ORIGINALES

Quality of nursing care in a maternal intensive care unit

Qualidade da assistência de enfermagem em uma unidade de terapia intensiva materna

Calidad de la asistencia enfermera en una unidad de cuidados intensivos maternos

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ABSTRACT:
Objective: To evaluate the quality of care provided in a maternal intensive care unit, based on indicators of structure, process and results.
Material and methods: Descriptive study of documentary analysis with a quantitative approach. Data collection happened between January and February 2017 at the Maternal Intensive Care Unit of a reference maternity hospital in Piauí. An observational script with a census sample of 72 patients was used.
Results: The hygiene, comfort and safety axis showed adequate care. However, the nutrition and hydration indicators presented with risky and undesirable care. The axis that presented the best results was nursing records with adequate care in most of the analyzed items.
Conclusion: The study showed satisfactory results in general; however, attention should be given to improvements in nursing care for patients hospitalized in the Maternal Intensive Care Unit, especially for the nutrition and hydration indicators.

Key words: Nursing Audit; Indicators; Quality of Health Care; Nursing Care; Patient Safety.

RESUMO:
Objetivo: Avaliar a qualidade da assistência em uma Unidade de Terapia Intensiva Materna, tendo por base indicadores de estrutura, processo e resultados.
Material e método: Estudo descritivo, de análise documental com abordagem quantitativa. A coleta de dados ocorreu entre os meses de janeiro e fevereiro de 2017 na Unidade de Terapia Intensiva materna de uma maternidade de referência do Piauí. Utilizou-se roteiro observacional com amostra censitária de 72 pacientes. **Resultados:** O eixo higiene, conforto e segurança demonstraram uma assistência global desejável, exceto para os indicadores nutrição e hidratação que apresentaram assistência sofrível ou limítrofe. O eixo que apresentou melhores resultados foi anotações de enfermagem com assistência desejável em grande parte dos itens analisados.
Conclusão: O estudo evidenciou resultados satisfatórios de forma geral, entretanto, chama-se atenção para melhoras na assistência de enfermagem às pacientes internadas na Unidade de Terapia Intensiva Materna, sobretudo para os indicadores nutrição e hidratação.

Palavras-chave: Auditoria de enfermagem; Indicadores; Qualidade da assistência à saúde; Cuidados de enfermagem; Segurança do paciente

RESUMEN:
Objetivo: Evaluar la calidad de la asistencia en una Unidad de Cuidados Intensivos maternos, ha tenido por base indicadores de estructura proceso y resultados.
Material y método: Estudio descriptivo, de análisis documental con abordaje cuantitativo. La colecta de datos ocurrió entre enero y febrero de 2017 en la Unidad de Cuidados Intensivos maternosl de una maternidad de referencia en Piauí. Fue utilizado un guion observacional con muestra censal de 72 pacientes.
Resultados: El eje higiene, confort y seguridad mostró una asistencia global deseable, excepto para los indicadores de nutrición e hidratación que presentaron asistencia tolerable o límíte. El eje que presentó mejores resultados fue las anotaciones de enfermería con asistencia deseable en gran parte de los artículos analizados.
Conclusión: El estudio evidenció resultados satisfactorios de forma general, sin embargo, es importante que ocurran mejoras en la asistencia de enfermería a las pacientes ingresadas en la unidad de cuidados intensivos maternosl, sobre todo para los indicadores de nutrición e hidratación.
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Palabras clave: Auditoría de Enfermería; Indicadores; Calidad de la Atención de Salud; Atención de Enfermería; Seguridad del Paciente

INTRODUCTION

Improved health outcomes and reduced maternal mortality were considered the main concerns of the United Nations as they were listed among the eight Millennium Development Goals (MDGs). However, the persistence of high maternal mortality rates is still a concern in Brazil. The objective for 2030 is to reduce maternal mortality to around 20 deaths per 100,000 live births.[1] However, all Brazilian states presented higher mortalities than those rates acceptable to the World Health Organization (WHO). The Northeast of Brazil was considered the region with most alarming rates. From 2001 to 2010, the Brazilian states with the highest mortality were as follows: Maranhão, with 87.82 maternal deaths per 100,000 live births; Piauí, with 85.59 maternal deaths per 100,000 live births; and Bahia, with 71.9 maternal deaths per 100 thousand live births.[1,2]

These statistics have instigated public policy bodies to increase universal coverage of women's reproductive health in public health systems and have urged researchers to investigate more accurately the reasons for so many deaths. Given this paradigm, the quality of health care that pregnant women and women who are giving birth are questionable, especially when one thinks of precarious care as a likely contributor to increases in maternal mortality in the country.[3,4]

In the context of intensive care, there is a growing concern about the quality of care due to the increased surveillance and expectation related to the delivery of care. In recent years, patient safety has become more discussed in hospital settings. Consequently, there is an increasing need to encourage nursing professionals about the quality of care provided and the indicators on care received.[5]

A renowned model for assessing the quality of care in health services considers Donabedian's assumptions, comprising three dimensions of the quality of care: structure (facilities infrastructure, management, and staff), process (clinical-technical quality and experience of the patient), and results (patient satisfaction and favourable health outcomes) [4]

For this nursing evaluation, Haddad [6] proposed an instrument that evaluates the structure, process, and outcome providing with this script an evaluation of the nursing care delivered to the patient. These results demonstrate the reality of the service and provide information for more targeted planning to improve the quality of care.

Given the problems presented, the following question arises: What is the quality of care provided in a Maternal Intensive Care Unit (ICU)? To answer this question, this study aimed to evaluate the quality of care provided in a maternal intensive care unit based on indicators of structure, process, and results.

MATERIAL AND METHOD

This is a descriptive study of documentary analysis with a quantitative approach. It was developed in the maternal ICU of a reference maternity hospital, located in Teresina, capital of Piauí, Brazil. The maternity in question is the only one with an ICU for obstetric patients with eight intensive beds.

The population was composed of all patients admitted to the maternal ICU in January and February of 2017, totalling 95 patients. All inpatients and their relatives, who met the only inclusion criterion: inpatients who had been admitted for at least 24 hours, represent the sample in this census study during the collection period. We did not include nineteen patients who were discharged from the ICU in less than 24 hours and two who were discharged before data collection. Two patients did not agree to participate in the study. In the end, the study consisted of 72 women. Because it is a census study based on a script for auditing purposes, it was not necessary to adopt exclusion criteria so that more patients would be included.

A check-list was used for data collection. The researchers themselves adapted this form based on the model of the Script for Operational Audit described by Haddad.[6] This form had two parts. The first collects the following information: date of admission, date of birth of the patient, sex, diagnosis, and adequate diet. The second part of the form consists of questions related to the observation of the environment, materials, and the patient. Six axes structure this second part of the form: hygiene and comfort, physical activity, safety, nutrition and hydration, eliminations, and nursing records. Each one of these items will have questions to be answered with one of the following answers: "Yes"; "No"; and "Not applicable."

Participants and/or family members (of those participants who were not awake and oriented) received information about the purpose and strategy of data collection.

Clinical data was recorded from the inpatient medical chart. The form was submitted to a pilot test with application to 10% of the minimum sample foreseen in this study. It was observed aspects such as the duration time of application of the form, the understanding of the questions, and the propensity to fatigue in completing it. These observations received satisfactory results. Observations occurred in 75.79% of hospitalized patients during data collection. The other participants did not meet the inclusion criteria or refused to participate in the study.

The data collected was transcribed with the second typing process using Microsoft Excel application spreadsheets. They were then exported and analyzed in the Stata program version 12.0. For the data analysis, descriptive statistics were used. The absolute frequencies and percentages were calculated, as well as the means of each axis of the form.

Subsequently, in order to classify the quality of care for each indicator, the Positivity Index (PI) was established according to the number of positive responses ("yes"), categorized in: "Desired care (100% positivity); Adequate care (90 to 99% positive); Safe Assistance (80 to 89% positive); Risky care (71 to 79% positive); and Undesirable assistance (less than 70% positive). "[6] The indicators that had the index "not applicable" with more significance than 33.3% were disregarded from such evaluation since they would not show a reliable result.

The research project was approved by the Ethics and Research Committee of the Federal University of Piauí. Data collection started when the project was accepted based on Resolution 466/12 of the National Health Council, presenting opinion nº 1848. 107, issued on December 2, 2016.

RESULTS

Regarding sociodemographic and clinical characterization, it was evident the patients in the maternal ICU were between 20 and 34 years of age (72.2%), lived in municipalities in the countryside of Piauí (65.3%) and had a family income of a minimum wage (57%). The hospitalization time was two to three days (56.9%), followed by four to five days (56.9%) and the predominant diet was low-sodium oral diet (33.3%). The diagnoses leading to ICU admission were condensed into categories, with the most common begin hypertensive syndromes (43.1%), which included severe preeclampsia (PEG), eclampsia and PEG associated with the syndrome HELLP. The second most common diagnosis were complications related to infection (29.2%), which included sepsis, infected abortion and puerperal infection.

The initial evaluation (Table 1) refers mostly to the process, except for the indicator for drains unobstructed and no skin irritation, which is part of the results.

Table 1 -Quality of care shown by the indicators evaluated, according to Positivity Index on physical health and comfort axis. Teresina, PI, Brazil, 2017

PHYSICAL HEALTH AND COMFORT			
item rated	Indicator	Positivity Index	Quality of care
Process	Mouth care provided.	97.2%	Adequate care
Process	Hair brushed.	94.4%	Adequate care
Process	Trimmed nails.	90.3%	Adequate care

Result	Tubes and drains unobstructed. No skin irritation.	*	-
Process	Patient positioned properly.	94.4%	Adequate care
Process	Dressings with good appearance.	*	-
Process	Patient's bed clean, moisture free and organized.	97.2%	Adequate care

* Index "does not apply" greater than 33.3%

According to Table 1, in the first axis called hygiene and comfort, the quality of care was considered adequate in 100% of the assessed indicators.

The indicators "mouth care provided" and "patient's bed clean, moisture free and organized," both with 97.2% positivity rate, obtained the higher positivity rates.

Table 2 - Quality of care shown by the indicators evaluated, according to Positivity Index on safety axis. Teresina, PI, Brazil, 2017

SAFETY			
item rated	**Indicator**	**Positivity Index**	**Quality of care**
Process	Bed correctly identified.	98.6%	Adequate care
Process	Patient positioned safely in the wheelchair or seat.	*	-
Structure	Beds have removable side rails and headboards.	100.0%	Adequate care
Process	Side rails of bed adequately positioned.	100.0%	Adequate care
Result	No falls out of bed in the last 24 hours.	100.0%	Adequate care
Process	No contaminated hospital supplies around the patient.	79.2%	Risky care
Process	Clean environment (bed, fan, and furniture).	100.00%	Adequate care
Process	All laboratory tests were performed.	100.00%	Adequate care

* Index "does not apply" greater than 33.3%

It was observed in Table 2 that the safety axis had eight items, of these, five (71.43%) had favorable rates with adequate care (100% positive), one had risky care (79.2%), and another reached adequate care (98.6%).

The safety axis involves the triad structure, process, and results, which demonstrates that the structure is desirable. The process involves identification, location, and

accommodation of patients. All these questions have generated a satisfactory result because 100% of patients were over 24 hours without falls out of bed.

Table 3 - Quality of care shown by the indicators evaluated, according to Positivity Index on nutrition and hydration axis. Teresina, PI, Brazil, 2017.

NUTRITION AND HYDRATION			
item rated	Indicator	Positivity Index	Quality of care
Process	Initiation and recording of IV hydration therapy in micro droplets for no longer than 72 hours.	*	-
Process	Equipment for central venous pressure measurement and initiation with recording for no longer than 24 hours.	*	-
Process	Infusion pump equipment used for no longer than 48 hours.	55.6%	Undesirable assistance
Process	Absence of internal clots in IV hydration therapy equipment.	72.2%	Risky care
Process	IV hydration therapy equipment clean and free of clots.	73.6%	Risky care
Process	IV hydration therapy equipment with proper identification.	6.9%	Undesirable assistance
Process	Appropriate initiation and identification of IV hydration therapy.	16.7%	Undesirable assistance
Process	Peripheral venous catheters are correctly identified (date, time, size and name of who performed the procedure).	9.7%	Undesirable assistance
Process	Peripheral catheters were placed for no longer than 72 hours.	75.0%	Risky care
Process	Peripheral venous catheters patent.	76.4%	Risky care
Result	Upper limbs of patients do not show phlogistic signs.	81.9%	Safe Assistance
Process	Nutrition therapy equipment used for no longer than 24.	*	-

Process	Nutrition therapy equipment is properly sanitized.	*	-
Structure	Nutrition therapy equipment with varied colours suitable for enteral nutrition	*	-

* Index "does not apply" greater than 33.3%

Following Table 3, the nutrition and hydration axis showed the highest numbers for poor assistance. There were four (4) indicators (44.4%) with undesirable assistance. The others regarding care (55.5%) were considered risky. Among all the indicators, five were not evaluated due to insufficient data (not applicable greater than 33.3%).

In Table 3, in general, the items referring to process, address how the nursing professionals performed the care for peripheral venous catheters and nutrition therapy equipment. Nutrition therapy equipment with varied and own colours for enteral nutrition is a structural indicator in this evaluation. The indicator related to the absence of signs of inflammation in the upper limbs of patients refers to the result of care whose quality of care was considered risky, which showed that the nursing care for that axis was not satisfactory.

Table 4 - Quality of care shown by the indicators evaluated, according to Positivity Index on eliminations axis. Teresina, PI, Brazil, 2017

ELIMINATIONS			
item rated	**Indicator**	**Positivity Index**	**Quality of care**
Process	Suitable dressing and collector in rubber suction drain with an appropriate fill volume and absence of skin lesions.	*	-
Process	Good fit of ostomy appliance and collection bag not exceeding 2/3 capacity.	*	-
Process	Vacuum drainage system correctly positioned and maintained under negative pressure.	*	-
Process	Proper installation of chest tube.	*	-
Process	Proper identification of chest tube.	*	-
Process	Nasogastric tube positioned and fixed		

	properly and collector not exceeding 2/3 capacity.	*	-
Process	Indwelling Foley catheter with correct placement with drainage not exceeding 2/3 capacity.	6.9%	Undesirable assistance

* Index "does not apply" greater than 33.3%

Eliminations axis (Table 4) obtained only one (1) item with undesirable assistance (6.9%), and others were not analyzed. All these indicators refer to the process.

Table 5- Quality of care illustrated by the indicators evaluated, according to Positivity Index in the nursing record axis. Teresina, PI, Brazil, 2017

Nursing records			
item rated	Indicator	Positivity Index	Quality of care
Process	Nursing care plan in all records.	100.0%	Adequate care
Process	Record of at least two daily patient evaluations by the nurse.	100.0%	Adequate care
Process	Record of physical examination performed by the nurse.	100.0%	Adequate care
Process	Record of vital signs and fluid intake/output at least four times daily.	100.0%	Adequate care
Process	Guidance about routine and care in the unit to patients and their families.	0.0%	Undesirable assistance
Process	Health professionals perform handwashing their hands before and after procedures in the unit.	0.0%	Undesirable assistance
Process	Record of present admission.	100.0%	Adequate care

On nursing records (Table 5), all of the indicators refer to the clinical-technical quality of nursing records. The process is appropriate with desirable assistance with maximum positive index, only the ones regarding handwashing and guidance about routine and care in the unit had poor assistance.

The physical activity axis presented in all its indicators items that could not be considered in this study (index "does not apply" greater than 33.3%). This axis evaluated the following: change of programmed position; pressure ulcer in less than 24 hours; proper position footrest, cushions, pillows or supports; and plaster and splints with proper care.

DISCUSSION

In the first axis studied, hygiene and comfort, the present study revealed results of adequate assistance, mainly for the mouth hygiene indicator, in which the best result was demonstrated together with cleaning and bed organization. Oral hygiene is considered less complicated care, even when it comes to caring for an individual with dependence; it is a procedure routinely performed by nursing technicians and assistants.[7]

It is essential the nursing team is aware of the relevance of this care and commits itself to its accomplishment. Oral hygiene is of utmost importance because it is part of a range of general care that benefits the patient. This care is also important to reduce odours and prevent infections.[7]

Still on the hygiene and comfort axis, the need for nursing professionals to help the patient to take care of and wash their hair when it is necessary is understood. Understanding the function of hair as well as its significance from a cultural and religious perspective will mean that such professionals are considering the patient's needs holistically.

When it comes to patient safety regarding patient identification, other Brazilian studies performed in ICUs showed 95% [9] and 88.3% [10] of correct identification of patients, corroborating with the present study that showed positivity (98.6%) in this regard. Given this reality, it is evident that some Brazilian ICUs still fail to provide the correct patient's identification in 100% of the cases. This correct identification is imperative as it contributes to the prevention of errors related to health care that can have fatal results for patients. Conducting daily inspection regarding the use of bracelets is imperative. If the patient is not wearing a bracelet, one should be arranged as soon as possible.

A recent study evaluated the indicators related to patient safety and the problems that affect the quality of care. The results evidenced a multifaceted quality because while the result was satisfactory concerning side rails, it was unsatisfactory when the patient was identified by bracelet or bed.[12] Such findings corroborate with the present research in which side rails are present in all observations.[9]

The risk of a fall out of bed is directly associated with the number of staffs for health services, and the level of knowledge of caregivers regarding the patient's condition. In this regard, the emphasis is placed on the need for vigilance to keep grades up and guidelines that allow the caregivers to understand effective preventative measures to avoid such an incident.[12,13]

When talking about the quality of care in nursing, especially in the hospital context, it is important to elucidate the importance of this team in the care of Peripheral Intravenous

Catheters (CIP), as they are often used in the management of intravenous therapy for patients.[14]

Regarding the identification of the catheters, an observational study developed in a teaching hospital in the interior of Paraná presented data like the present study.[15] For unfavourable outcomes related to the use of catheters, there is the occurrence of phlebitis, which has a close relationship with the care environment and the quality of nursing practice.[16]

The relationship between the duration of CIP and the occurrence of phlebitis needs to be better investigated, since Brazilian recommendations, especially from the National Sanitary Surveillance Agency (ANVISA), warn that changes should happen every 72-96 hours.[17] However, if the incidence of phlebitis is greater than 5%, changes should happen every 48 hours.[18]

A study carried out in a public hospital in Sergipe showed the aggravating factors for the occurrence of phlebitis, highlighting: "use of antibiotics, length of stay of more than 72 hours of the catheter, and unsatisfactory nursing care.[19]

Due to these facts, it is important to identify and monitor these catheters to make replacements promptly. Phlebitis, characterized as an adverse event, impairs patient safety and damages quality of care. It is, therefore, the task of the nursing team to be attentive to this occurrence, with the care that goes from installation to maintenance of devices [20].

It is also important to highlight, as priority care for infection prevention, the identification and replacement of IV hydration therapy. The identification was considered adequate and was presented with date, time of replacement, and signature of the health professional who performed the procedure [21].

The goal when it comes to identification of catheters, tubes, and IV hydration therapy is to have them identified, including information on the day, time, calibre and professional who performed the procedure. It is recommended to create standardized identification labels with space to place the necessary data, facilitating the work of the professionals in the moment of the identification of the materials.

The data from this study differs from an observational study performed in a medical clinic of a city in the interior of the state of São Paulo, with 50 beds, in which 98.8% presented " IV hydration therapy labels with adequate identification" [10]. Scientific studies have also evidenced a deficiency in this aspect, regarding adequate placement in 95.6%[10], which generates an exacerbated risk of trauma and, consequently, the development of urinary tract infection.

Finally, the most satisfactory category of the study refers to nursing records. Besides presenting with good results, this category evidences a better sensitization by the team in the question to patient safety.

A cross-sectional, retrospective and quantitative study of 168 medical records of a prompt care unit showed that only 26 of the records were completed and ten were incomplete regarding information on vital signs.[22] This reality shows that the procedures performed by the team are not recorded and this may hamper the evaluation of the patient's health.

Another relevant fact to be mentioned is about the records. A study in the interior of the state of São Paulo with 168 professionals showed that there were illegible letters or erasures in 16.7% of the records. This issue favours errors due to a lack of understanding of what was registered and impairing communication, besides having ethical-legal consequences for the professionals involved. The clarity of the records allows for the continuation of the assistance provided, as well as favouring the conduct of research and audits, to provide subsidies in service and construction of nursing based on scientific evidence .[22]

When it comes to nursing records, the development of training sections for the nursing team to emphasize the need for accuracy so they can write a medical record with accurate information in readable and clear writing is indispensable. Also, it is suggested the creation of an audit team of patients' medical records for the institution that in the maternity hospital where the study was carried out. This intervention would improve the quality of care provided, with an educational character and reflection on the work processes and the results obtained with the assistance provided.

CONCLUSIONS

Regarding nursing care, the hygiene, comfort and safety axis showed desirable assistance in most of the items, while those dealing with nutrition and hydration presented poor or risky assistance. The axis with the best results was nursing annotations with desirable assistance in most of the analyzed items.

Thus, when evaluating the indicators, the study showed satisfactory results in general; however, attention is drawn to improvements in nursing care for patients hospitalized in the maternal ICU, especially for the nutrition and hydration axis. By identifying these indicators, it is possible to establish targets and proposals for interventions that will improve the quality of care and contribute to reducing maternal mortality rates.

Haddad's audit script at the maternal ICU in question was important to elucidate a care landscape that reflects strengths and weaknesses in the nursing care of the service. However, it can not be ignored that some axes could not be evaluated in their totality and this suggests elaboration of new studies to discover if these findings would be replicable in other realities. The persistence of similar results would be important for the adaptation of this scale to better portray the reality in maternal ICUs.

For nurses' practice, the study provides valuable contributions that should be addressed continuously in the health services in general, especially in maternal ICUs. It is therefore incumbent upon the technical officers of these units to increase oversight for the structure, process and outcome under available instruments. Besides, it is pertinent to conduct training so that the team achieves desirable levels of quality of care since poor care should not be tolerated in the face of the national and international clamour for improvements in maternal health care. Finally, it is recommended caution in carrying out the suggested interventions so that the culture of punishment for errors does not subsidize them. Instead, the task is the strengthening the patient safety culture through an anonymous reporting system, developing clear and feasible goals, and securing appropriate inputs and personnel.

Although the study brings relevant results to foster discussions about the quality of nursing care in maternal ICUs, the research is limited by its descriptive design and absence of inferential tests between variables.

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