



NURSING CARE: HOURS REQUIRED FOR CRITICAL PATIENT'S CARE*

ASSISTÊNCIA DE ENFERMAGEM: HORAS REQUERIDAS PARA O CUIDADO DO PACIENTE CRÍTICO

ATENCIÓN DE ENFERMERÍA: HORAS NECESARIAS PARA EL CUIDADO AL PACIENTE CRÍTICO

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This study aimed to analyze the hours required for nursing care of critically ill patients and the hours available by nurses and then compare the results with the Law of professional practice and the recommendations of the Federal Council of Nursing for the design of nursing professionals. This is a documentary descriptive study that collected data on 30 records of an intensive care unit of a university hospital in June 2012. The results indicated a significant deficit of nurses in the institution and showed a non-compliance with the applicable legal recommendations. This influences directly the quality of care, the patient's safety, the quality and working conditions of the nurses, determining the need for adjustments in the quantity of nurses in the institution studied.

Descriptors: Personnel Downsizing; Intensive Care Units; Nursing Care.

Objetivou-se analisar as horas requeridas para assistência de enfermagem ao paciente crítico e as horas disponíveis pelo enfermeiro e então, comparar os resultados com a Lei do exercício profissional e com as recomendações do Conselho Federal de Enfermagem para o dimensionamento de profissionais de enfermagem. Estudo documental descritivo, com coleta de dados em 30 prontuários de uma unidade de terapia intensiva de um hospital universitário, em junho de 2012. Os resultados apontam déficit importante de enfermeiros na instituição e evidenciam o não cumprimento das recomendações legais vigentes. Isto influencia diretamente a qualidade da assistência, a segurança do paciente, a qualidade e as condições de trabalho do enfermeiro, determinando a necessidade de adequações no quantitativo de enfermeiros da unidade em estudo.

Descritores: Downsizing Organizacional; Unidades de Terapia Intensiva; Cuidados de Enfermagem.

El objetivo fue analizar el tiempo necesario para la atención de enfermería a pacientes críticos y las horas disponibles del enfermero, y comparar los resultados con la Ley de la práctica profesional y las recomendaciones del Consejo Federal de Enfermería para distribución de enfermeros. Estudio documental, descriptivo, con recolección de datos en 30 registros médicos de una unidad de cuidados intensivos de un hospital universitario, en junio de 2012. Los resultados señalaron déficit importante de enfermeros en la institución y falta de cumplimiento de las recomendaciones legales. Esto influye directamente la calidad de la atención, la seguridad del paciente, la calidad y las condiciones de trabajo del enfermero, determinando la necesidad de ajustes en la cantidad de enfermeros de la unidad en estudio.

Descriptorios: Reducción de Personal; Unidades de Cuidados Intensivos; Atención de Enfermería.

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INTRODUCTION

One of the big challenges encountered by nurses is the planning and distribution of professionals from the nursing team, after evaluating the patients' profiles, their severity and the workload required for daily care.

The demand of nursing work has been relevant when one seeks to combine quality and safety of care and resource optimization. Thus, evaluation indexes of the need for assistance and the time required, among others, are increasingly used as clinical and managerial tools, focused on the needs of patients and on the organization of work, and to calculate the amount of professional nurses needed to ensure good quality of care in the Intensive Care Unit (ICU)⁽¹⁾.

The need to estimate the nursing workload in the ICU with the use of measuring instruments, specific for critical patients, meets legal requirements, since the direct patient care must be provided, exclusively by the nurses to severe patients whose lives are in danger, as well as the nursing care with biggest technical complexity, which requires appropriate scientific knowledge and ability to make immediate decisions^(2:8853).

It is a patient's right to receive good quality care and the responsibility to care for critically ill patients is the nurse's, so it is up to the health institutions to ensure the quantity of qualified and appropriate professionals to meet the assistance demands⁽²⁻³⁾.

To ensure the quality of care, management indicators are used, and among them the nurses' workload stands out. This can be identified by instruments such as the Nursing Activities Score (NAS), an instrument that expresses in percentage the time spent by the nursing staff in the care to patients in critical conditions, within 24 hours, its score can range from zero to 176% which can mean, for example, that more than one nursing professional was needed for the care of the patient on a particular day or period, in this

value one records the time spent in performing procedures and therapeutic interventions, administrative and support activities to the family members⁽⁴⁻⁵⁾.

The NAS is an instrument that is intended to measure the nursing workload, based on the time spent on nursing activities, regardless of the severity of the patient's disease, it has been validated for the Brazilian culture⁽⁴⁾ and has been used to measure workload in Intensive Care Units. The instrument contains seven categories of therapeutic interventions subdivided into 23 items that cover basic activities of care, respiratory, cardiovascular, renal, neurological, metabolic support and specific interventions⁽⁵⁾.

Classifying patients as to the amount of care required in relation to nursing care is a process able to determine, validate and monitor the patients' needs of care, using data obtained as subsidies for determining human resources, cost planning and quality of assistance⁽⁴⁾. It is in this moment when the use of the index NAS has been more comprehensive, among the other existing instruments that evaluate the need for assistance to patients in intensive care⁽⁵⁾.

Once one obtained the workload required by patients of an intensive care unit, by the systematic completion of the NAS index, the minimum quantity for each classification found is established by a resolution of the Federal Council of Nursing (COFEN - Conselho Federal de Enfermagem) Nº 293/2004, which recommends for care of critically ill patients the percentage of 52-56% of nurses. Thus, the institution must use its parameters in order to ensure an adequate number of nurses to meet the care needs of its patients⁽³⁾.

The objectives of this study are to analyze the time required for nursing care of critically ill patients, the available hours of the professional nurses and compare the results with the recommendations of COFEN's Resolution 293/2004⁽³⁾, since the adjustment of the

number of professionals who care for critically ill patients results in the qualification of care

METHOD

This is a documentary study with a quantitative approach carried out in the Intensive Care Unit (ICU) of a university hospital in Paraná. The unit has seven beds and attends patients starting from the age of 13, of all specialties, who are assisted by a multidisciplinary team, five of them are nurses.

One established as inclusion criteria all the patients who stayed in the ICU for at least 24 hours, in June 2012, period when data collection occurred, and that had the NAS performed daily by the nurses. As the exclusion criteria, one removed from the sample patients who died before 24 hours of admission and patients under 13 years old. Thus, out of the 32 patients admitted to the unit during the study, two were excluded because they died before 24 hours and there was no admission of patients under the age of the exclusion criterion.

Data collection was performed daily by nurses and researchers in the proposed research period, filling up a data collection instrument with the data registered by the nurses of the unit in the electronic medical records of patients and in spreadsheets of productivity and attendance of the institution. None of the analyzed records were incomplete regarding the data that were relevant to the research.

The data are characterized as secondary and were statistically analyzed using the free software R, which is used by statistical computing and graphics production⁽⁶⁾ presenting the following descriptive statistics: average, median, quartiles (minimum, maximum), standard deviation and coefficient of variation.

One also calculated the nursing hours required through the average value of the NAS index (patient - day) during the study period, turning them into hours, considering that each point of the NAS equals 14 minutes and 40 seconds⁽⁴⁾.

In order to calculate the difference between the available hours of care provided by nurses and the hours required for private nursing care, one added the weekly available hours, and considering the Resolution 293/2004⁽³⁾ that indicates that 52 to 56% of the need for assistance to critically ill patients should be given to the nurse. For this study one used as a reference the percentage of 52%.

For this survey the current ethical and legal aspects have been respected, and the study was approved by the State University of West Paraná (UNIOESTE) according to the Ethics Committee opinion N° 014/2011.

RESULTS

Characterization of ICU patients

One collected records of 30 patients which resulted in 210 NAS scores, with male predominance (57%). The occupancy rate was 99.2%, determined by 28 days of maximum capacity (100.0%) and only two days with occupancy of 85.7% and 95.2%, respectively.

Among the reasons for hospitalization victims of road traffic accidents were predominant with five admissions (16%); respectively there were three admissions for assault victims (10%), cerebrovascular accident (10%) and end-stage AIDS (10%), also victims of injuries by guns and admissions for decrease in the level of consciousness recorded individually two admissions (6.7%) each. The rest (40.6%) are made up of various other diseases that appeared only once, among them diabetic coma, blunt abdominal trauma, brain tumor, pneumonia, severe acute pancreatitis, lower limb amputation, the Stinn syndrome in adults, galen vein thrombosis, *cor pulmonale*, leptospirosis, cardiac catheterization and fall from a high place.

During the study period, five patients died (16.7%), 11 remained hospitalized (36.6%), 6 were discharged and were transferred to the wards of the Medical and Surgical Clinic (20%), seven went to

Neurology and Orthopedics (23.3%) and only one patient went to the Cardiovascular unit (3.3%).

Required hours of nursing care for ICU patients according to the Nursing Activities Score (NAS)

The general average of 210 scores of the NAS patient/day was of 99.6%, and the coefficient of variation (CV) can be considered as low⁽⁷⁾, because it showed the value of 9.8%. The lowest value found was 47.8% and the maximum value was 139%. One verified that the data are not asymmetrical, since the general average is very close to the median (99.3%) which is the central value of the data collected⁽⁸⁾.

Thus, the average value of hours required to nursing care was 23.9 hours for patient/day (99.6% in the NAS) with a variation coefficient of 10.1%. This is considered moderate⁽⁷⁾, being the smallest workload required of 11.5 hours and the highest (maximum) 33.4 hours. These hours represent, respectively, 47.8% and 139% in the calculation of the NAS.

Allocation of the nursing staff and available nursing hours

The nursing staff of the ICU consisted of five nurses and 27 nursing technicians/assistants, and in the distribution of the daily work per shift, each technician took care of one or two patients according to the severity of the clinical picture and the need for assistance, and a nurse, per shift, was responsible for the care and management of the unit. These professionals had a weekly workload of 36 hours with a six-hour day shift and one weekly day off and in the night shift, a workload of 12 hours of work for 60 hours off.

During the thirty days of the study, the average of professional nurses who attended the unit was 2.8 nurses/day, for the three shifts of assistance, which showed that in 12.2% of the shifts, there was a nurse. Thus, in 11 shifts, the nurse took responsibility for two intensive care units (14 beds).

Regarding available nursing hours to attend all the patients admitted daily, it was an average of 108.4 hours for three shifts of assistance, and out of this total, 16.8 hours (15.5%) was of nurses and 91.6 (84.5%) of nursing technicians/assistants.

Difference between the available hours and required hours of nursing care in the ICU of this study

The average weekly hours available of nurses, from the first to the fifth week, respectively, was of 16.3 hours, 16.7 hours, 17.1 hours, 17.1 hours and 16 hours. It is worth remembering that the fifth week has only two days and that these hours relate to the three shifts. Similarly, one calculated the weekly NAS average for the five weeks, taking into account the daily sum of the hours required for all the patients in ICU and, once one calculated the average, the values found from the first to the fifth week were, respectively, 88.4 hours, 87 hours, 86 hours, 85.8 hours and 87.1 hours.

Therefore, the deficit between the weekly average values of the hours required minus the weekly averages of available hours of nurses was 57.6 hours, which in real quantity becomes a deficit of 11.7 nurses for the three shifts of assistance.

DISCUSSION

The ICU in the study had high occupancy rate (99.2%), which is due to important points to be considered, as the university hospital is a referral service of the Unified Health System (SUS) in the region to critically ill patients with HIV positive, high-risk pregnancy and trauma. The main reasons for hospitalization found in this study are categorized by trauma with 32.7% (traffic accidents plus the victims of assault and injuries by firearms).

Studies show that higher occupancy rates generate higher workload for nurses since an intense pace of work generates a greater demand for physiological and psychological loads coming from the

organizational pressure to meet the needs and performance of activities in a given period⁽⁹⁾. The reduced number of nurses working in the ICU being studied suggests exposure to intense work load, highlighting, as the authors claim, that these interfere directly in the worker, as they require the ability to adapt to the pace of work imposed, resulting in physical and mental exhaustion of the nursing professional, which may lead to a higher incidence of accidents and work-related diseases and contribute to increased rates of absenteeism⁽⁹⁻¹⁰⁾.

As for the fate of the patients during the study period, 16.7% of these died eventually. In general, patients received in this unit were in critical conditions and had unique characteristics both because of the severity of their clinical condition and the association of complex therapies, and the need for vigilance and frequent and stringent controls. Moreover, these patients are exposed to invasive procedures and need handling, which requires expertise and care that are exclusive mostly to nurses, which make them even more susceptible to complications, resulting in a longer hospital stay⁽⁵⁾.

The knowledge of factors associated with high workload is a key resource for nurses in their practice in the ICU, since the direct care to patients with serious risk of death is one of their exclusive functions⁽²⁾. In such circumstances, nurses with prior knowledge of the factors associated with high workload, are able to establish strategies when they admit patients in the unit and continue the care process, to ensure the quality and efficiency of their work^(2,11).

The need to classify patients as to the hours of care required by the nurse, due to their severity, generates not only a process able to determine, validate and monitor care needs, but it also serves as a resource for determining the quantity of professionals, planning costs and quality of care⁽⁵⁾.

Furthermore, since the amount of nurses that attend the critical patient is suitable, these professionals

will be able to perform all their functions fully, not only those related to direct care, but also the management of the unit and actions of health education. The optimization of the allocation of the nursing staff in the ICU influences the qualification of care, since the overestimated nursing team implies high cost and, when it is reduced, it can lead to lower efficiency of the service⁽¹²⁻¹³⁾.

Regarding the patients' daily NAS, the data tended to be homogeneous⁽⁷⁾, that is, most of the patients showed similar levels of severity and dependence, however, there were some outliers. The overall average of NAS found during the study was 99.6%, which generates 23.9 hours of nursing care per patient/day, being classified as intensive care patients, according to the Resolution 293/2004, which determines what patients in this care category need 17.9 hours of nursing per day or more⁽³⁾. It is noteworthy that the results showed high demand for care, on average 33.5% more than expected in the resolution.

The overall average of available hours of the nursing staff in the unit was 108.4 hours for the three shifts of assistance, being 16.8 hours for nurses. The unit had in its schedule five nurses, and this quantity did not fulfill the needs adequately, considering the day offs, sick leaves, vacations, among others, which was visible in the eleven days that it had only 0.5 nurses in some shifts because, on these days, a nurse took responsibility for two units.

The results showed a significant deficit of clinical nurses, especially in day shifts when the nurse in charge had to take another unit over. This condition does not meet the recommendations of the National Policy on Critical Patient Care⁽¹⁴⁾ which determines that in the health care units for adults, the minimum team composition should be of one nurse coordinator, responsible for the nursing area, a clinical nurse per shift, exclusive of the unit for every ten beds/fraction. Neither the recommendations of the RDC 26/2012, which states that in an intensive care unit, the number

of clinical nurses should be at least one per working shift⁽¹⁵⁾.

Comparing the required and available workload of nurses in the unit as recommended by COFEN's Resolution 293/2004⁽³⁾, which classifies professionals according to the level of severity and need of assistance, we have a deficit of 11.7 nurses or 57.6 hours of care/day of nurses, which interferes in the development of care and in the quality of care and it also causes overload for the team in general, exposing professionals to the risk of occupational diseases such as disorders in feeding, sleep, stress and family disorganization, which may be associated with absenteeism in public institutions⁽¹⁶⁻¹⁷⁾.

Thus, according to the results found, it is clear that there is, in the institution, a major deficit of nurses, determined by the mismatch to legal recommendations, which still reflects on the inadequate enforcement of the professional practice law, which states that these patients should be exclusively assisted by nurses⁽²⁾.

Studies indicate that the amount of nurses can influence the rates of mortality and risk of complications in critically ill patients, as there is a deficit in the quality of care when they are assisted by an underestimated and not qualified team of nurses, one highlights an increase in the complications such as accidental extubation, hospital infections, falls and the development of pressure ulcers^(13,18-19).

Thus, the correct dimension of the number of nurses who provide care to critically ill patients seeks to ensure the promotion and/or maintenance of safety to the patients and the improvement of the quality provided through a specialized and systemized care^(13,18-19).

It is also highlighted that the insufficient number of nurses in a hospital makes these professionals have multi tasks to attend in several units at the same time, and develop multiple functions, which brings to them difficulties and restrictions in order to establish more

consistent links with patients and with the working group of the inpatient unit, hindering the development of a more cohesive and integrative work, resulting in a nursing care with a better quality^(16,20).

Work overload, lack of time, insufficient number of professionals and the number of patients assisted hamper the achievement of the planning actions or nursing interventions⁽²¹⁾, thus it is necessary to ensure a proper adjustment of the number of professional nurses, what will consequently reduce the workload and improve the quality of care offered^(9,22).

This context found corroborates other studies showing that nurses are the most affected professionals by diseases caused by stress and lower quality of personal life and work, being such diseases (diabetes, hypertension, infections and other diseases caused by physiological imbalance) more prevalent in nursing professionals in sectors such as ICU and emergency rooms^(9,12-20).

FINAL CONSIDERATIONS

This study enabled one to verify the need for nursing care of critically ill patients and the relationship with the amount of nursing hours available, considering the exclusive functions of nurses in relation to the care of these patients and the recommendations of the resolution that regulates the design of nursing professionals.

One verified through the patients' classification system, that they showed high need for nursing care, especially assistance exclusive of nursing. However, when comparing the needs of hours required of nurses with those available, in relation to the recommended resolution, one found a deficit of 11.7 nurses.

There is a need to adapt the nurses' framework, since the results show that the institution does not obey neither the current legal recommendations, nor the right of the critical patient to be attended by professionals with greater technical and scientific knowledge, which

influences directly in the quality of care and in the patient's safety, as well as in the quality and in the nurses' working conditions and lives.

Despite the importance of the results obtained, further studies should be performed, since this one could not assess the impact of the shortage of nurses in patients' care.

COLLABORATIONS

Girardello DTF, Nicola AL and Fernandes LM contributed to the creation, analysis and interpretation of data, drafting of the article and final approval of the version to be published.

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