between nurses themselves	127	62.3	77	37.7
Issues with the physical work environment	**146**	**71.6**	58	28.4
Lack of favorable policies and facilities	**156**	**76.5**	48	23.5
Distractions and interruptions during medication administration	114	55.9	90	44.1
Lack of patient monitoring after drug administration	90	44.1	**114**	**55.9**
Fear of consequences producing side effects to patients.	**136**	**66.7**	68	33.3
Lack of encouragement from the nursing directors after reports of medication errors.	114	55.9	90	44.1
No positive feedback is given for passing medications correctly.	107	52.5	97	47.5
On this unit, there is no easy way to look up information on medications.	135	66.2	69	33.8
I don't have any challenge	93	45.6	**111**	**54.4**

Figure (3): Distribution the studied nurses barriers level (n=204)

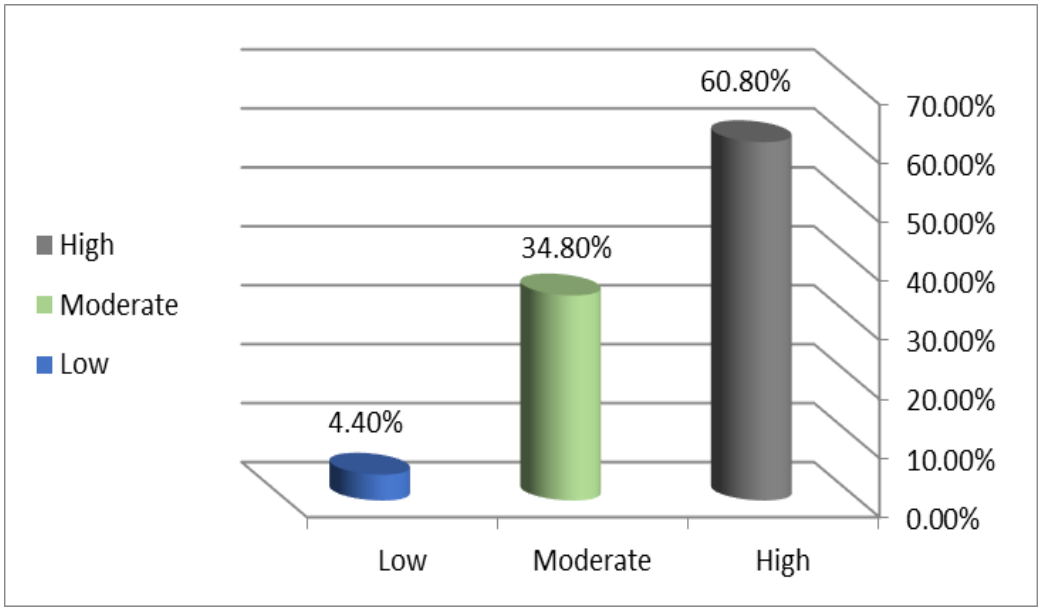

Table (6): Relation between the studied nurse's total knowledge level and their demographic data (n=204)

Demographic data	Poor		Fair		Good		X^2	P – value
	No	%	No	%	No	%		
Department:							39.676	**.000****
Medical unit	28	13.7	12	5.9	5	2.5		
Surgical unit	28	13.7	15	5.9	26	12.7		
Traumatology	1	0.5	0	0.0	3	1.5		
Intensive care unit	48	23.5	34	16.7	4	2.0		
Sex							7.559	**.023***
Male	18	8.8	10	4.9	14	6.9		
Female	87	42.6	51	25.0	24	11.8		
Age yrs. Old							11.701	.069
>20 Years	0	0.0	3	1.5	0	0.0		
30-39	68	33.3	44	21.6	24	11.8		
20-29	33	16.2	12	5.9	14	6.9		
<40	4	2.0	2	1.0	0	0.0		
Educational level							2.423	.658
Diploma	22	10.8	11	5.4	8	3.9		
Nursing Institute	65	31.9	42	20.6	21	10.3		
Bachelor	18	8.8	8	3.9	9	4.4		
Marital status							.831	.660
Married	66	32.4	40	19.6	27	13.2		
Single	39	19.1	21	10.3	11	5.4		
Years of experiences							19.381	**.004***
<5year	44	21.6	24	11.8	10	4.9		
5-10years	40	19.6	23	11.3	19	9.3		
10:14 years	5	2.5	9	4.4	9	4.4		
>14 years	16	7.8	5	2.5	0	0.0		
Are you have information about medication administration rights							.027	.869
Yes	8	3.9	3	1.5	6	2.9		
No	97	47.5	58	28.4	32	15.7		
Have you taken any training courses on medication administration?							3.746	**.024***
Yes	48	23.5	25	12.3	23	11.3		
No	57	27.9	36	17.6	15	7.4		

Table (7): Relation between the studied nurse's total barriers level and their demographic data (n=204)

Demographic data	Low		Moderate		High		X^2	P – value
	No	%	No	%	No	%		
Department:							8.957	.176
Medical unit	26	12.7	19	9.3	0	0.0		
Surgical unit	39	19.1	25	12.3	5	2.5		
Traumatology	1	0.5	3	1.5	0	0.0		
Intensive care unit	58	28.4	24	11.8	4	2.0		
Sex							1.615	.446
Male	22	10.8	18	8.8	2	1.0		
Female	102	50.0	53	26.0	7	3.4		
Age yrs. Old							10.020	.124
>20 Years	3	1.5	0	0.0	0	0.0		
30-39	82	40.2	46	22.5	8	3.9		
20-29	38	18.6	20	9.8	1	0.5		
<40	1	0.5	5	2.5	0	0.0		
Educational level							1.951	.745
Diploma	23	11.3	17	8.3	1	0.5		
Nursing Institute	80	39.2	41	20.1	7	3.4		
Bachelor	21	10.3	13	6.4	1	0.5		
Marital status							1.465	.481
Married	83	40.7	43	21.1	7	3.4		
Single	41	20.1	28	13.7	2	1.0		
Years of experiences							5.326	.503
<5year	49	24.0	25	12.3	4	2.0		
5-10years	53	26.0	27	13.2	2	1.0		
10:14 years	13	6.4	8	3.9	2	1.0		
>14 years	9	4.4	11	5.4	1	0.5		
Are you have information about medication administration rights							1.466	.480
Yes	8	3.9	8	3.9	1	0.5		
No	116	56.9	63	30.9	8	3.9		
Have you taken any training courses on medication administration?							.048	.976
Yes	58	28.4	34	16.7	4	2.0		
No	66	32.4	37	18.1	5	2.5		

Table (8): Relation between the studied nurses' total practices level and their demographic data (n=204)

Demographic data	Satisfactory		Unsatisfactory		X^2	P – value
	No	%	No	%		
Department:					1.105	.776
Medical unit	37	18.1	8	3.9		
Surgical unit	51	25.0	18	8.8		
Traumatology	3	1.5	1	0.5		
Intensive care unit	67	32.8	19	9.3		
Sex					.038	.845
Male	33	16.2	9	4.4		
Female	125	61.3	37	18.1		
Age yrs. Old					2.742	.433
>20 Years	3	1.5	0	0.0		
30-39	104	51.0	32	15.7		
20-29	45	22.1	14	6.9		
<40	6	2.9	0	0.0		
Educational level					4.524	.104
Diploma	35	17.2	6	2.9		
Nursing Institute	93	45.6	35	17.2		
Bachelor	30	14.7	5	2.5		
Marital status					.126	2.5
Married	102	50.0	31	15.2		
Single	56	27.5	15	7.4		
Years of experiences					7.552	.056
<5year	61	29.9	17	8.3		
5-10years	57	27.9	25	12.3		
10:14 years	21	10.3	2	1.0		
>14 years	19	9.3	2	1.0		
Are you have information about medication administration rights					.010	.920
Yes	13	6.4	4	2.0		
No	145	71.1	42	20.6		
Have you taken any training courses on medication administration?					1.267	.260
Yes	71	34.8	25	12.3		
No	87	42.6	21	10.3		

Table (9): Correlation between the studied nurse's knowledge, barriers and practices regarding medication administration rights (n=204)

Study variables	Total knowledge		Barriers		Practices	
	R	P	r	P	R	P
Total knowledge			-.621	.001	.492	.001**
Barriers					-.384	.001**

Discussion

Administering medication is a core obligation for registered nurses. Registered nurses around the world are educationally equipped, ethically responsible, and professionally accountable to carry out their duties safely. Thus, nurses can commit, discover, and report medication errors. Nurses frequently face the problem of securely giving drugs while providing healthcare to patients. Most nurses learn safe medicine administration using a framework known as the 'rights'. This framework is a widely recognized guide to safe medication administration practice. (**Martyn & Paliadelis& Perry., 2019).**

The discussion will have the main results finding as follow: Based on the results on the present study; majority of study were female and married these finding is consistent with study that done by **Elsherbiny, Weheida & Mohamed., (2020).** Found that more than the half of subjects were females. Similarly, the results match with study done by **Wondmieneh et al., (2020).** Found that study two third of them were females' nurses. In the study who reported that more than the half of the study sample were females and consistent with **Al-Nasri et al., (2023).** Found study vast majority of them were female nurses.

This might be due to that the majority of nursing force working at Sohag university hospitals are females. This finding due to nursing education in the past was specialized only to females. In present study, two third of the study subjects were in the age group of 20 -29 years and two fifths had work experience from 5- 10 years. Similarly, study done by **Tsegaye, et al., (2020).** Found that near to half of them were in the age group of 26–30 years.

While this result wasn't consistent with study done by **Mekonen, Gebrie & Jemberie., (2020).** Found that more than half of the staff nurses were male and nearly half of them were married. While this result wasn't consistent with study done by **Mohammed et al., (2022).** Found that highest percentage less than three quarters of them were in the age group of 20 < 25 years. As regards years of nurses' experience, less than half of the studied nurses had experience from 1< 5 years. And concerning qualification of the studied nurses, more than two thirds of them had diploma of technical institute of nursing (5 years) and more than one quarter of them had diploma of nursing school.

On the other hand, study done by **Karttunen et al., (2019).** Found that one quarter of the study subjects were in the age group between 49-55 yrs. with the mean age of 46 ± 11.1 years and consistent with vast majority were females & one quarter of the hospital attendants had work experience of less than 8 years.

Regarding to level of education, the current study shows that two third of sample had nursing institute follow by diploma, vast majority of them hadn't information about medication administration rights and more than half of them didn't take any training courses on medication administration. Similarly, the results match with study done by **Mansour., (2019).** revealed the majority of nurses were females. Furthermore, the majority of the nurses reported that they didn't receive any training regarding medication administration, slightly more than two fifths of the nurses were having diploma in nursing, while only around one fifth have bachelor degree in nursing.

This result wasn't consistent with study done by **Shittaya et al., (2019)** shows that, more than one third (40%) of the studied nurses were in the age group 30 <35 years old, with mean age 31.4±2.4years, meanwhile two third of them were females and more than two fifths (45) % of them were diploma nurses. In addition to one third (43%) of the studied nurses had years of experience ranging between 10<15 years.

But another study conducted by **Mekonen, Gebrie, & Jemberie., (2020).** Show that the majority of the respondents had a Bachelor of science degree in nursing follow by diploma degree. Regarding distribution of the study sample total knowledge about medication administration rights. The present study results showed that based on the knowledge score one fifth of study had good knowledge level regarding medication administration rights. While less one of third of them had fair knowledge level regarding medication administration rights and more than half of them had poor knowledge level regarding medication administration rights.

Similarly, this result was agreed with study done by **Mohammed et al., (2022).** reported that Concerning nurses‟ total knowledge about medication administration, the majority of the studied nurses had

unsatisfactory total knowledge regarding medication administration.

Similarly, this result was agreed with study done by **Shittaya et al., (2019)** revealed that more than two third (68%) of the studied nurses had unsatisfactory knowledge about high alert medications, while less than one third (32%) of them had satisfactory knowledge about high alert medications.

And as well as study done by **Mansour., (2019).** revealed among participants staff nurses slightly more than half of the studied sample had incomplete satisfactory knowledge This may due to inadequate training in the area, the absence of regular group discussion to refresh their knowledge regarding medication errors, lack of motivation, increased nursing workload which made the delay of nurse's abilities and motives to acquire and update their knowledge. On the other hand, more (58.3%) only had got satisfactory level.

And also consist with this study done by **Abd Elmageed, Soliman& Abdelhamed., (2020).** revealed this study result slightly less than two thirds of nurses have poor total knowledge score regarding medication administration and more than one fifth of nurses have fair knowledge and less than one fifths have good knowledge.

Regarding distribution of the study sample knowledge about medication administration rights. The present study results showed that Item analysis supports this explanation score more than two fifths of the studied nurses had correct answer about "Check the treatment ticket and doctor's instructions before giving the medication", but there were more than one third of the studied nurses had correct answer about "" When giving the medication, you should be sure of the name of the medicine, expiration date, and prescription".

This result was agreed with study conduct by done by **Bucknall et al., (2019).** reported that the vast majority of the respondents were Nurses' knowledge about Preparing medications, checking patient identification, checking the medication name and prescription.

On the other hand, the other items were revealed that the lowest percentage of nurses answered correctly were questions. These included that " confirm the patient's history of drug interactions and allergies ", "element is check the effectiveness of the drug and make a review of the prescribed medications on a regular basis" and " Confirm the dates of administration of the prescribed medication.

As regarding to performance of samples about practices regarding medication administration the present study results showed more than one fifth of studied nurses had satisfactory practices during medication administration. This result come in the line with who studied **Fathy et al., (2020).** that show only one third of them had satisfactory performance about drug administration. And, another study conducted by **Abd Elmageed, Soliman& Abdelhamed., (2020).** Revealed that matching with study that show less than one quarter had satisfactory practices about drug administration.

This study done by **Abo El–Ata et al., (2019).** revealed that there were many unsatisfactory practices related to administration of inotropic medications as more than half of the studied nurses didn't prepare equipment, didn't check prescribed medication, didn't monitor the infusion by checking the volume of fluid infused at least every hour, didn't monitor the patient's vital signs during administration of selected inotropic medication in addition to monitoring for extravasation and observing any drug reaction.

As regarding to performance of samples about practices during medication administration. The present study results showed more than three quarters of sample performed medication administration with unsatisfactory manner. this result agrees with study done by **Fathy et al., (2020).** that show around half of the nurses have poor total practice level. This result doesn't match with study done by **Jafaru& Abubakar., (2022).** that show around half of the nurses have satisfactory practice of medication administration.

On the other hand, the other items were revealed that the highest percentage of nurses observed correctly practice were questions that related to practices regarding " Checks that there is a valid, clear prescription for each drug on the medication administration record signed by the prescribing doctor" and "Crushed medicines, the nurse establishes that these have been sanctioned by a medical practitioner or pharmacist. A clean pestle and mortar are used and it is cleaned after each resident with warm water and detergent and wiped with a dry hand towel.

This result was matched with study done by **Fathy et al., (2020).** reported that their practice of checks that there is a valid, clear prescription for each drug on the medication administration record signed by the prescribing doctor" were vast majority but crushed medicines, the nurse establishes that these have been sanctioned by a medical practitioner or pharmacist. A clean pestle and mortar are used and it is cleaned after each resident with warm water and detergent and wiped with a dry hand towel not consist it was the one fifth.

As regarding to presence barriers to apply medication administration rights among the studied nurses .The present study results showed more than majority of the studied nurses reported that the presence barriers to apply medication administration rights reported " High workload or patient-nurse ratio "and " Lack of favorable policies and facilities" showed more than three quarters of the studied nurses, respectively, while more than half them did not mention" Lack of

patient monitoring after drug administration" and " I don't have any challenge".

This result was agreed with study done by **Abubakar., (2022).** showed that majority of them had reported different challenges. The most frequently cited barriers were high workload or patient-nurse ratio "and " Lack of favorable policies and facilities", Lack of patient monitoring after drug administration.

This results not consistent with study done by **Azeemath., (2023).** showed that majority of them had reported different challenges. The most frequently cited barriers were "Nurses could be blamed if something happens to the patient because of the medication error." "Too much emphasis is placed on MAEs as a measure of the quality of nursing care provided."

Another study not conducted with results done by **Mostafa, Aboseada& Sayed., (2023).** showed that majority of them had reported different challenges. The most frequently cited barriers were "Fear of consequences producing side effects to patients". "Expressing a negative attitude towards the nurse(s) making errors".

Regarding to relation between demographic data and knowledge this result show that there statistically significant difference relation between the studied nurse's total knowledge level and their department, sex, years of experience and nurses who taken any training courses on medication administration. This result agrees with **Abo El–Ata., (2019).** which revealed that there is positive significant correlation between nurses' knowledge and personal characteristics.

Regarding to relation between demographic data and barriers the present study shows that there was no statistically significant difference between the total studied nurses' barriers to apply medication administration rights and their demographic data. This agrees with the study done by **Seada et al., (2020).** the result revealed that there was no statistically significant relationship between all personal data of studied sample and they're of total reporting barriers except for the item "unusual events are reported in word/unit", this is may be due to the nurses had regular training programs about importance of reporting of unusual event on their patient and organization outcome.

This results also agrees with the study done by **Mourd& Seada., (2020).** showed that there was no statistically significant relationship between all personal data of the studied sample and their perception of total incident reporting barriers.

Another study disagrees with present study done by **Mostafa, Aboseada& Sayed., (2023).** As regards the correlations between barriers and socio-demographic data of studied nurses, the current result showed that there is a statistically significant correlation between the process of reporting factor and marital status and level of education. This indicated that most of the studied nurses had bachelor's degree and they studied the importance of reporting incidents in the nursing curriculum.

Regarding correlation between the studied nurse's total barriers, knowledge and practices regarding administration medication rights shows that there was statistically significant negative correlation between the studied nurse's total barriers, knowledge and practices regarding administration medication rights at (P=0.001). Similarly, this result matching with study done by **Azeemath., (2023).** The results of the correlation indicated that there was a statistically significant weak negative relationship. But it is contradicted by **Aljabari& Kadhim., (2021).** as it was found that barriers to reporting were highly fluctuating among different facilities.

Regarding to correlation between the studied nurse's total knowledge and practices regarding administration medication rights there was statistically significant positive correlation between the studied nurse's total knowledge and practices regarding administration medication rights at (P=0.001). This result matching with study done by **Abd El Aziz, Ahmed& Abolwafa., (2021).** shows the correlation regarding the total scores of nurses' knowledge and practices. It is evident that the highest strong positive statistically significant correlations were found between the total scores of knowledge and practice of nurses 'knowledge and practices (r=0.89).

And also matching with study done by **Abassy& AL-Mosawi., (2021).** showed that there was a strong correlation between knowledge and practice (r=0.58).and consistent with study done by **Mohammed et al., (2022).** reported that there was a statistically significant correlation between nurses" knowledge, practice drug administration. On the same context, this result was supported by **Abo El–Ata et al., (2019).** who conducted a study about "Nurses" performance regarding administration of inotropic medications for critically ill patients" that revealed there was a profoundly positive correlation between practice and knowledge of nurses.

Conclusion

Based on findings of the present study, it can be concluded that:

More than half of sample had no training, and also nurses don't understand importance of medication administration rights, nurses have poor knowledge, practice toward medication administration, which needs to be corrected. There are high workload or patient-nurse ratio "and " Lack of favorable policies and facilities", was considered as the main barrier to apply medication administration rights.

Recommendations

In relation to the findings of the current study, the following suggestions are proposed:

- Nurses should receive in-service and refresher training on medication administration. This should offer them with current knowledge that can be utilized in practice.
- Hospital rules and guidelines should improve nurses' knowledge of medication administration rights.
- Enhancing nurses' ability to assess patients' conditions and properly track medication in their charts through educational programs.
- Raise nurses' awareness of medication preparation (checking labels, preparing injections, using aseptic techniques with needles and syringes, etc.)
- Creating an effective medication sheet involves assessing all points before, during, and after administration.
- Developing and integrating policy and procedure books that includes medication administration checklist to maintain uniformity.
- Nurses are closely monitored and supervised to ensure patient safety while administering medication.

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