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Time management in the work process of nurses in the intensive care unit

Gerenciamento do tempo no processo de trabalho dos enfermeiros em Unidade de Terapia Intensiva

Gestión del tiempo en el proceso de trabajo de enfermeros de la unidad de cuidados intensivos

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ABSTRACT

Objective: to analyze time management by nurses in direct and indirect care interventions, in work-related and personal activities. **Method:** this quantitative, cross-sectional study was conducted in the Intensive Care Unit of a university hospital in Rio de Janeiro in January 2017. Direct observations were made of nurses' activities in 18 shifts, totaling 216 hours. Mello's "Workload Measuring Tool" was used to structure the observations. **Results:** 21.5% of nurses' time was devoted to direct care, 44.7% to indirect care, 6.1% to work-related activities and 27.7% to personal activities. **Conclusion:** nurses spend most of their time on activities unrelated to direct patient care. These findings can be useful to managers in reviewing and adjusting both staffing in direct and indirect care and the unit's work process.

Descriptors: Intensive Care Units; Nursing Staff; Nursing Care; Time Management.

RESUMO

Objetivo: analisar o gerenciamento do tempo dispensado por enfermeiros em intervenções de cuidados diretos e indiretos, em atividades associadas ao trabalho e atividades pessoais. **Método:** estudo quantitativo, transversal, realizado em Unidade de Terapia Intensiva de um hospital universitário no Rio de Janeiro em janeiro de 2017. Foram realizadas observações diretas das atividades realizadas pelos enfermeiros em 18 plantões, totalizando 216 horas. O "Instrumento para mensuração da carga de trabalho" foi utilizado para estruturar a observação. **Resultados:** os resultados mostraram que 21,5% do tempo dos enfermeiros foram dedicados às intervenções de cuidados diretos 44,7% aos cuidados indiretos, 6,1% às atividades associadas e 27,7% às atividades pessoais. **Conclusão:** os enfermeiros utilizam maior parte do tempo em atividades não relacionadas ao cuidado direto ao paciente. Os achados podem ser utilizados pelos gestores para revisão e adequação do dimensionamento de profissionais na assistência direta e indireta e do processo de trabalho na Unidade.

Descritores: Unidades de Terapia Intensiva; Recursos Humanos de Enfermagem; Cuidados de Enfermagem; Gerenciamento do Tempo.

RESUMEN

Objetivo: analizar la gestión del tiempo que brindan los enfermeros en las intervenciones asistenciales directas e indirectas, en actividades asociadas al trabajo y actividades personales. **Método:** estudio cuantitativo, transversal, realizado en la Unidad de Cuidados Intensivos de un hospital universitario de Rio de Janeiro en enero de 2017. Se realizaron observaciones directas de las actividades realizadas por enfermeras en 18 turnos, totalizando 216 horas. Se utilizó la "Herramienta de medición de la carga de trabajo" para estructurar la observación. **Resultados:** los resultados mostraron que el 21,5% del tiempo de los enfermeros se dedicó a intervenciones de cuidados directos, el 44,7% a cuidados indirectos, el 6,1% a actividades asociadas y el 27,7% a actividades personales. **Conclusión:** los enfermeros dedican la mayor parte de su tiempo a actividades no relacionadas con la atención directa al paciente. Los hallazgos pueden ser utilizados por los gestores para revisar y adecuar el dimensionamiento de profesionales en la atención directa e indirecta y el proceso de trabajo en la Unidad.

Descriptores: Unidades de Cuidados Intensivos; Personal de Enfermería; Atención de Enfermería; Administración del Tiempo.

INTRODUCTION

The concept of time takes on different perspectives because human beings have varied experiences and objectives. With the evolution of society, the conception of time went through multiple stages, going from the cyclical, discontinuous and qualitative condition, when man used the movements of the sun, moon and stars as instruments for measuring time, until assuming the linear, progressive and quantitative sense with clock synchronization. However, it was only with the Industrial Revolution that new relationships between time and work were in fact established[1,2].

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The study of time in the Organizations' work process was fundamental for their growth and to control costs. Like any other organization, health institutions lack strategies capable of supporting decision-making in the pursuit of increasing quality, improving productivity and optimizing resources. Nevertheless, in the context of work in health, there are considerable elements that hinder determination of the effective work time[2].

Studies aimed at investigating and assessing the effective work time of health care professionals are extremely relevant. Health institutions went through an intense development process, in which necessary changes occurred in the structure, such as the use of highly complex devices, and in the care, management and organizational work processes related to the training of human resources and to the assessment of the quality of care provided.

The speed of the changes, which mark the current context of the health work process, requires differentiated responses from individuals and institutions, regarding the effectiveness of the services provided. In the Nursing area, the scope of the results is associated with the issues of the microspace pertinent to the routine of the care and managerial practice[3].

The work process is the intentional and conscious transformation of the object into a product, through the intervention of human beings, who employ instruments to do so[4-6]. Since the professionalization of Nursing, the nurse's work process involves caring (implementation of care actions in a direct way) and managing (implementation of care actions in an indirect way)[7].

Direct care interventions are those carried out through interaction with the patient and practical actions, including physiological and psychosocial Nursing care, support and counseling. Indirect care interventions are those actions performed at a distance, but to benefit the patient, and they encompass practices aimed at managing the work process and multiprofessional interaction[8].

In the Intensive Care Unit (ICU) space, the nurse has multiple duties that involve direct and indirect care, as well as bureaucratic and managerial activities. Countless factors can influence the way nurses manage their time, such as the reduced number of professionals to meet the demands, scrapping of the public health institutions and precariousness of the material resources devoted to assistance.

Nursing care in the ICU requires nurses to face countless structural and procedural challenges, including the following: the increasing degree of technical-scientific demand due to the increasing complexity of the patients' organic pathologies, of the technological devices used for treatment and of the multiple intervention possibilities; to the need for quality control of the care provided, even in the face of difficulties encountered due to lack of materials/inputs for the treatment/care provided to the patient; to the lack of professional appreciation by the institutions and the reduced number of Nursing professionals given the care complexity required by patients in the ICU, which generates work overload in the team[9].

Although there are studies analyzing the distribution of nurses' work time in various environments[10-14], it becomes urgent to deepen research in ICUs in order to map the nurses' work process in this care space.

The study is justified by the need to assess time distribution and the movement of the nurses' bodies in a highly complex environment, as they are fundamental elements to understand the difficulties faced and the strategies adopted by them in the care and management routine.

The relevance of the study focuses on the possibility of elucidating the way nurses plan, organize, manage, monitor and evaluate the activities in their work process. In addition, it identifies Nursing interventions, the time spent in each intervention and time distribution by the nurses between direct and indirect care actions, contributing to the construction of knowledge in the health management area, to the organization of the Nursing services and to planning the care dynamics, especially in highly technical environments.

In this perspective, the objective was to analyze management of the time spent by nurses in direct and indirect care interventions, in tasks associated with work and personal activities.

METHOD

This is a cross-sectional and exploratory study developed in the ICU of a University Hospital (UH) located in the state of Rio de Janeiro. The unit has 10 active beds for clinical and surgical patients. The Nursing staff is comprised by a coordinator and 12 assistance nurses.

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All 12 assistance nurses were included in the study, thus waiving sampling processes. The exclusion criteria were nurses reallocated from other sectors of the institution who were working in the ICU on the data collection day. The participants were characterized regarding gender, age, time working in the institution, time of professional training and highest professional qualification.

After signing the Free and Informed Consent Form (FICF), the data were collected through direct observations of the activities performed by the nurses in 18 shifts, nine day shifts and nine night shifts, totaling 216 observation hours.

In order to survey the time spent by the nurses in the activities, systematic, direct and non-participant observation was employed. The "Instrument to assess workload"[15] consists of a categorization and verification system and was adopted to structure the observation. Mello's Categorization System (2011) is divided into three categories, namely: Category I - Nursing care: covering 7 domains, 24 classes and 126 Nursing interventions from the Nursing Interventions Classification (NIC); Category II - Associated activities: covering 14 activities undertaken by the Nursing team, but which could be performed by other professional categories; and Category III - Personal activities: activities related to the professional's personal needs.

The verification system contains 36 spaces for the observer's record, with 10-minute intervals, that is, in the morning shift (7:00 am-1:00 pm), the spaces were identified as 7:00 am, 7:10 am, 7:20 am, 7:30 am and so on until 12:50 pm. The same is valid for the afternoon shift (1:00 pm-6:50 pm). At night, the period is divided into Night 1 (7:00 pm-00:50 am) and Night 2 (1:00 am-6:50 am).

In the nine day shifts, data collection took place from 7 am to 7 pm and, in the nine night shifts, from 7 pm to 7 am. As collection was conducted uninterruptedly in 12h-shifts, observers were recruited. As it was believed that data collection would be more reliable if it was performed by people with training in the Nursing area, students attending the Nursing undergraduate course were sought.

The group of observers consisted of eight students from the tenth period of the Nursing course at a private university of Rio de Janeiro, who underwent ten hours of theoretical and practical training to ensure reliability in the application of the data collection instrument. In addition, the researcher was one of the observers and was present throughout the data collection period, elucidating possible doubts.

The observers' schedule was two per shift so as not to interfere in the team's work dynamics. At the beginning of each shift, the observers received the printed instruments to be used during that shift and synchronized their clocks so that the measurements occurred at the same time.

A different printed instrument was used for each nurse that was observed. At a first moment, the need to identify the instrument with the nurse's name is emphasized, as the same printed material was used throughout the observation period. Every 10 minutes, the observer marked the intervention/activity being performed by the nurse. Subsequently, for data analysis, the name of the professional was substituted with a number, in order to preserve the participants' anonymity. Each observer monitored only one nurse per shift, to ensure that no intervention/activity was missed.

The data were typed, stored and processed in *Microsoft Excel®*. The analysis made it possible to raise the percentage distribution of the time spent by the nurses in the NIC Interventions and the percentage distribution of the time devoted to the care activities, directly and indirectly, to the associated activities and to the personal activities.

The research project was submitted to and approved by the Research Ethics Committee of the corresponding University, respecting the norms set forth in Resolution 466/2012.

RESULTS

Table 1 shows the proportional distribution of the quantification of the nurses' time spent in the NIC interventions, associated activities and personal activities.

The results show that the largest number of NIC interventions corresponded to Domain 6, referring to the interventions that support use of the health system (38%), followed by those in the Complex physiological (16.7), Basic physiological (8%), Safety (2.4%) and Behavioral (1%) domains. The NIC activities in domains 5 (Family) and 7 (Community) were not performed by the nurses during the data collection period.

The associated activities accounted for 6.2% of the nurses' time and corresponded to those undertaken by the Nursing team and that could be performed by other professional categories. The personal activities accounted for 27.7% of the time.

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TABLE 1: Proportional distribution of the quantification of the nurses' time spent in the NIC interventions, associated activities and personal activities in the ICU. Rio de Janeiro, RJ, Brazil, 2017.

NIC interventions, associated activities and personal activities	Time (%)
Domain 1- Basic physiological	8
Domain 2- Complex physiological	16.7
Domain 3- Behavioral	1
Domain 4- Safety	2.4
Domain 5- Family	0
Domain 6- Health system	38
Domain 7- Community	0
Associated activities	6.2
Personal activities	27.7

Table 2 presents the distribution of the nurses' time, in the direct and indirect care activities, associated activities and personal activities.

TABLE 2: Percentage distribution of the time devoted to Direct care, Indirect care, Associated activities and Personal activities in the ICU. Rio de Janeiro, RJ, Brazil, 2017.

Direct and indirect care, associated activities and personal activities	Time (%)
Direct care	21.5
Indirect care	44.7
Associated activities	6.1
Personal activities	27.7

The results show that 44.7% of the nurses' time is devoted to indirect care, 21.5% to direct care, 6.1% to the associated activities and 27.7% to the personal activities.

DISCUSSION

The results evidenced show similarities with other studies developed on the same theme. Regarding time distribution by the nurses, Domain 1, Basic physiological, required 8% of the nurses' time, a result that differs from other studies in which the percentages were 20%[15] and 36%[16].

In this domain, the intervention with greatest representativeness was the bath (3.2%). Similar results were found in other studies where the bath corresponded to 1.4%[16] and 5.4%[17] of the Nursing team's time.

Even though it is the predominant activity in Domain 1, the studies showed that nurses' participation in the bed bath is still insignificant when it comes to the care of critically-ill patients. Participating in the bath allows nurses to deepen interaction and communication and enables a more detailed evaluation of the patient.

Domain 2, Complex physiological, corresponded to 16.7% of the nurses' time. Other studies found more significant values, with percentages of 19.4%[15] and 15%[16]. Most of the time spent by the nurses in the interventions from NIC's Domain 2 corresponds to fluid/electrolyte management (8.3%) and to administration of medications (6.9%).

Regarding fluid/electrolyte management, almost all the actions were related to recording the patients' intake/administration and elimination in water balance. In the unit, nurses are responsible for this control, either in filling-out the data or in checking/adding up the balance at the end of the shift.

As for drug administration, it was verified that, in several shifts, the nurses assumed responsibility for the preparation and administration of the medications for all patients, while the technical team performed bed hygiene and dressings. Consequently, in addition to not participating in the bath, the nurses were not able to assess the injuries or the incision sites.

The reduced number of professionals led nurses to delegate tasks that should be performed by them to the technical team, considering the fact that the patients are in a critical condition. The comparison with other studies on the theme shows that drug administration corresponded to 13.3%[16] and 5.9%[17] of the Nursing team's time, respectively.

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The percentage of time devoted to the interventions from Domain 3 was only 1%. In a similar study[15], Domain 3 was found in only 0.2%, reinforcing the finding of the current study. The most frequent activity was active listening. It can be inferred that the reason for nurses not devoting more time to the interventions in this domain in the ICU is that almost all patients present altered levels of consciousness, either due to coma or to the use of sedatives.

Domain 4, Safety, represented 2.4% of all the activities. A number of studies with the same theme found higher percentages: 10.7%[15] and 9%[16]. The most frequent intervention was monitoring of the vital signs (1.4%). The finding is worrisome, as the interventions in this domain are related to the care measures that support protection against harms. As they are patients that require intensive care, it was expected that the nurses devoted more time to these activities.

The activities corresponding to Domain 5, Family, were not performed by the nurses during the data collection period. Other studies on the same phenomenon presented a low percentage of activities related to the "Family" domain: 0.5%[15], 4%[16] and 1.13%[17]; however, they did not evidence absence of interventions as in the current study. Although presence of the family in the ICU is restricted to the visiting hours, the absence of actions in this domain points to the lack of interaction/communication between nurses and family members, a result also found in other studies[18]. Communication is the safest way for the Nursing team to establish a helping relationship and to create a bond and welcoming with the patient-family[19].

Domain 6, Health system, which encompasses the interventions supporting use of the health care system, was the one with the greatest representativeness in the ICUs (38%). In a number of studies carried out in the operating room, pediatrics, primary care unit and ICU, that is, in diversified settings, Domain 6 also presented important representativeness, with 22.12%, 30%, 54% and 24.1%, respectively[15-16,20]. This fact allows asserting that, regardless the setting, the interventions related to this domain require more than 20% of the Nursing professionals' time, especially nurses. In some studies, as well as in this one, the activities in this domain are the most representative[15,20].

The most frequently found activities from Domain 6 were supply control (11.1%) and documentation (36.7%).

Regarding supply control, the most common activities were as follows: requesting materials and medications, receiving material and medications, and checking the unit's materials. Nurses spend a significant part of their time checking materials from the sector using printed forms and checklists standardized by the unit.

Of the time devoted to documentation, 52% was devoted to records in the patients' medical charts, the other 48% of the time was reserved for secondary notes in order and occurrence books, patient entry and exit control books and exam control books. Other studies show that nurses devote 22.93%, 20.9%, 18.4%, 17.9%, 11.47% and 9.7%, of their time to documentation[11,15-17,20,21].

It can be asserted that nurses are concerned with documentation; however, there is overvaluation of recording in secondary books to the detriment of records in the patients' medical charts. Several studies point out that nurses have used the order and occurrence book to replace the medical chart to record patients' complications and evaluations[22]. That attitude characterizes disobedience regarding the current legislation which determines that the care process must be recorded in a medical chart[23].

The activities related to Domain 7, Community, were not observed during the data collection period. A similar result was found in another study that only showed one intervention related to this domain[15].

The Associated activities are those undertaken by the Nursing team, although they could be performed by other professional categories. This category accounted for 6.2% of the nurses' time. The most frequent activities were as follows: making requests for routine supplies, leaving the unit to make various referrals, cleaning and organizing cabinets and benches, receiving and checking stock materials, checking medical prescriptions, bed management, organizing medical records and making requests for maintenance repairs, respectively.

Other studies show that the percentages of the time devoted to the associated activities were 12%, 10%, 7.7%, 7%, 6.5%, 5.3% and 4.7%, values similar to the current study[11,13,14-17,21].

In the ICU under study, there were no nurses available to perform the routine activities related to organization and planning of the assistance to be provided. The sector's coordinator assumed responsibility for the management of people, materials and the environment. Thus, some administrative activities were delegated to the nurse-leaders, such as routine supply requests and verification of the stock materials.

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It is necessary to rethink and redesign the delimitation of the activities and duties to be performed by nurse managers, daily/routine nurses, nurses on duty/leaders and by the technical team in the ICU. Absence of demarcation forces the assistance nurse to assume functions that are responsibility of nurse managers. Although nurses are frequently required to perform bureaucratic activities in the sector due to the service's need, this cannot be stipulated as a usual duty of the nurse leader. Carrying out these activities sporadically does not decharacterize nurses' work in the ICU; the problem is almost always related to the frequency with which they perform these activities, generating overload in the nurse leader and distancing direct care from critically-ill patients.

Lack of administrative professionals in the ICU presents itself as another problem. The nurse-leader is responsible for activities that are not related to their legal and exclusive duties, such as organizing medical records, managing beds and requesting maintenance repairs.

The personal activities corresponded to 27.7% of the nurses' time. The predominant activities were rest and socialization. In similar studies, the percentages of time devoted to personal activities were 24%[16], 18%[11], 18%[13], 16.8%[15], 16.4%[17], 13%[21], 7.21%[20] and 3%[14], respectively.

As for time distribution in direct and indirect care, other studies developed also showed that nurses spend more time in indirect care activities. A number of studies conducted in Family Health Units verified that the time devoted to direct and indirect care by nurses was 46% and 54%[14] and 52% and 48%[21], respectively. In a medical-surgical unit, it was verified that 22% of the nurses' time was devoted to direct care and 50% to indirect care[11]. In the pediatric unit and neurological ICU, the time devoted by the nurses to direct and indirect care was 25.5% and 45.7%[16] and 20.5% and 55.4%[17], respectively.

In the Emergency Unit, the time distribution between direct and indirect care was proportional, with 35% of the time[13]. A study carried out in a medical-surgical clinic and in an ICU verified that nurses spent 34.7%, 35.7% and 37.9% of their time in direct care activities and 43.8%, 43.5% and 40% in indirect care interventions[15], respectively.

A study carried out in Portugal identified that nurses spend twice as much time in indirect care when compared to direct care, a result similar to that found in this study[24].

An observational study conducted in medical, surgical and specialized clinical units of a teaching hospital showed that nurses spent 58% of the 90 hours observed performing indirect care activities/interventions[25].

Study limitations

Despite consistency of the methodological path, the absence of a pilot study to test the instrument should be considered as a study limitation, in order to restrict the number of interventions according to the characteristics of the population, making the instrument more objective and facilitating its application.

CONCLUSION

The study allowed for an objective understanding of the management of the nurses' time in the Intensive Care Unit. The results arising from the analysis of the nurses' time distribution in their work process indicate that 21.5% of the time was devoted to the direct care interventions, 44.7% to indirect care, 6.1% to the associated activities and 27.7% to the personal activities.

Analytically, the interventions/activities most frequently developed by the nurses in the ICU point to devoting most of their time in activities not related to the direct care provided to the patient. The difficulties experienced by the nurses should be highlighted, such as: reduced number of professionals to meet the administrative demands, excess of bureaucratic activities and precariousness of material resources for the assistance to be provided.

These issues need to be discussed, reflected on and researched not only by nurses, but also by the institutions' managers, as this chaotic scenario requires prioritizing certain actions over others and generates professional demotivation. In this context, nurses face the challenge of managing their time so that they can meet the work demand imposed on them and maintain the quality of the direct care provided to the patients.

The findings can be used by the managers to review and adapt staffing of professionals in direct and indirect assistance and the work process in the ICU. This would allow nurses to offer more direct care to critically-ill patients.

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It is believed that this research opens the way for critical and reflective analyses, dealing with the nurses' time distribution in highly complex environments. Therefore, it is expected that these results aid in the advancement of discussions and in new analytical perspectives in this field of knowledge.

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