Interruptions of nursing activities: contributions to patient and professional safety

Interrupções de atividades de enfermeiros: contribuições para a segurança do paciente e do profissional
Interrupciones de actividades de los enfermeros: contribuciones para la seguridad del paciente y del profesional

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Abstract

Objective: To classify activities performed by nurses, to identify interruptions and to verify human and environmental factors associated with interruptions.

Methods: Observational study conducted with a sample comprising 25 nurses working in pediatric or adult, surgical or intensive care units of a university hospital.

Results: We observed 2,295 activities, most of them were classified as indirect patient care (38.6%) and direct patient care (22.5%). Seven hundred and nineteen (31.3%) interrupted activities were identified, with mean of 1.6 interruptions in the same activity, thus totaling 1,180 interruptions. There was greater number of interruptions during the indirect care (44.7%), and their main sources were the nursing (43.3%), and the physicians and residents (16.5%) staffs. The number of individuals in the units (staff and family/visitors), the proportion of patients under high-dependency, the number of healthcare and allied professionals influenced the number of interruptions.

Conclusion: There were interruptions in all types of activities performed by the nurses, even in those characterized as bedside interventions, which can jeopardize patient safety.

Resumo

Objetivo: Classificar atividades realizadas por enfermeiros, identificar interrupções e verificar fatores humanos e ambientais associados às interrupções.

Métodos: Estudo observacional realizado com amostra composta por 25 enfermeiros que trabalham em unidades pediátricas ou de adultos, cirúrgicas ou de terapia intensiva de um hospital universitário.

Resultados: Observamos 2.295 atividades, a maioria classificada como assistência indireta ao paciente (38,6%) e assistência direta ao paciente (22,5%). Setecentos e dezenove (31,3%) atividades interrompidas foram identificadas, com média de 1,6 interrupções na mesma atividade, totalizando 1.180 interrupções. Houve maior número de interrupções durante o cuidado indireto (44,7%), e suas principais fontes foram equipe de enfermagem (43,3%) e médicos e residentes (16,5%). O número de indivíduos nas unidades (profissionais e familiares/acompanhantes), a proporção de pacientes em alta dependência e o número de profissionais de saúde influenciaram o número de interrupções.

Conclusão: Houve interrupções em todos os tipos de atividades realizadas pelos enfermeiros, mesmo naquelas caracterizadas como intervenções à beira do leito, o que pode comprometer a segurança do paciente.

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Resumen

Objetivo: Clasificar actividades realizadas por enfermeros, identificar interrupciones y verificar factores humanos y ambientales asociados a las interrupciones.

Métodos: Estudio observacional realizado con muestra compuesta por 25 enfermeros que trabajan en unidades pediátricas o de adultos, quirúrgicas o de cuidados intensivos de un hospital universitario.

Resultados: Observamos 2.295 actividades, la mayoría clasificada como atención indirecta al paciente (38,6%) y atención directa al paciente (22,5%). Se identificaron 719 (31,3%) actividades interrumpidas, con un promedio de 1,6 interrupciones de la misma actividad, totalizando 1.180 interrupciones. Hubo mayor número de interrupciones durante el cuidado indirecto (44,7%) y sus principales fuentes fueron el equipo de enfermería (43,3%) y médicos y residentes (16,5%). El número de individuos en las unidades (profesionales y familiares/acompañantes), la proporción de pacientes de alta dependencia y el número de profesionales de la salud influyeron en el número de interrupciones.

Conclusión: Hubo interrupciones en todos los tipos de actividades realizadas por los enfermeros, inclusive en aquellas caracterizadas como intervenciones a pie de cama, lo que puede comprometer la seguridad del paciente.

Introduction

Nursing plays an essential role in assuring safety within the health system due to the direct and permanent contact with patients and their families. In the other direction, it is indispensable to improve the infrastructure and process involving clinical nursing practice to ensure patient safety, situation especially aggravated in developing countries due to socioeconomic problems. The first and most prominent publication of the Institute of Medicine (IOM)[1] on patient safety emphasized the need to take into consideration the characteristics of the work environment in which nursing care is provided. Transformations in healthcare practice across the globe were undertaken to improve safety and reduce the occurrence of errors, however there is still a significant number of preventable errors in hospitals.

Most errors in healthcare are associated to system failures (e.g., complexity, number of procedures, unpredictability, infrastructure and management) or intervenient conditions beyond the control of the individual.[2]

The promotion of a suitable environment for nurses to practice can increase their cognitive capability to promote appropriate and safe care to patients and families. The identification of environmental factors that results on nursing practice breakdown can improve quality of nursing care.[3] One of these factors is the interruption of activities performed by the nurse, which can limit their ability to promote patient safety.

The interruption occurs when the main task is suspended so that a secondary task can be per-formed.[4] Interruptions during the care may impair the attention of professional, cause distractions on the main focus of action and therefore can represent a risk to patient safety.

According to Institute of Medicine's report, To Err is Human: Building a Safer Health System, the interruptions are quite common in hospitals.[2]

The number of interruptions experienced by nurses ranged from 0.4 to 13.9 interruptions per hour, according to the type of unit under observation.[5-7]

Interruptions were more frequent when care was directly provided to patients, during the administration of medication, and completing documentation.[8-10]

The main sources of the interruption of nurses were other healthcare professionals, members of the nursing staff, telephones, pagers, patients, family members, visitors, and self-interruption and lack of supplies.[10-16]

Interruptions favor the occurrence of errors, compromise the workflow and also impair the professionals' concentration and decision-making process and can difficult that nurses completing their tasks properly.[9,17-20] Studies identified that 88.9% to 90% of interruptions resulted in negative consequences, such as delay in treatment and loss of concentration.[15,21] However, some interruptions are essential to the patient care process because they convey information necessary to conduct care (e.g., a patient's monitor alarming due to abnormal vital signs, information seeking and sharing and shared decision-making).[7,9,20]

Patient safety results from the quality of interactions among all health system components, and it is

not solely determined by the professional, activity, infrastructure, and technology.[22]

Thus, understanding interruptions in the context of nursing work may help to redesign it and the systems in to strengthen the main task characteristics, reducing some types of interruptions and guiding / supporting changes that can improve weak process and, consequently, increasing patient safety.

This study aimed to classify activities performed by nurses, identify interruptions of this activities and the associated factors.

Methods

This is an exploratory and observational research involving the study of activities carried out by nurses as well as their interruptions in order to contextualize factors influencing the actions of these professionals.

The inclusion criteria to sample determination was set as the agreement to participate in the research. Thus, in the studied units 26 nurses were identified. Inclusion criteria embraced acceptance to participate and work at morning and evening shift. The option to include only nurses of the morning and evening shifts had the purpose of promoting the analysis of similar work characteristics, compared to the night period.

One nurse was excluded due to medical leave during the period of data collection. Thus, the sample comprised 25 (100%) nurses working in the adult critical care (8; 32.0%), pediatric critical care (7; 28.0%), pediatric surgical care (4; 16.0%), and adult surgery (6; 24.0%) units of a university hospital.

The study was developed in five wards of a university hospital with a capacity of 700 beds, located in the city of Sao Paulo, Brazil. The units were pediatric surgery ward (25 beds), pediatric intensive care unit (eight beds), urology ward (15 beds), gastro-surgery ward (25 beds) and adult intensive care unit (14 beds).

Data collection was performed by a single observer after a pilot study conducted in the pediatric critical care unit with four nurses,

totaling eight hours of observation. The pilot study aimed to test data collection strategies and structured forms.

The nurses were observed individually, during two working hours in three different days, and it allowed monitoring all the moments in their work shift (beginning, middle and end). The professionals were observed in different periods of the dayshift based on the random drawing of the observation sequence of each professional and unity. Thus, 150 hours of nursing activities were investigated.

In order to describe the sample characteristics, nurse-related demographic variables age, gender, time after graduation, post-graduation and work shift were investigated.

Variables concerning to the patients' characteristics age, gender and patient classification system were verified. Classifications systems were applied to describe pediatric[23] and adult patients[24] care demands. For critical care patients' classification, the Nine Equivalents of Nursing Manpower Use Score (NEMS)[25] was applied. The patients: nursing ratio was calculated.

The presence and number of individuals at the observation sites were classified as patients, caregivers, nursing, physicians and medical residents, other health professionals and undergraduate nursing students.

It is worth highlighting that the Brazilian nursing team consists of nurses, nursing technicians and nursing assistants, and that each of them goes through a different training process (four-year-duration university education; high school and technical education of at least two years; and primary and auxiliary education of at least one year, respectively). Consequently, they perform distinct levels of complexity of activities.

The types of the activities performed by nurses and of the interruptions experienced were observed and recorded without interference in clinical practice, using a semistructured instrument. The observer made use of a chronometer, as a means of checking the duration of each activity observed and of each interruption identified and the nurses used an application of a mobile electronic, denominated

Nike + Running®, to calculate the distance traveled during the observation.

The activities performed by nurses were classified by a group of specialists, through the descriptive analysis of activities performed by nurses, after a Delphi study. The group consisted of three nurses' researchers on the subject of patient safety and the classification was determined with at least 80% level of consensus. The activities were categorized, after data collection, as direct patient care, indirect patient care, care management, unit management and personal activities.

Direct patient care corresponded to the bedside-performed activities (e.g. decubitus change, insertion of catheters and probes, medication administration). Indirect patient care included activities that did not occur in the nurse-patient intercessor space, but that were directly linked to care (e.g., preparation of medication, preparation of dressing materials). Care management comprised activities that did not occur in the nurse-patient intercessor space, but that were directly linked to patient care management (e.g., rounds, documentation). Unit management was defined as any activity related to the management of the patient care location (e.g. material ordering, availability of beds). Personal activities were related to personal needs of the nurses (example: food, toiletries).

Interruption sources, interruption time and return to the primary activity were analyzed in order to study the interruptions.

The study was approved by the Ethics Committee in Research (073211) at institution. The nurses received written and verbal orientation about the study and provided their written consent to participate.

The categorical variables were presented as absolute and relative frequency, the numerical variables, as mean and standard deviation. Pearson's chi-square test was used to analyze the association between categorical variables. Variance analysis tests such as the Student's t-test and the Mann-Whitney test were used to compare the numerical variables, whereas Pearson's hypothesis test was used to analyze the association between variables, at 5% significance level.

Results

Nurses were predominantly young adults (median: 28 years), women (96.0%), with time after graduation (64.0%) and time working in the units (76.0%) shorter than five years. Most professionals (60.0%) had post-graduation degree and 73.3% of them had specialization degree in their area of expertise. There was similar distribution of nurses in the morning (52.0%) and afternoon (48.0%) shifts.

Regarding the characteristics of the patients, there was higher number of adult (median: 29 years) and male (64.4%) patients. In pediatric (P) care units 338 children were observed (median age of 2 years old and 55.5% male); in adult (A) care units 630 patients were observed (median of 56 years old and 69.2% male). As for the patients subjected to surgical care (S), it was possible to identify similar occurrence of users requiring intermediate (25.6%) and high-dependence care (34.3%). The NEMS score median of the intensive care (I) patients was 30. The number of patients per nurse staff was 5.9 and 3.2, respectively.

About the individuals at the observation sites, there was a higher frequency of physicians and medical residents (26.3%), caregivers (23.7%), nursing technicians and assistants (20.6%), nurses (11.7%), other health professionals (11.3%) and students (6.3%).

We observed 2,295 activities performed by nurses, 15.3 activities per hour, with predominance of indirect patient care activities (38.6%), followed by direct patient care (22.5%) and care management (18.3%). Unit management activities and personal activities occurred with almost similar frequencies (10.0% and 10.6%, respectively).

The nurses spent, on average, twice as long with direct patient care activities (6.3 ± 7.3 minutes) than with indirect patient care (2.8 ± 3.7 minutes) and unit management (2.4 ± 2.8 minutes) activities.

Seven hundred and nineteen (31.3%) out of the 2,295 activities performed by nurses were interrupted, and the interruptions were influenced (p<0.001) by the type of activity, with a greater number of interruptions in care management (38.0%), indirect care (34.2%) and direct care (33.1%).

The immediate return to the initial activity being performed before the interruption was studied. It was found that the nurses returned to the initial activity in 86.8% of the observations; however, when the nurses did not return to the initial activity immediately after the interruption, they performed, on average, 2.2 (±2.1) activities - ranging from one to ten activities resulting from the interruption - before resuming the interrupted initial activity.

It was found that some activities were interrupted more than once, with mean of 1.6 (±1.0) interruptions per activity, totaling 1,180 interruptions in the 719 interrupted activities, ranging from 1 to 7 interruptions in the same activity and 7.9 interruptions per hour.

Between the 1,180 interruptions were observed, 527 (44.7%) occurred during indirect patient care, 284 (24.1%) care management, 246 (20.8%) direct patient care, 79 (6.7%) unit management, and 44 (3.7%) personal activity.

There was higher number of interruptions caused by other members of the nursing staff, physicians and medical residents and telephone. However, the nurses spent more time with interruptions caused by the nursing staff, by the lack of supplies, and by physicians and medical residents. During the 150 hours of observation, the nurses used approximately 3.9 minutes in every hour to meet the 1,180 interruptions computed in the 9000 minutes comprising the observation (Table 1).

The lack of supplies caused higher interruption time (114 ± 102 seconds), followed by telephone and patients, and the maximum interruption time of approximately eight minutes was caused by lack of supply and that the minimum interruption time of six seconds was caused by the other sources. The greater number of individuals in the units influenced the occurrence of interruptions (Table 2).

It was found that the number of hospitalized patients and the number of patients per nursing professional showed positive association with interruption, although without statistical significance. However, the total number of individuals present at the time of observation positively and significantly influenced the occurrence of interruptions (p=0.002). Associating interruptions and patients'

Table 1. Interruptions according to the source and total time of interruption, in minutes

Interruptions	f(%)
Source of interruption (n)	
Nursing staff	511(43.3)
Physicians and medical residents	195(16.5)
Telephone	86(7.3)
Other health professionals	73(6.2)
Caregivers	68(5.8)
Support service team	69(5.8)
Self-interruptions	60(5.1)
Lack of supply	49(4.2)
Others	36(3.0)
Patients	33(2.8)
Total	1,180(100.0)
Duration of interruption (min.)	
Nursing staff	209.3(36.2)
Lack of supply	95.0(16.4)
Physicians and medical residents	79.7(13.8)
Telephone	61.3(10.6)
Other health professionals	30.6(5.3)
Self-interruptions	26.2(4.5)
Patients	21.3(3.6)
Support service team	18.9(3.3)
Caregivers	16.7(2.9)
Others	19.4(3.4)
Total	578.2(100.0)

Table 2. Association analysis between the number of interruptions per hour of observation, the number of individuals at the site and classification of patients

Number of interruptions (per hour)	Mean (+SD*)	Min-Max	PCC[†]	p-value[‡]
Interruption	7.9(+3.1)	2.0-17.0	0.109	0.351
Number of patients	12.9(+5.0)	5.0-23.0		
Interruption	7.9(+3.1)	2.0-17.0	0.109	0.353
Number of patients per nurse	5.9(+3.6)	1.3-15.0		
Interruption	7.9(+3.1)	2.0-17.0	0.057	0.630
Number of patients per nursing technician or assistant	3.2(+2.0)	1.0-14.0		
Interruption	7.9(+3.1)	2.0-17.0	0.354	0.002
Total number of individuals	35.8(+8.2)	22.0-57.0		
Interruption in surgical care units	8.4(+2.5)	2.0-17.0	0.433	0.017
High-dependency and semi-intensive patients in surgical units	6.8(+3.6)	3.0-13.0		
Interruption in intensive care units	7.5(+2.7)	4.0-17.0	0.139	0.361
NEMS[§] (Mean)	29.0(+3.0)	21.0-34.5		

*SD - Standard deviation; [†]PCC - Pearson linear correlation coefficient; [‡]p - Student's t-test; [§]NEMS - Nine Equivalents of Nursing Manpower Use Score

classification undergoing surgical care as well it was possible to see that the greater the number of surgical patients classified as high-dependency and semi-intensive patients was, the greater the number of interruptions experienced by the nurses (PCC=0.433 and p=0.017). However, there was no significant positive correlation between the NEMS score mean of patients undergoing intensive care and the interruptions (p=0.361).

Comparing the number of interruptions per hour, between pediatric (8.6 interruptions/hour) and adult (7.3 interruptions/hour) wards a statistically significant difference (p=0.009) was observed, but no association (p=0.078) was observed between surgical (8.4 interruptions/hour) and intensive (7.5 interruptions/hour). In table 3 can be seen differences regarding the sources of interruptions between pediatric and adults' wards and surgical or intensive care units. In pediatric (5.6%) the frequency of the others sources (e.g students and volunteers) was eight times bigger than adult (0.7%). According to the type of care, revealed higher reoccurrence of interruptions by telephone, caregivers and others sources in surgical and the nursing staff in intensive.

Table 3. Interruptions according to the source in pediatric and adult care units, and surgical care and intensive care units

Interruption	Pediatric f(%)	Adult f(%)	p-value*	Surgical f(%)	Intensive f(%)	p-value*
Source of interruption						
Telephone	35(6.2)	51(8.4)	<0.001	46(9.1)	40(5.9)	<0.001
Nursing staff	252(44.2)	259(42.5)		206(40.9)	305(45.1)	
Physicians and medical residents	93(16.3)	102(16.7)		77(15.3)	118(17.4)	
Other health professionals	29(5.1)	44(7.2)		26(5.2)	47(7.0)	
Patients	14(2.5)	19(3.1)		20(4.0)	13(1.9)	
Caregivers	32(5.6)	36(5.9)		36(7.1)	32(4.7)	
Self-interruptions	27(4.7)	33(5.4)		19(3.8)	41(6.1)	
Lack of supply	20(3.5)	29(4.7)		19(3.8)	30(4.4)	
Support service team	36(6.3)	33(5.4)		27(5.4)	42(6.2)	
Others	32(5.6)	04(0.7)		27(5.4)	09(1.3)	
Total	570(100.0)	610(100.0)		503(100.0)	677(100.0)	

*p - Chi-square test

Regarding the distance traveled by the nurses during the course of their activities, the current study found that they traveled 260.2 (± 138.3) meters per hour, on average, with minimum of 55 and maximum of 885 meters per hour. It was observed that the nurses did not leave the unit frequently (2.1%) and when they did, our analysis showed that the lack of supplies was the most prevalent reason for it (55.1%). Thus, significant positive association was found between the distance traveled by the nurses and the number of activities they performed (PCC=0.507 and p<0.001). However, the distance traveled by the nurses had no influence on the number of experienced interruptions (p=0.508).

Discussion

In this research, the majority of nursing activities observed were classified as indirect patient care and direct patient care. Some activities were interrupted more than once, totaling 1,180 interruptions. There was greater number of interruptions during the indirect care and the main sources were the nursing staff. The number of individuals in the observations sites (staff and family/visitors), the proportion of patients under high-dependency, the number of healthcare and allied professionals influenced the number of interruptions.

A study conducted in a trauma unit, in the USA, revealed that nurses performed more activities per hour (57.8%) than it was observed in the current study (15.3%). This difference may be explained by the different health systems in these countries, since Brazilian nurses share care activities with professionals from other nursing categories.[26]

Direct patient care activities required more time from the nurses, although the professionals have mostly performed indirect patient care activities. Thus, the greater amount of time necessary to carry out direct patient care activities should be taken into consideration in health institutions in order to solve systemic failures, which divert the nurses from the direct patient care and may compromise patient safety.

Nurses work in an unpredictable, complex, non-linear, noisy environment composed by several professionals from different categories and with different technologies.[11,27] In addition, researches showed that these professionals are frequently interrupted during the course of their activities. The current study found 7.9 interruptions per hour. These differences, if compared with others researches, can be explained by the distinct methodological and conceptual approaches used to classify the interruptions in the current study.

There was significant difference in the type of interrupted activity. It was possible to see that the

person who caused the interruption respected the times when the nurses stopped their activities to meet their personal needs, and avoided interrupting them during these times. However, the interrupting person did not take into consideration the negative impacts such interruptions could generate when they occurred during the implementation of activities that required more skill and focus from the nurses, such as those related to direct or indirect patient care.

We found prevalence of interruptions in indirect patient care, care management, and in direct patient care activities. This finding highlights the need to instruct the healthcare team to minimize the number of interruptions during care activities in order to provide higher quality care and patient safety.

The current study found higher number of interruptions caused by the nursing staff, physicians and medical residents, telephone and by other health professionals. Similar to what has been identified in the literature. However, the interruptions stared by the nursing staff were greater than described in data from countries with less stratification of the scope of action of the nursing professional.[9,10,12,15,21] In Brazil the nursing practice is supported by legal polices in which nursing technicians and assistants work under supervision of nurses. Corroborating with this finding, an Brazilian study carried out in an intensive care unit, identified that nursing technicians started the majority of the nurses' interruptions.[6]

Another source of interruption identified in the current study was the lack of supplies needed to perform the patient care activities. It was found that these professionals took approximately 0.6 minutes per hour to resolve the lack of supply, which is characterized as operational failure. Such interruptions are preventable and, therefore, improvement actions should be determined and applied in order to reduce these events and to give these professionals more time to perform direct patient care activities.

Another studies demonstrated that interruptions during clinical practice constituted, on average, 7.0% to 11.08% of the nurses' working time.[6,11] In this research was observed in the current study, in which these events demanded 6.4% of their time.

The duration of the interruptions varied from three seconds, when they were caused by the nursing team, to 7.9 minutes, when they were triggered by lack of supplies. Thus, it showed oscillation according to the interruption source. Other researches showed maximum time ranging from 5.3 to 15 minutes.[6,28,29]

According to these results, the mean interruption time was relatively short, although, according to some reports, even the interruptions lasting for only ten seconds may divert attention and make the professional lose concentration, a fact that increases their chance of making mistakes.[30,31]

The present study found that the occurrence of interruptions was considerably influenced by the number of individuals present in the investigated units. Brazilian nurses coordinate the nursing staff, work collaboratively with physicians in patient care and organize the actions of the multidisciplinary team towards the patients. Thus, in addition to the patient care, they play a leadership and organization role in health care activities. This fact burdens the Brazilian nurses due to their lower proportion per patient, when it is compared to other realities. According to the Nursing Council (*COFEN – Conselho de Enfermagem,2013*) data, it is estimated that there is, on average, 1.8 nurses per 1,000 inhabitants in Brazil, as opposed to the proportion found in other countries such as the US (10 nurses per 1,000 inhabitants)[32] and Switzerland (15 nurses per 1,000 inhabitants).[33] Thus, it is worth highlighting that the higher the workload is, the higher the probability that the professional is interrupted and, consequently, the higher the risks for the patient safety.

In addition, interruptions entail cognitive changes that affect the decision making by the nurses.[34] Workplaces in which professionals are constantly interrupted or asked to switch tasks show greater propensity for adverse events, and it consequently compromises patient safety.[11,15,27,35-37] Thus, it is necessary to investigate the working environment in order to understand the source and na-

ture of the errors and redesign the system to reduce such interruptions.

It was found that the nurses returned to their initial activity in 86.8% of the observed situations. It is worth emphasizing that not resuming the initial activity or not doing it correctly is the most common error associated with interruption, and it leads to delays in the completion of the tasks, to errors and to omissions.[38]

Some researchers found that the nurses were interrupted wherever they were, and other researchers reported that the spaces that do not have physical barrier allow greater occurrence of this phenomenon.[11,35,39] These aspects were also observed in the present study, despite the analysis limitations. Interruptions were evidenced in different locations in the units, and the corridors and nursing stations were the main areas where such events occurred.

Studies corroborated that interruptions caused service delay, procedural failures, and linear increase in the error rates according to the number of interruptions.[19,37,39] Thus, interruptions are considered a disturbing factor; increase the workload and often make it difficult for the nurses to successfully accomplish their activities.[19,40]

Interruptions also have psychological effects on the professionals, namely: increased irritation, burnout, dissatisfaction, frustration, anxiety and stress.[13,19,41]

On the other hand, although it is rare to find a report in which the interruptions are perceived as beneficial, they may result in the provision of useful information, in the interception of errors and in awareness of changes in the patients' clinical state, for example, by means of alarms.[9,19,29,37]

Identifying the conditions causing the interruptions that negatively compromise the work of nurses may contribute to the development of strategies to prevent this phenomenon and minimize its impact on patient care. The use of process management, support activity tools, no-interruption zone signaling and continuous education of the staff are among the intervention strategies reported in the literature. These strategies are used to instruct both those who are interrupted and those who interrupt to control the interruptions by taking into consid-

eration the priorities and the times at greater risk of causing harm to the working process and to patient safety.[4,15,16,20,42,43]

The literature recommends using visual signs such as interruption-free environments marked with red bands (red zones) as well as using red vests with the words "Do not interrupt me, I am preparing / administering medications" as strategies to reduce interruptions during this activity, enabling the reduction of this phenomenon after their implementation.[1,8] Study conducted in Australia observed that the use this vests reduced moderately non-medication-related interruptions. However, only 48% of participating nurses supported the intervention becoming hospital policy.[44] Thus, there are questioning about impact of using these vests, revealing that this can be not the best resource, being necessary to understand the causes and consequences of both interrupting and not interrupting.[45]

Other authors used methods are: messaging sorting system, alarms and phone calls through a person responsible for differentiating the interruptions that require immediate attention from those that can wait for the completion of the initial activity, and redesign of the environments to reduce the flow of people in locations where documentation is being performed, for instance.[13,46]

Thus, it is necessary to redesign the working system and to eliminate the professional performance obstacles that favor interruptions in order to improve patient care and to prevent potential negative impacts on it.

This pioneering study in our country made it possible to identify the general characteristics of unnecessary interruptions, a starting point for the development of other studies analyzing the impact of interruptions to nursing clinical practice. However, comparisons with other studies on this topic become difficult due to differences in the healthcare systems of developed and developing countries.

Conclusion

Interruptions were identified in 719 (31.3%) out of 2,295 activities, resulting in one interruption in

every three executed tasks, on average. It was observed that some activities were interrupted more than once, totaling 1,180 interruptions or 7.9 interruptions per hour. Such events occurred most frequently during indirect patient care, care management and direct patient care. As for the source, it was noticed a greater number of interruptions caused by the nursing staff, and by physicians and medical residents. The interferences that required longer time to be solved were caused by the nursing team and by the lack of supplies, such findings can be related to the three nursing professional categories in Brazil, lack of autonomy of nursing technicians and assistants and to the deficiencies of financial support to healthcare, respectively. The current study found influence of the number of individuals in the units, the number of patients undergoing surgical care who were classified as high-dependency and semi-intensive patients, as well as linear increase in interruptions caused by caregivers and other health professionals according to their number at the time of observation. This study provided subsidies to identify factors with potential to compromise patient safety, based on the current knowledge in field, and to conduct further researches on the implementation of interventions to mitigate the impact of interruptions on patient safety. However, comparisons with other studies are difficult due to methodological approaches and healthcare systems characteristics of developed and developing countries.

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Collaborations

Monteiro C, Avelar AFM and Pedreira MLG contributed to conception of the study, analysis and interpretation of data, drafting the paper, critical review of content and approval of final version to be published.

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