Assessment of Nurses' Performance in Implementation of Medical Prescriptions at Pediatric Critical Care Settings

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Abstract

Background: Medical prescription is a physician's order for the preparation and administration of a drug or device for a pediatric patient. It is considered as a potent way of communication and collaboration between health care providers. **Aim:** The aim of this study was to assess nurses' performance in implementation of medical prescriptions at pediatric critical care settings. **Research design:** A descriptive explanatory design used to conduct this study. **Setting:** The study was conducted at pediatric critical care settings namely: Neonatal intensive care unit, Pediatric intensive care units and Emergency unit at Children's Hospital affiliated to Ain Shams University Hospitals. **Subjects:** A Convenient sample of 60 nurses who are working at the above mentioned settings regardless their characteristics. **Data collection tools:** involved; Pre-designed interview questionnaire sheet to gather data related to characteristics of the studied nurses and their knowledge about medical prescriptions, Attitude–type rating scale, Assessment sheet for the medical prescriptions and Assessment sheet for the studied nurses' documentation related to the implementation of medical prescriptions. **Results:** The results of the study revealed that, $\bar{X}$+SD of the studied nurses age was (33.17±7.30), most of them were females, almost the majority of them had satisfactory total knowledge about medical prescriptions, more than three quarters of them had total positive attitude towards the implementation of medical prescriptions and about two thirds of medical prescriptions evaluated by the researcher were complete. **Conclusion:** The studied nurses' total knowledge was satisfactory, they had positive attitude and poor documentation related to implementation of medical prescriptions. **Recommendation:** Provide continuous education program for nurses working at pediatric critical care settings about medical prescriptions importance, implementation, and documentation.

Keywords: Pediatric critical care settings, Medical prescriptions, Nursing.

Introduction

The word “prescription” derives from “pre” (before) and “script” (writing, written), which denotes that it is an order that must be written down before or for the preparation and administration of a drug. Also, it is an important transaction between the physician and the patient. Prescription writing is both an art and a science, which needs to be mastered by the medical professional ***(Kumari, 2014 and Patil et al., 2015).***

The patients in the Pediatric Intensive Care Unit (PICU) are the most critically ill children in the hospital setting. There are various factors that have led to poor outcomes in PICU patients. The main factor that leads to inadequate care for PICU patients is the improper health assessment and implementation of medical prescriptions

by the healthcare providers. This may include not observing a change in the pediatric patient's clinical status, delayed resuscitation efforts, delayed decision making or a combination of any of these factors ***(Hodkinson et al., 2016).***

The pediatric critical care setting is recognized as a high-risk environment for errors because of a number of factors, including medically-complex pediatric patients with multiple disorders, lack of standard pediatric drug dosing and formulations, weight-based dosing medications, verbal orders, hectic environment with frequent interruptions, lack of clinical pharmacists and numerous transitions in care ***(Custer et al., 2015).***

The interaction between the nurse and the physician allows the knowledge and skills of both professions to influence the pediatric patient's care. Moreover, a competent nurse has a role in diagnosis and proposes appropriate treatment as well, in addition to the participation in the follow-up of the treatment. This step requires monitoring of the clinical and biological examinations that are necessary for the detection of the expected adverse effects ***(Muhrer, 2014 and Mahlknecht et al., 2017).***

Errors in prescription can occur due to various reasons. However, the most common errors are human errors which occur in prescription writing. Some of the common errors observed during prescription writing can be attributed to wrong format, lack of clarity in comprehending the prescription or aberration in spelling. This results in nurse misreading/misinterpreting the prescription, dispensing the wrong drug/dose or providing insufficient/ambiguous information to the nursing staff ***(General Medical Council "GMC", 2013 and Fox, 2016).***

Aim of the Study:

The current study aims to assess nurses' performance in implementation of medical prescriptions at pediatric critical care settings.

Research Question:

What is the nurses' performance in implementation of medical prescriptions at pediatric critical care settings?

Subjects and Methods

Technical Design:

Research Design:

A descriptive explanatory research design was employed to fulfill the aim of the study and answer the research question.

Research Setting:

The study was conducted at pediatric critical care settings, namely: Neonatal intensive care unit (NICU), Medicine intensive care unit, Surgical intensive care unit and Emergency unit (ER) at the children's hospital affiliated to Ain Shams university hospitals.

Subjects:

A convenient study sample was employed; it included 60 nurses who were working at the previously mentioned settings, regardless of their characteristics. The sample size was calculated according to the number of nurses working at each unit using EPI program (confidence level 95%).

Tools for data collection:

Data were collected using the following tools:

Tool I: Pre-designed Interview Questionnaire Sheet:

It was designed by the researcher in Arabic language after reviewing the recent and relevant literature, and consisted of two parts:

First Part:

It included characteristics of the studied nurses such as: age, gender, level of education, years of experiences, job title, department and attendance of training courses.

Second Part:

This part was designed to assess data related to the studied nurses' knowledge about medical prescriptions, namely; definition, importance, types, responsible physician, characteristics, components (child's identification data, diagnosis, investigations, date of prescription, signature, drug administration, nutrition, O_2 therapy, IV fluids/blood, fluid chart, laboratory investigations and routine daily care), and factors affecting implementation of medical prescriptions (including prescriber, nurse, child and environment-related factors).

Scoring System:-

The nurses' answers were cross-checked with a model key answer prepared by the researcher. A correct answer was scored "1", while a "0" was given for an incorrect answer or "don't know".

Afterwards, the total studied nurses' knowledge was categorized into two levels: satisfactory level of knowledge (score ≥ 60%) and unsatisfactory (score < 60%).

Tool II: Attitude Rating Type Scale:

This tool was designed by the researcher to assess the studied nurses' attitude regarding the implementation of medical prescriptions at pediatric critical care settings. It included 13 statements.

Scoring System:-

The score given for each response was as follows: "0" for "disagree", "1" for "neutral" and "2" for "agree". Furthermore, according to the studied nurses' responses, the total attitude was categorized into positive (score ≥ 60%) and negative (score < 60%**).**

Tool III: Assessment Sheet for the medical prescriptions:

This tool was designed by the researcher to evaluate the medical prescriptions through pediatric medical records. The evaluation involved clarity, complete identification data, in addition to being updated, signed, dated and written in official paper using known abbreviations and clear handwriting.

Scoring System:-

Upon evaluation of each medical prescription by the researcher, each item was scored "0" for "incomplete" and "1" for "complete medical prescription". Accordingly, the total assessment of medical prescriptions was categorized into: Incomplete (score < 50%), partially complete (score 50-85%) and complete (score > 85%).

Tool IV: Assessment Sheet for the Studied Nurses' Documentation related to the Implementation of Medical Prescriptions:

This tool was designed by the researcher to assess the studied nurses' documentation (regarding the implementation of medical prescriptions for drug administration, nutrition, O2 therapy, blood components, fluid chart, laboratory investigations, and routine daily care of measuring vital signs, random blood sugar , positioning, suctioning, chest physiotherapy, and wound dressing) through nursing records at pediatric critical care settings.

Scoring System:

Each item was scored "0" for "incorrect", "1" for "incomplete correct" and "2" for "complete correct". Accordingly, the total level of the studied nurses' documentation was categorized into done incorrectly (score < 60%), done correctly but incomplete (score 60-85%) and done completely and correct (score > 85%).

Operational design:

The operational design of this study included preparatory phase, validity and reliability of the developed tools, pilot study, field work, and ethical and administrative considerations.

Preparatory phase:

It included reviewing the recent and relevant literatures covering various aspects of the study problem using books, articles, periodicals, magazines and internet in order to get acquainted with the various aspects of the research problem and to develop the required tools for data collection.

Tools validity and reliability:

The developed study tools were tested and evaluated for their validity and reliability by five experts in pediatric nursing department, faculty of nursing, Ain Shams University.

The experts' elicited responses were either "agree", "disagree" or "agree with modifications".

The developed tools were modified according to the experts' opinion. These modifications were in the form of omission or addition of some questions or rephrasing some statements.

Alpha Chronbach Test was used to measure the internal consistency of the tools used in the current study. The internal consistency was measured to identify the extent to which the items of the tools measured the same concepts and correlated with each other. For reliability, test-retest was done (0.84).

Pilot study:

The pilot study involved six nurses (10% of total sample size), to ensure the clarity of questions and applicability of the tools, and to determine the time needed to fill the study tools. Minor modifications were done after the pilot study. The nurses involved in the pilot study were not excluded from the study sample.

Ethical consideration:

Ethical approval was obtained from the Scientific Research Ethical Committee of the Faculty of Nursing, Ain Shams University. In addition, oral consent was obtained from every

participant who agreed to share in the study. The participants were assured that anonymity, confidentiality and the right to withdraw from the study at any time would be guaranteed. Ethics, values, cultural backgrounds and beliefs were respected.

Administrative design:

An official approval to carry out the study was obtained through an issued letter from the Dean of the Faculty of Nursing, Ain Shams University to the Director of Children's Hospital affiliated to Ain Shams University Hospitals.

Field work:

The actual field work and data collection was achieved throughout a period of four months; from the first of May 2018, till the end of August 2018. The data were collected at each study setting by rotation during morning and afternoon shifts.

The researcher interviewed individually the nurses who agreed to participate in the study. The researcher explained the aim and objectives of the study to each nurse.

The study tools were filled by the researcher, and each nurse took 20-30 minutes to fill the tools at the end of the work shift.

The nurses were assessed using Tool I and II. Furthermore, Tool III and IV were filled by the researcher using medical records.

Statistical design:

The collected data were organized, coded and analyzed by using appropriate statistical significant tests. The statistical analysis of data was done by using the Statistical Package for Social Science (SPSS), version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean ± standard deviation. Qualitative data were expressed as frequency and percentage.

Results

Table (1) showed that the ages of more than half (53.3%) of the studied nurses were between 25 to < 35 years. Moreover, 71.7% were females, less than the half (48.3%) of them graduated from the technical nursing institute, and 56.7% had less than 5 years of experience.

Figure (1) illustrated that slightly more than two thirds (66.6%) of the studied nurses were bed-side nurses, while only 16.7% and 16.7% of them were nurse supervisors and nurse aids, respectively.

Figure (2) illustrated that most (85%) of the studied nurses had attended CPR courses, while slightly more than two thirds (66.6%) had attended infection control courses, and only 6.7% did not attend any courses.

Figure (3) illustrated that 83.3% of the studied nurses had satisfactory total knowledge about medical prescriptions, while 16.7% of them reported total unsatisfactory knowledge.

Figure (4) illustrated that 78.3% of the studied nurses had positive attitude towards implementation of the medical prescriptions, while the rest of them (21.7%) had negative attitude.

Figure (5) illustrated that 8.3%, 66.7% and 25% of the studied nurses had complete correct, incomplete correct and incorrect documentation regarding implementation of medical prescriptions, respectively.

Figure (6) clarified that 67% of the total medical prescriptions were complete, while only 3% of them were incomplete.

Table (1): Distribution of the studied nurses according to their characteristics (n=60).

Nurses' Characteristics	No.	%
Age (years)		
15 : < 25	9	15
25 : < 35	32	**53.3**
35 : < 45	13	21.7
45 : ≤ 55	6	10
X¯±SD	33.17±7.30	
Gender		
Male	17	28.3
Female	43	**71.7**
Level of qualification		
Bachelor in Nursing science	6	10
Technical Nursing Institute	29	**48.3**
Technical Nursing School	15	25
Nurse Aid	10	16.7
Years of experience		
< 5	34	**56.7**
5 : <10	9	15
10 : ≤15	17	28.3
X¯±SD	6.58±1.45	

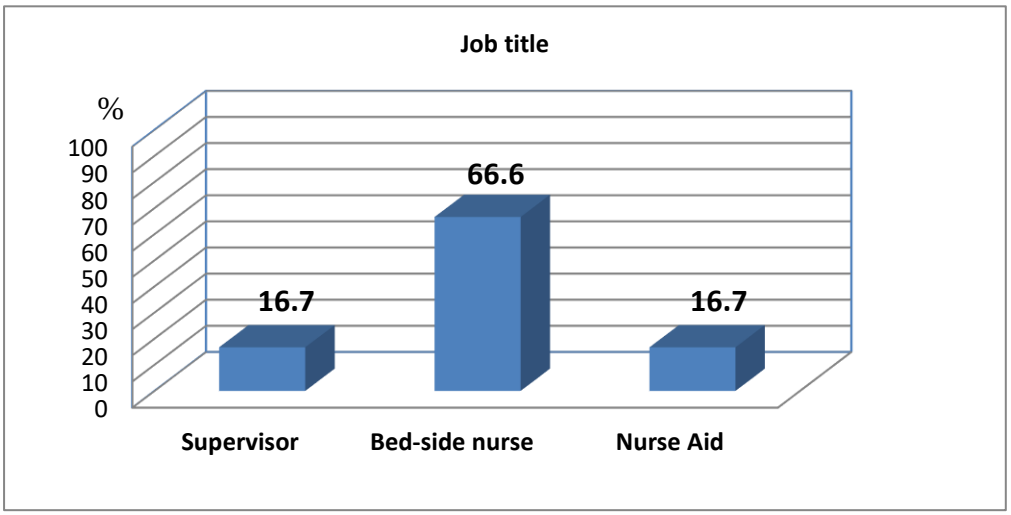

Figure (1): Distribution of the studied nurses according to their job title (n=60).

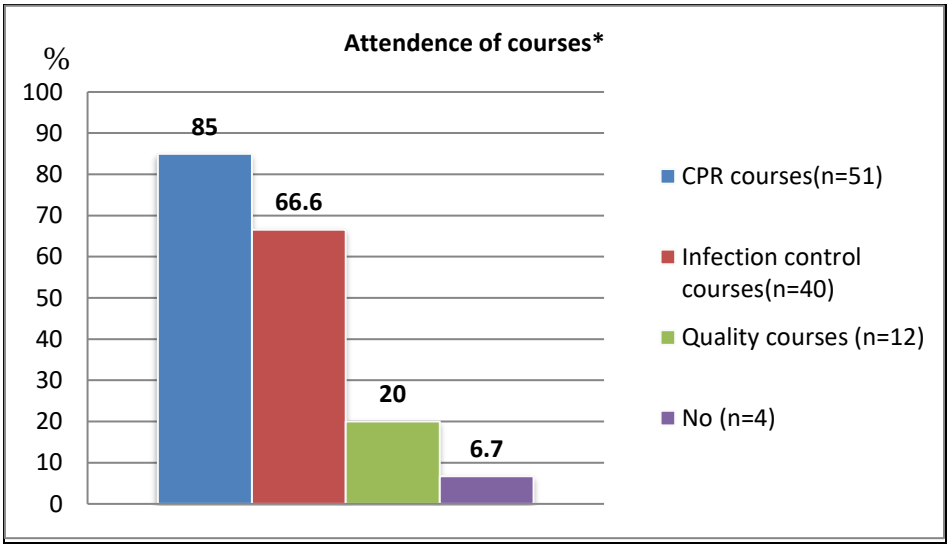

Figure (2): Distribution of the studied nurses according to their attendance of training courses (n=60).

***Number is not mutually exclusive**

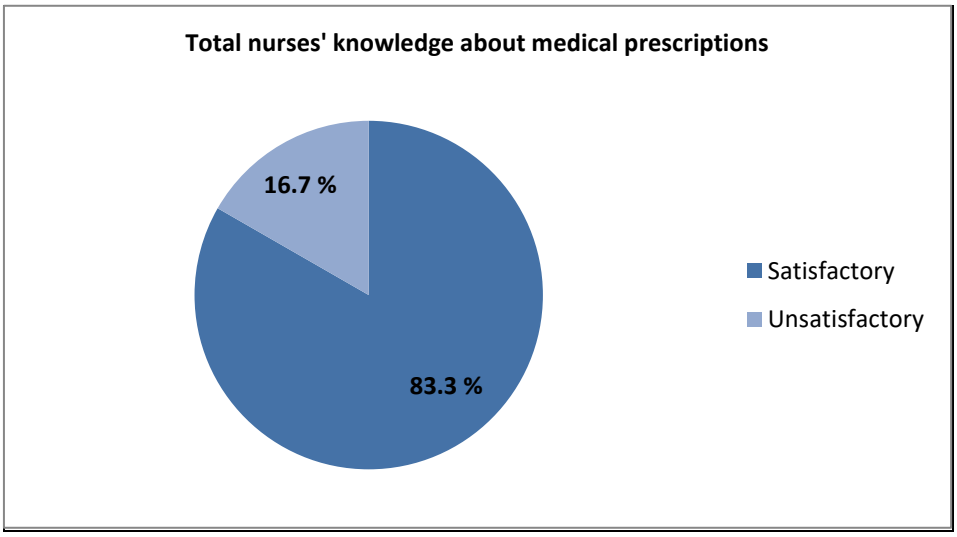

Figure (3): Distribution of the studied nurses according to their total knowledge about the medical prescriptions (n = 60).

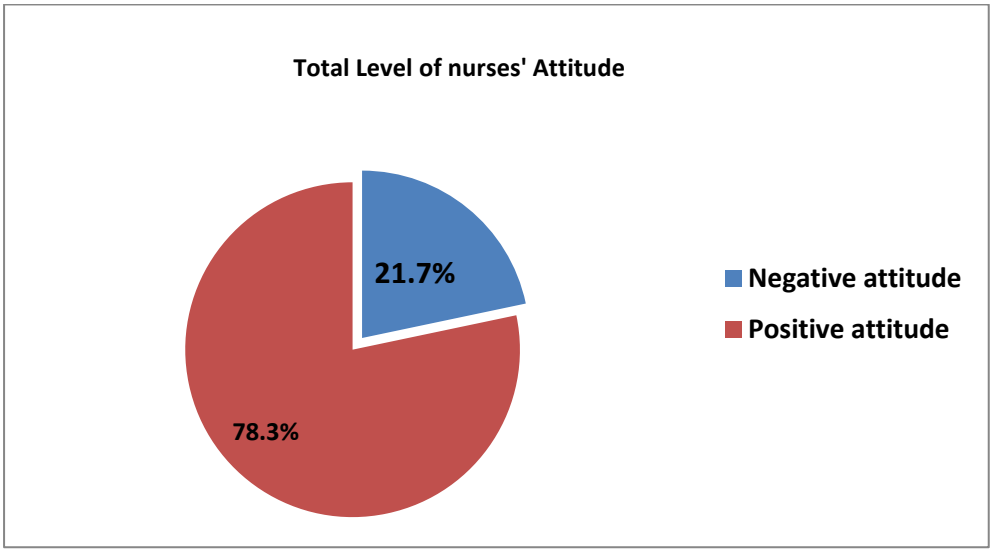

Figure (4): Distribution of the studied nurses according to their total attitude towards the implementation of medical prescriptions (n=60).

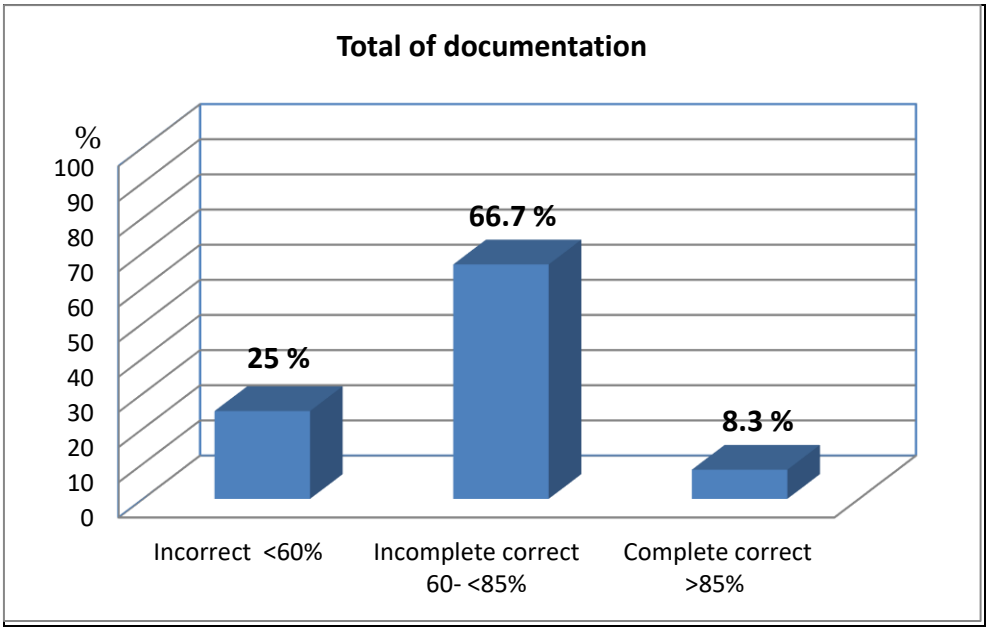

Figure (5): Distribution of the studied nurses according to their total documentation related to the implementation of medical prescriptions (n=60).

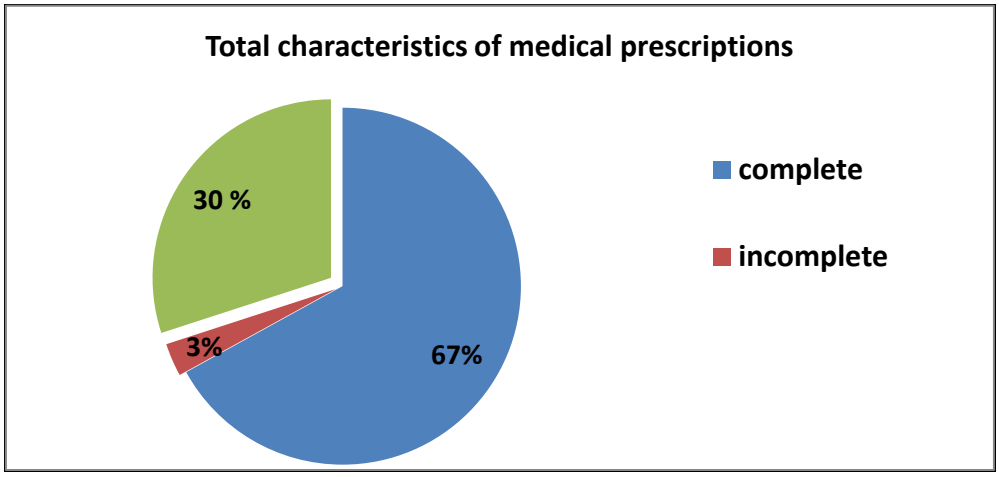

Figure (6): Total characteristics of medical prescriptions as assessed by the researcher (n=100).

Discussion

Pediatric nurses have a challenging role in providing nursing care for children. This requires developmentally appropriate care and diligence in assessment of pediatric patient and parental concerns. The professional practice of nursing within the pediatric environment can be both rewarding and challenging. Pediatric nurses' activities are complicated and require constant vigilance in providing quality care to the pediatric patient ***(Montagnino and Ethier, 2007).***

Ensuring safe medical prescription's implementation is a complex and multi-factorial system involving physicians, nurses and pharmacists. As to their role in medical prescription, the literature has shown the active involvement of nurses in the prescription of medicines to help pediatric patients access and maintain optimal therapy ***(Antonow et al., 2013).***

The present study aimed to assess nurses' performance in implementation of medical prescriptions at pediatric critical care settings.

Regarding the characteristics of the studied nurses, the findings of the present study showed that more than half of the study sample were aged between 25 and less than 35 years ($\bar{X}$±SD = 33.17±7.30 years), and most of them were females. These findings were supported by the study of ***Hammoudi et al. (2018)***, entitled "Factors associated with medication administration errors and why nurses fail to report them", where more than half of the studied nurses were aged between 25 and 35 years and the majority of them were females.

Regarding the qualifications of the studied nurses, the results of the present study revealed that one tenth of them had bachelor's degrees in nursing science. This finding was in agreement with the findings of ***Alemu et al. (2017)***, who conducted a study to investigate the medication administration errors and contributing factors: A cross sectional study in two public hospitals in southern Ethiopia, and found that slightly more

than one tenth of the nurses had a bachelor's degree in nursing science.

Concerning the studied nurses' years of experience, the findings of the present study revealed that the mean years of experience was 6.58±1.45 years. This finding was in agreement with the study of ***Almorai et al. (2018)***, namely "Pediatric nurses' perception of medication safety and medication errors; A mixed method study", where the mean years of experience was 6.15 ± 1.73 years.

From the researcher's point of view, the pediatric nursing field needs more years of experience due to the complex nature of care given to pediatric patients.

Regarding the study sample's job title, the present study showed that slightly more than two thirds were bed-side nurses and less than one quarter were nurse supervisors. These findings were supported by the results of ***Bragadottir et al. (2016),*** who carried out a study to assess correlates and predictors of missed nursing care in hospitals, and found that two thirds of the studied nurses were registered staff nurses.

The researcher could refer these results to the fact that the nature of care provided for critically ill pediatric patients needs bed-side nurses rather than nurse supervisors.

Concerning attending training courses, the findings of the present study revealed that the majority of the studied nurses attended training courses, which were related to infection control, CPR and quality not related to medical prescriptions. This study finding however disagrees with that of ***Alemu et al. (2017)***, who reported that most of the studied nurses lacked training.

The researcher views the attendance of training courses as important for improving nursing skills and daily work activities.

Regarding nurses' knowledge about medical prescriptions, the majority of the studied nurses had correct answers/knowledge about the definition and importance of medical prescriptions. Moreover, all the studied nurses had correct answers about the types of medical prescriptions and the assigned physician responsible for writing them.

These findings contradicted with those of the study by ***Dyab et al. (2014),*** namely "The nurses' knowledge, attitudes, and perceived barriers towards medication error reporting in a tertiary healthcare facility: A qualitative approach", where most of the studied sample had satisfactory knowledge about the clear definition and importance of medical prescriptions.

From the researcher's point of view, the results of present study could have been attributed to the fact that the routine medical rounds in the pediatric hospital helped the studied nurses gain knowledge about medical prescriptions and the plan of care for pediatric patients.

Regarding the studied nurses' knowledge about the factors affecting the implementation of medical prescriptions, the findings of the current study revealed that the majority of the studied nurses had correct answers/knowledge regarding nurses'-, children- and work-environment-related factors.

These findings were in an agreement with the study findings of ***Stavroudis et al. (2010)***, entitled "A study to assess NICU medication error: identifying a risk profile for medication errors in the neonatal intensive care unit",

where most of the studied nurses had a good knowledge about human-related factors that affected the administration of the medication.

These findings came into disagreement with the study of ***Esqué Ruiz et al. (2016)***, entitled "Medication errors in a neonatal unit: one of the main adverse events", where the majority of the studied nurses lacked knowledge about the factors related to healthcare professionals (staff-related factors), and less than one quarter of them lacked knowledge about the environmental factors affecting the administration of medication.

In this context, the researcher could correlate the nurses' awareness with the factors affecting the implementation of medical prescriptions with a more facilitated level of care given for pediatric patients.

Regarding the studied nurses' knowledge about the characteristics of medical prescriptions, the results of the present study revealed that the majority of the studied nurses reported that medical prescriptions were comprehensive, clear, complete, in addition to being signed, written in official paper, and with known abbreviations.

These findings were similar to the policies described by the ***General Medical Council (GMC) (2013)***, which reported the same characteristics for ideal medical prescriptions.

From the researcher's point of view, the quality of weight-dependent pediatric medical prescriptions requires physicians to write the medical prescription correctly for proper dispensation from the pharmacy.

Furthermore, the present study results revealed that only one quarter of the studied nurses mentioned that medical prescriptions were updated daily by the responsible physician. This came in agreement with ***GMC (2013)***, which recommended that medical prescriptions should be updated daily.

The researcher referred this finding to high doctor /pediatric patient ratio, which makes it difficult to update medical prescriptions on a daily basis.

Regarding the studied nurses' knowledge about the components of medical prescriptions, the results of the present study revealed that the studied nurses had correct answers/knowledge about child's identification data and the physician's signature.

The researcher believes that the presence of the child's age and weight in the medical prescriptions was because of their importance in the calculation of different items in medical prescriptions, especially medications' dosage. Furthermore, the physician's signature was mandatory for dispensing drugs from the pharmacy.

The present study also revealed that most of the studied nurses had correct answers/knowledge about the implementation of medical prescriptions, namely drug administration, laboratory and radiological investigations, IV fluid administration, oxygen therapy and routine activities.

These results were similar to those of ***Lakshmi and Padma (2016***), in the study entitled "Assess the knowledge regarding pediatric oxygen administration done by nursing students at Naryane medical college and general hospital, Nellone", where the nurses had adequate knowledge about pediatric oxygenation.

However, this came in disagreement with the studies of ***Abwalaba et al. (2018) and Chaaban et al. (2018)***, entitled "Nurses' competence on intravenous fluid therapy in under-fives with dehydration in Kakamega county hospitals, Kenya" and "Nurses' role in medical prescriptions: systemic review" respectively, where the studied nurses had low levels of knowledge about IV fluid therapy and drug management.

From the researcher's point of view, the proper knowledge of the study sample may have been related to the many years of experience and the participation in daily medical routine rounds.

Regarding the studied nurses' total knowledge about medical prescriptions, the results of current study showed that the majority of the studied nurses had satisfactory total knowledge regarding medical prescriptions.

The researcher believes that the number of multiple and complex procedures in pediatric critical care settings provided the nursing staff with knowledge, skills and experience regarding medical prescriptions.

Regarding the studied nurses' attitude towards the implementation of medical prescriptions, the current study revealed that slightly more than three quarters of the study sample had positive attitude.

This came in agreement with ***Christoffel et al. (2017)***, who carried out a study to assess attitudes of healthcare professionals regarding the assessment and treatment of neonatal pain, and found that about two thirds of the studied sample had positive attitude regarding the medical prescriptions in pain management.

These results came in disagreement with those of ***Star et al. (2013)***, who carried out a study entitled "Challenges of safe medication practice in pediatric care – nursing perspective", and found that the nurses had negative attitude regarding safe medication practice due to work flow disruption, stress and high workload.

From the researcher's point of view, the nurses' positive attitudes could have been due to their keenness on the safety of pediatric patients, which made them carry out medical prescriptions accurately.

Regarding the studied nurses' total documentation related to implementation of medical prescriptions as assessed by the researcher, the present study showed that almost two thirds of the nurses' total documentation was incomplete correct.

These results were in agreement with ***Davies (2013) and Awad et al. (2016)***, in their studies entitled "How to perform fluid assessment on patients with renal disease" and "Assessment of knowledge and practice of nurses regarding oxygen therapy in Elmak Nimir university hospital" respectively, where the nurses had moderate level of practice and documentation regarding fluid assessment and oxygen therapy.

The researcher believes that the lack of documentation could be related to increased workload, high nurse-patient ratio, lack of computer system and inappropriate follow up from the in-charge and head nurses.

Regarding the characteristics of medical prescriptions as assessed by the researcher, the results of the current study illustrated that medical prescriptions were handwritten, clear, comprehensive, signed, dated, and in official paper.

Moreover, more than one third of the medical prescriptions were complete in identification data, while only one quarter was updated daily, and slightly more than three quarters had known and accepted abbreviations.

These results came in agreement with those of ***Rosa et al. (2009)***, in the study entitled "Errors in hospital prescriptions of high-alert medications ", where the use of unknown abbreviations was described as an error related-factor, which was sometimes fatal, and time-consuming for other practitioners in clarifying the doubts and the risks from mistaken interpretations.

Concerning updating medical prescriptions, the current study results were supported by those of ***Jutel and Menkes (2010)***, in the study entitled "Nurses reported influence on the prescription and use of medication", where less than one quarter of the prescriptions were renewed (updated on time).

Additionally, the current study results were also supported by ***Néri et al. (2011)***, in the study "Drug prescription error in a Brazilian hospital", where all of the prescriptions were signed, the majority were dated, slightly less than three quarters were complete and readable, and less than one quarter of the pediatric patients' identification data were missing.

On the other hand, the results of the present study were in disagreement with those of ***Miladinia et al. (2016)***, where slightly less than one third of the medical prescriptions were handwritten, and slightly more than two thirds were computerized.

The researcher attributed the reason that all medical prescriptions were handwritten to the unavailability of nursing informatics in the hospital. Moreover, the incomplete pediatric patients' identification data was mostly because the physicians thought that the child's weight was the most important item used for calculating medication doses. Regarding the lack of daily updated medical prescriptions, it could have been due to the presence of only one resident physician responsible for the pediatric critical care unit throughout a 24-hour time period.

Concerning the total characteristics of medical prescriptions as assessed by the researcher, the current study revealed that two thirds of the medical prescriptions were complete.

From the researcher's point of view, the recent increased attention to the importance of quality of healthcare and the general trend of Ain Shams University Hospitals to obtain accreditation led to a clear improvement in medical prescriptions.

Regarding the relation between the studied nurses' characteristics and their total knowledge about medical prescriptions, the present study revealed the presence of statistically significant differences between total level of knowledge and years of experience, work department and level of qualification.

These findings were in agreement with those of the study by ***Essani and Ali (2011)***, carried out to assess knowledge and practice gaps among pediatric nurses at a Tertiary Care Hospital, Karachi, Pakistan, where there was a significant relation between the studied nurses' knowledge about medical prescriptions, and both years of experience and level of qualification.

The researcher believes that the long years of experience and the high level of qualification are usually linked to repeated performance of the same procedures, leading to an increase and confirmation of knowledge towards the medical prescriptions.

Concerning the relation between the studied nurses' characteristics and their attitude towards implementation of medical prescriptions, the results of current study revealed that there were statistically significant differences between the studied nurses' attitude and job title and work department. However, no statistically significant differences were observed between the studied nurses' age, gender, level of qualification, years of experience and attending courses.

These study results were in agreement with ***Armistrong et al. (2017)***, who carried out a study entitled " Nurses' perceived skills and attitudes about updated safety concepts: Impact on medication administration errors and practices", and found that work department and nurses' job level clearly affected their attitude, positively, towards implementation of medical prescriptions.

On the other hand, the results came into disagreement with ***Wang et al. (2015)***, who assessed the attitudes toward physician-nurse collaboration in pediatric workers and undergraduate medical/nursing students, and found that the years of experience were associated positively with the collaboration between the healthcare team for achieving the implementation of care.

The researcher believes that the job title could be associated with positive attitude towards implementation of medical prescriptions because the nurse supervisor and the head nurse must be role models for other nurses, to facilitate communication between the responsible physician and nurses.

Regarding the relation between the studied nurses' characteristics and their documentation related to implementation of medical prescriptions. The present study revealed that there were no statistically significant differences between documentation and both gender and attending courses. This comes in agreement with ***Abwalaba et al. (2018),*** who reported that there was an insignificant relation between documentation of practice and both gender and attending training courses.

The results of current study revealed that there were statistically significant differences between documentation and age, years of experience and work department. This came in disagreement with ***Abwalaba et al. (2018)***, who reported statistical insignificance between documentation of nursing practice and age and years of experience.

From the researcher's point of view, the documentation in the current study was not affected by attendance of training courses because the courses were not related to medical prescriptions (i.e. CPR and infection control).

Regarding the relation between the studied nurses' total knowledge, attitude and documentation related to implementations of medical prescriptions and their departments, the results of the current study revealed that the emergency unit had the lowest levels of total knowledge and documentation related to implementations of medical prescriptions. These findings came in agreement with ***Vafaei et al. (2018)***, who carried out a study entitled " Improving nursing care documentation in emergency department:

A participatory action research study in Iran", where the nurses' documentation in the emergency department was poor compared with other departments.

The researcher believes that decreased total knowledge may have been due to the procedures in the emergency unit being less frequent and less complex than in other departments, while the reduced level of documentation was possibly because of the active and hasty work conditions within the emergency unit, in addition to the high patient/staff ratio.

Moreover, the current study clarified that the neonatal intensive care unit had the highest level of positive attitude towards implementation of medical prescriptions. From the researcher's point of view, this may have been due to the nurses' close and direct observation of the assigned physicians during all performed procedures.

Regarding the relation between the studied nurses' knowledge about medical prescriptions and their attitude towards implementation of medical prescriptions. The results of the current study showed that there was a statistically significant difference between the studied nurses' knowledge and their attitude. This came along the same lines as ***Wang et al. (2015)***, who reported a significant relation between knowledge and attitude towards physician-nurse collaboration.

From the researcher's point of view, the increase in nurses' knowledge positively affects their attitude, as increased knowledge makes nurses deal professionally and positively with medical prescriptions.

Regarding the relation between the studied nurses' knowledge about medical prescriptions and their documentation related to the implementation of medical prescriptions. The results of the present study revealed that there were statistically significant differences between the studied nurses' knowledge and their documentation.

This came in agreement with the findings of ***Kebede et al. (2017)***, in the study entitled "Nursing care documentation practice: The unfinished task of nursing care in the university of Gondar hospital", where there was a significant relation between nurses' knowledge and their documentation practices.

From the researcher's point of view, the increased knowledge of studied nurses could have been related to the repeated documentation of medical prescriptions, in addition to the nurses' years of experience.

Concerning the relation between the studied nurses' attitude towards implementation of medical prescriptions and their documentation, the results of the current study revealed that there were statistically significant differences between the studied nurses' attitude and their documentation.

This was further supported by ***Tang et al. (2013)***, in the study entitled "Collaboration between hospital physicians and nurses: an integrated literature review", where clinical practice experience was found to contribute significantly to the attitude toward physician-nurse collaboration.

From the researcher's point of view, this could be explained on the basis of associating the positive attitude with the high level of care provided for the patient, resulting in more care in documentation of all data in the patients' records.

Conclusion

From the findings of the current study, it was concluded that the studied nurses' total knowledge was satisfactory; they had positive attitude and poor documentation regarding the implementation of medical prescriptions. Moreover, it was found that the medical prescriptions written by physicians were incomplete, as assessed by the researcher.

Recommendations

In the light of the present study findings, the following recommendations are suggested:

1.Providing continuous educational programs and on-job training for all nurses working at pediatric critical care settings to improve their performance in the implementation of medical prescriptions.

2.Emphasizing the importance of using nursing informatics in the documentations of medical prescriptions.

3.Regular auditing for both physicians and nurses for their performance in documentation of medical prescriptions.

4.Encouraging healthcare professionals to attend training courses regarding the proper and correct writing of medical prescriptions.

References

Abwalaba, R., Ogutu, P. and Ng'arng'ar, S. (2018). Nurses' Competence on Intravenous Fluid Therapy in Under Five with Dehydration in Kakamega County Hospitals Kenya. IOSR Journal of Nursing and Health Science; 7(2):41-48.

Alemu, W., Belachew, T. and Yimam, I. (2017). Medication Administration Errors and Contributing Factors: A Cross Sectional Study in Two Public Hospitals in Southern Ethiopia. International Journal of Africa Nursing Sciences; 7(3):68-74.

Almorai, A., Wilson, V., Solman, A., Bajorek, B. and Tinsley, P. (2018). Pediatric Nurses' Perception of Medication Safety and Medication Error: A Mixed Methods Study. Child and Adolescent Nursing; 41(2):94-110.

Antonow, J., Smith, A. and Silver, M. (2013). Medication Error Reporting: A Survey of Nursing Staff. Journal of Nursing Care and Quality; 15(1):42–48.

Armistrong, G., Dietrrich, M., Norman, L., Bamsteiner, J. and Mion, L. (2017). Nurses' Perceived Skills and Attitudes about Updated Safety Concepts: Impact on Medication Administration Errors and Practices. Journal of Nursing Care and Quality; 32(3):226-233.

Awad, H., Mahmoud, A., Alseed, H. and Ahmed, A. (2016). Assessment of Knowledge and Practice of Nurses regarding Oxygen Therapy in Elmak Nimir University Hospital. European Journal of Pharmaceutical Sciences; 3(4):30-35.

Bragadottir, H., Kalisch, B. and Tryggvadottir, G. (2017). Correlates and Predictors of Missed Nursing Care in Hospitals. Journal of Clinical Nursing; 26(11): 1524-1534.

Chaaban, T., Ahouah, M., Nasser, W., Lombrail, P., Morvillers, J. and Tondeur, M. (2018). Nurses' Role in Medical Prescription: Systemic Review. Journal of Nursing; 5(2):4-7.

Christoffel, M., Castral, L., Daré, M., Montanholi, L., Gomes, A. and Scochi, M. (2017). Attitudes of Healthcare Professionals regarding the Assessment and Treatment of Neonatal Pain. Escola Anna Nery Publication; 21(1):102.

Custer, J., Winters, B., Goode, V., Robinson, K., Yang, T., Pronovost, P. and Newman, E. (2015). Diagnostic Errors in the Pediatric and Neonatal ICU: A Systematic Review. International Journal Nursing Knowledge; 16(1):29-36.

Davies, A. (2013). How to Perform Fluid Assessments in Patients with Renal Disease. Journal of Renal Nursing; 2(2):76-79.

Dyab, A., Elkalmi, R., Bux, S. and Jamshed, D. (2018). Exploration of Nurses' Knowledge, Attitudes, and Perceived Barriers towards Medication Error Reporting in a Tertiary Healthcare Facility: A Qualitative Approach. Pharmacy (Basel); 6(4):120.

Esqué-Ruiz, M., Moretones, M., Rodríguez, J., Sánchez, E., Izco, M., De-Lamo, M. and Figueras, J. (2016). Medication Errors in A Neonatal Unit: One of the Main Adverse Events. Annals of Pediatric (Barcelona);84(4);211-217.

Essani, R. and Ali, T. (2011). Knowledge and Practice Gaps among Pediatric Nurses at a Tertiary Care Hospital Karachi Pakistan. International Scholarly Research Notices; 9(2):112.

Fox, A. (2016). Safer Prescribing Workbook – Prescription Writing. Available at: https:// www.scribd. com/ doc/31447803. Retrieved: 12 December, 2018.

General Medical Council (2013). Good Practice in Prescribing and Managing Medicines and Devices. Available at: https://www.gmc-uk.org. Retrieved: 24 November, 2018.

Hammoudi, B., Ismaile, S. and Abu Yahya, O. (2018). Factors Associated with Medication Administration Errors and Why Nurses Fail to Report Them. Scandinavian Journal of Caring Sciences; 32(3):1038-1046.

Hodkinson, P., Argent, A., Wallis, L., Reid, S., Perera, R., Harrison, S., Thompson, M., Mike, M., Maconochie, I. and Ward, A. (2016). Pathways to Care for Critically Ill or Injured Children: A Cohort Study from First Presentation to Healthcare Services through to Admission to Intensive Care or Death. Cognitive Neuroscience Channel; 11(1):37.

Jutel, A. and Menkes, D. (2010). Nurses' Reported Influence on the Prescription and Use of Medication. International Nursing Reviews; 57(1): 92-97.

Kebede, M., Endris, Y. and Zegeye, D. (2017). Nursing Care Documentation Practice: The Unfinished Task of Nursing Care in the University of Gondar Hospital. Journal of Informatics and Social Care; 42(3):17-19.

Kumari, S. (2014). A Study on Pattern of Prescription Writing Practices.

Rajendra Institute of Medical Sciences, Ranchi, Indian Journal Society Med; 45(11):100-104.

Lakshmi, R. and Padma, K. (2016). Assess the knowledge regarding pediatric oxygen administration done by and nursing students at Narayana medical college and general hospital, Nellore. International Journal of Applied Research; 2(9):852-855.

Mahlknecht, A., Nestler, N., Bauer, U. and Schussler, N. (2017). Effect of Training and Structured Medication Review on Medication Appropriateness in Nursing Home Residents and on Cooperation between Healthcare Professionals. British Medical Council Geriatric;17(5): 24.

Miladinia, M., Zarea, K., Baraz, S., Nouri, E., Pishgooie, A. and Baeis, M. (2016). Pediatric Nurses' Medication Error: the Self-Reporting of Frequency, Types and Causes. International Journal of Pediatrics; 4(3): 1439-1444.

Montagnino, B. and Ethier, A. (2007). The Experiences of Pediatric Nurses Caring for Children in A Persistent Vegetative State. Pediatric Critical Care Medicine; 8(5):440-446.

Muhrer, J. (2014). The Importance of the History and Physical in Diagnosis. Nurse Practice; 39(4):30-35.

Néri, E., Gadêlha, P., Maia, S., Pereira, A., Almeida, P., Rodrigues, C., Portela, M. and Fonteles, M. (2011). Drug Prescription Errors in a Brazilian Hospital. Reviews of Association du Medicals du Brasil; 57(3): 301-308.

Patil, K., Mali, R., Dhangar., B., Bafna, P., et al. (2015). Assessment of Prescribing Trends and Quality of Handwritten Prescriptions from Rural India. Journal Pharmacological Science Technology; 5(11):54-60.

Rosa, M., Perini, E., Anacleto, T., Neiva, H. and Bogutchi, T. (2009). Errors in Hospital Prescriptions of High-Alert Medications. Review Saude Publication; 43(3): 178-182

Stavroudis, T., Shore, A., Morlock, L., Hicks, R., Bundy, D. and Miller, M. (2010). NICU Medication Errors: Identifying A Risk Profile for Medication Errors in the Neonatal Intensive Care Unit .Journal of Perinatol; 30(7):459-468.

Tang, C., Chan, S., Zhou, W. and Liaw, S. (2013). Collaboration between Hospital Physicians and Nurses: An Integrated Literature Review. International Nursing Reviews; 60(3):291-302.

Vafaei, A., Manzari, Z., Heydrai, A., Froutan, R. and Farahani, L. (2018). Improving Nursing Care Documentation in Emergency Department: A Participatory Action Research Study in Iran. Open Access Maced Journal Medical Science; 6(8):1527-1532.

Wang, Y., Liu, Y., Li, H. and Li, T. (2015). Attitudes toward Physician-Nurse Collaboration in Pediatric Workers and Undergraduate Medical/Nursing Students. Behav Neurology; 84(6):498-499.