RESEARCH | PESQUISA

Patients dependency degree in relation to the nursing team: a management tool

Grau de dependência dos pacientes em relação à equipe de enfermagem: uma ferramenta de gestão

Grados de dependencia de pacientes en relación con el equipo de enfermería: una herramienta de gestión

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Abstract

Objective: Measuring the patients' degree of dependency on the nursing staff by utilizing the Patients Classification System (PCS) proposed by Perroca. **Methods:** A descriptive and exploratory study, applying the instrument developed by Perroca for 43 days in the months of August and September 2014 in the clinical and surgical admission center of a university hospital located in the southern region of Brazil. **Results:** Out of 641 assessments, 329 (51.3%) evidenced that patients needed semi-intensive care, followed by 205 (32%) patients needing intermediate care, and 92 (14.4%) requiring intensive care and 15 (2.3%) patients needing minimum care. **Conclusion:** The findings made it possible to identify patients` dependency on nursing care and evidenced a higher concentration of cases in semi-intensive care. A fact that leads us to think about changes to the epidemiologic profiles of patients admitted into the institution.

Keywords: Nursing Assessment; Classification; Safety Management; Nursing Staff.

Resumo

Objetivo: Medir o grau de dependência dos pacientes em relação à equipe de enfermagem utilizando o Sistema de Classificação de Pacientes (SCP) proposto por Perroca. **Métodos:** Estudo descritivo exploratório que aplicou instrumento desenvolvido por Perroca durante 43 dias, nos meses de agosto e setembro de 2014, em uma unidade de internação clínica-cirúrgica de um hospital universitário da região sul do Brasil. **Resultados:** Foram realizadas 641 avaliações, as quais evidenciaram que, em 329 (51,3%) das observações, os pacientes necessitaram de cuidados semi-intensivos, seguidos de 205 (32%) de cuidados intermediários, 92 (14,4%) de cuidados intensivos e 15 (2,3%) de cuidados mínimos. **Conclusão:** Os resultados permitiram identificar a dependência dos pacientes em relação ao cuidado de enfermagem e evidenciaram maior concentração de avaliações em cuidados semi-intensivos. Tal fato leva-nos a refletir sobre as mudanças no perfil epidemiológico dos pacientes internados na instituição.

Palavras-chave: Avaliação em enfermagem; Classificação; Gestão da segurança; Recursos humanos de enfermagem.

Resumen

Objetivo: Medir el grado de dependencia de los pacientes en relación con el equipo de enfermería utilizando el Sistema de Clasificación de Pacientes (SCP) propuesto por Perroca. **Métodos:** Estudio descriptivo y exploratorio que aplicó la herramienta desarrollada por Perroca durante 43 días, entre agosto y septiembre de 2014, en una unidad de internación clínica y quirúrgica de un hospital universitario en la región sur de Brasil. **Resultados:** Fueron efectuadas 641 evaluaciones, las cuales evidenciaron que: en 329 (51,3%) de las observaciones, los pacientes necesitaron de cuidados semi-intensivos; seguido de 205 (32%) pacientes para cuidados intermediarios; 92 (14,4%), de cuidados intensivos; y 15 (2,3%), de cuidados mínimos. **Conclusión:** Fue constatada la dependencia de los pacientes en relación al cuidado de enfermería, además de evidenciar mayor concentración de evaluaciones en cuidados semi-intensivos. El resultado propone reflexionar acerca de los cambios en el perfil epidemiológico de los pacientes internados en la institución.

Palabras clave: Evaluación en Enfermería; Clasificación; Gestión de la Seguridad; Profesionales de Enfermería.

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INTRODUCTION

Increasing complexity in care production processes and changes in users' service demands have required restructuring in health organizations and management models[1,2]. Advance of technologies and their inclusion in health care allowed improvements in caring of the patients, thus changing complexity levels of required care and resulting in increased lifetimes. This technological support has not generated impact on the reduction of human resources, as it did in other sectors of the economy, but rather required more highly qualified professionals to incorporate practices into everyday safety at work [1,3]. The context has become a challenge for the management of health institutions in Brazil, because the demands of an effective and efficient assistance require an adequate management of human resources[4]. In this understanding, it becomes important to discuss questions concerning the degree of patient dependency in relation to nursing care as well as of their impact on the workload of the nursing team.

The demand of nursing hours has grown considerably in health facilities and the costs of human resources, especially those related to nursing professionals, represent a significant part of hospitals' total costs. In addition, maintaining an adequate nursing workforce is critical to obtaining good results in welfare institutions. Results from a recent study suggest that the increased number of patients assigned to the daily nursing staff implies an increase of the bedding rates, infections related to central vascular catheter, staff turnover and absenteeism. The study also pointed out that where there is a lower number of patients for each nursing professional of the healthcare, quality indicators and management of patient safety show better results[5].

A pioneer in the planning of nursing staff was Florence Nightingale, nursing precursor, who subjectively divided the workers and tasks considering the severity of patients[1]. Historically, the first methods for personnel dimensioning were intuitive and based on the division of beds/patients to number of professionals, a process that in some places is used to present day. In recent years, the Federal Council of Nursing (COFEN) have been concerned with establishing parameters for the dimensioning of nursing staff in health institutions, defining qualitative and quantitative criteria. These criteria are based on averages of hours care required by patients according to type of degree of dependency on nursing care[6,7].

To this regard, initiatives are being taken to develop tools that help measuring the degree of patient dependency in relation to nursing care as well as hours of necessary assistance to specific groups of patients. These instruments can be useful to assist in complying with established regulations and to guide decision-making related to both care processes and management processes, both of nurses' competence. According to rules, the number of nursing hours required per bed per 24 hours to attend patients classified within the different categories is 3.8 hours for patients with minimal care, 5.6 hours for intermediate care, 9.4 hours for semi-intensive care, and 17.9 hours for intensive care[6,7].

Thus, the patient classification system (PCS) is a process through which to obtain accurate measurements of care needs of patients and nursing staff workload[8]. This process produces a classification data source that can be used for the qualitative and quantitative human resource planning as well as material resources necessary to ensure secure nursing care. Also, the use of a patient classification system allows to know the profile of users and to plan more individualized care, focused on the needs of patients and nursing staff[9].

The quantification of care required by patients can be an ally of managers, serving as a support for institutional management processes and assisting in the management of costs. In addition, it can provide better utilization of physical space and human resources, ensuring greater effectiveness and productivity of the nursing team, returning a safer and more skilled care for patients and professionals.

Many authors[3,4,8] have worked with tools and instruments aimed at identifying care needs for nursing care and the nursing hours required to assist certain groups of patients. In this sense, Perroca[8] built an instrument that measures the degree of dependency of patients in increasing levels of care complexity: minimum care, intermediate care, semi-intensive care and intensive care. This instrument was built based on the Theory of Basic Human Needs, advocated by Horta in 1979 and originally composed of 13 critical indicators. Recently, the author revised the instrument, currently containing nine critical indicators: planning and coordination of the care process; research and monitoring; body care and eliminations; caring for skin and mucous membranes; nutrition and hydration; movement and activity; therapy; emotional support; and health education.

In view of these considerations, the aim of this study was to measure the degree of patient dependency in relation to nursing staff using the SCP proposed by Perroca[8].

METHODS

This exploratory descriptive research was developed in a university hospital in southern Brazil that integrates into the network of the Ministry of Education hospitals. The studied hospital destines most of their beds to users of the Unified Health System (SUS), but also holds fewer beds disposable for patients using the supplementary SUS health insurance network.

The inpatient unit where the study was performed has 16 beds for hospitalized adult medical and surgical patients of both sexes, admitted for treatment via the supplementary

SUS health insurance network. The nursing team consists of eight nurses and 16 technicians/nursing assistants divided in morning, afternoon, evening I, II and night III shifts. The morning shift has two nurses and five technical/auxiliary nurses; the afternoon shift has two nurses and four technicians/nursing assistants, performing a weekly workload of 36 hours.

The morning group of technicians/nursing assistants counts one more member because the bathing of patients generally takes place during this shift. During daytime, three or four technicians/nursing assistants and two nurses usually attend the demand for care during each shift, in view of the planned absences. Nurses working in morning and afternoon shifts focus their time off on weekends and holidays and complement the workload with other activities. The unit counts with one nurse working exclusively on weekends and holidays doing 12-hour shifts during the day, and serving a weekly workload of 30 hours.

Each night shift consists of a nurse and two technicians/nursing assistants, meeting a workload of 30 hours per week. There is also a technical nurse operating from Sunday to Friday from 18:30 to 00:45 o'clock, serving a weekly workload of 36 hours, because of the greater demand for work during that period. The unit does not have "strikers" or "holidayers" and coverage of planned and unplanned absences is carried out by members of the nursing staff.

The instrument used to collect the survey data was the SCP as proposed by Perroca[8], evaluating nine indicators in a graduated critical score of one to four. Patients are evaluated in all care areas and get the score that best reflects their needs, being one the lowest level of nursing care and four the highest level of care complexity. The final score allows identifying into one of the four levels of care complexity: minimum care (9 to 12 points), intermediate care (13 to 18 points), semi-intensive care (19 to 24 points) and intensive care (25 to 36 points)[8].

The sample consisted of all patients hospitalized within this unit during the period from 08.01.2014 to 30.09.2014 except for those admitted during weekends. Samples were collected by one of the unit's nurses, from Monday to Friday always at the same time being that the evaluations referred to the 24 hours of the day before. Before applying the instrument, a group of nurses discussed each of the range indicators in order to better interpret it. After this step, the instrument was applied and tested for five consecutive days in order to improve the measurement and the degree of understanding of the scale. Later came the beginning of data collection, for two months, totaling 43 days of collection. It is important to observe that patients were evaluated and classified daily regardless of having been evaluated already in previous days, because the SCP considers the bed, irrespective of the patient that is occupying it. Data was collected consulting the medical records and by direct observation, that is, using knowledge of patients' care needs acquired during nursing care to those users.

The study data were organized in a spreadsheet in the software Microsoft Excel for *Windows®* and statistically analyzed with the *Statistical Package for Social Sciences* (SPSS/PASW) version 18.0 for Windows®. The sample obtained has allowed analysis at a 95% confidence level.

The study was approved by the committee on ethics in research of the institution under number 12-0332 and meets the requirements of Resolution 466/12 of the National Health Council[10].

RESULTS

During the period from August to September 2014, the occupancy rate of beds in the unit was 86.89% and 85.2% respectively, and the average stay of patients was 8.46 days and 8.18 days, respectively. During this period, 47 times the beds remained unoccupied for 24 hours and were not evaluated. This resulted in 641 reviews of 98 patients in 43 days of collection.

As to the characterization of the sample, 394 (61.5%) of the observations were with male patients and 247 (38.5%) with female patients. Regarding the type of specialty, 401 (62.6%) observations were clinical patients and 240 (37.4%) of surgical patients. In terms of age, 418 (65.2%) observations were patients of 60 years or over and 223 (34.8%) observations of patients younger than 60 years. In Figure 1 we can observe the distribution of the total of patients in the evaluations of four levels of complexity care.

Figure 2 shows the comparison between the results of this study and two studies in the same institution in previous years, 2000[11] and 2003[12].

The growing complexity in care production processes combined with the use of technology in healthcare has provided improvements in practices of assistance and care. This also helped in promoting the increase in population life expectancy, causing change in the complexity of the users of the service demand. Thus, Figure 3 shows the increase of the degree of complexity of care required for patients aged 60 years or over, compared to patients younger than 60 years.

These results demonstrate that the need for hospitalization and more complex care, available in health institutions, tends to increase as life lasts. In the age group of 60 years or over, the percentage of assessments concentrated in the category intensive care draws attention: 86 (20.6%) compared to 6 (2.7%) of the age group under 60 years. Evaluations in the age group of less than 60 years focused on the levels of complexity of intermediate and semi-intensive care while the age group of 60 years or over covered intermediate, semi-intensive and intensive care. In both age groups, less than

Figure 1. Total Distribution of ratings of patients in the four levels of complexity of care into numerical values and percentages. PORTO ALEGRE

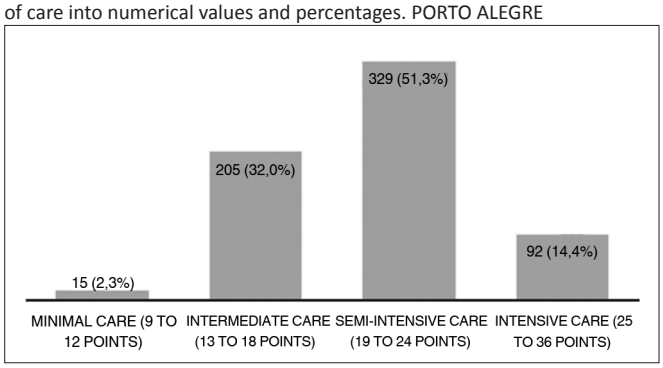


Figure 2. Comparison of the distribution in the four levels of complexity of care of patients with two studies conducted in previous years at the same institution. PORTO ALEGRE

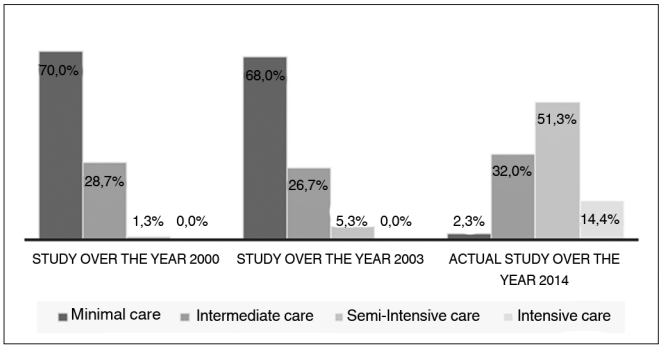
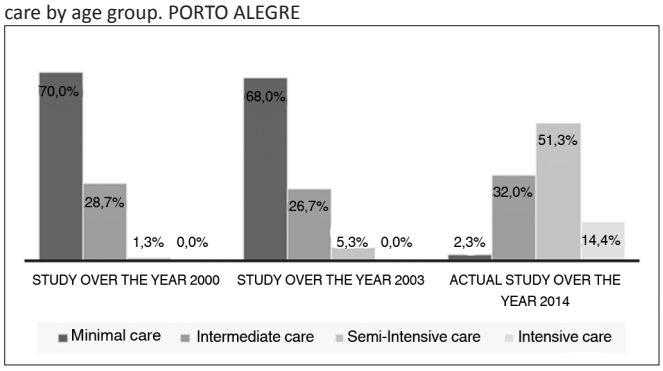


Figure 3. Distribution of ratings of patients in the four levels of complexity of care by age group. PORTO ALEGRE



60 years and 60 years or over, the number of evaluations for minimal care was very small 6 (2.7%) and 9 (2.1%), respectively, indicating a reduction of users hospitalized with this profile of care complexity.

Table 1 shows all critical indicators evaluated by the scale and the average scores obtained in each one of them in descending order.

DISCUSSION

Analyzing the degree of need for care of patients, we observed a greater concentration on semi-intensive care, followed by intermediate and intensive care. These results draw attention when compared to similar research[11,12] conducted in previous years in the institution, in which the results pointed to the predominance of straight minimal care or intermediate care and the lack of intensive care.

Table 1. Average scores on the critical indicators of Perroca Scale. Porto Alegre

Critical indicators	Average score
Therapy	3.3 points
Research and Monitoring	2.7 points
Movement and activity	2.5 points
Body care and Eliminations	2.3 points
Care Process Planning and Coordination	2.2 points
Care Skin and mucous membranes	2.2 points
Nutrition and Hydration	1.9 points
Health education	1.5 points
Emotional support	1.3 points

Considering that the site of study is an inpatient unit, no high rates of patients in semi-intensive and intensive care would be expected, because to meet this kind of demand, more contribution of human, material and technology, is required but often not readily available in inpatient units. Despite the predominance of minimal and intermediate care needs in both surveys held previously[11,12] in the institution of the study, it is possible to observe a slight increase of care complexity requested by the patients, possibly indicating an upward curve over the years, as well as a change in profiles of patients of currently hospitalized in the institution.

The scores found in this study, added to the small number of needs for minimal care of observations are provocative and cause some reflections. The survey was conducted in a large hospital and reference center for health care, so possibly the care needs of hospitalized patients are more complex than in other institutions with different characteristics. Moreover, the institution does not have a semi-intensive care unit, which results in the fact that many patients who need more specialized care units remain in the hospital.

The growing demand for beds in the Intensive Care Unit (ICU) has generated the need to reduce the permanence in this unit, resulting in the transfer of patients even in complex conditions for inpatient units[3]. This lack of ICU beds is a problem in most health institutions, a fact that causes further delay in the admission of patients in critical care units, resulting in the worsening of the clinical condition of patients still in hospital units.

Most published studies using Perroca's instrument to measure the degree of complexity of the patients had similar results to those found in research[11,12] held in previous years in the institution. However it is important to note that all of these studies used the first scale model developed by the author, which covered 13 critical indicators. In a study of instrument rating, the author pointed out that in many cases in which the scale was

applied, a tendency to underestimate the category of care to which the patient belonged was noticed, indicating the need for revision of the instrument[13].

Critical indicators that had higher average scores in this study were therapeutic, research and monitoring, movement and activity, body care and eliminations. In a recently held study[5], the nursing staff noted that the care related to drug administration, the bed bath and transport of patients are those having more repercussions on the workload, corroborating with the results of this study. In a survey[13] held by the author of the scale, it was noted that the critical indicators with higher discriminatory capacity are therapy, body care and skin mucosa integrity, and health education, which also appears prominently in this study.

Study[14] recently pointed out that patients over 60 years of age are more likely to associate comorbidities, but the nursing workload was not different among the elderly in different age groups. Another study[15] however, identified that there is a worsening of the health of the elderly and health professionals should consider the changes caused by aging and the possible increase in dependency on nursing care, since the longevity comes with an increased prevalence of chronic diseases and health injuries. Elderly patients are not always comprised in a higher level of complexity of care due to instability, but can have a great dependency on the nursing staff for the care of their basic needs due to chronic conditions such as physical, cognitive and emotional disabilities[16]. This fact was observed in this study, as were lower scores on the needs of care among patients younger than 60 years and higher scores among those aged 60 years or over.

It must be remembered that for purposes of allocation of human resources, not only the degree of dependency of patients should be taken in consideration, but also the philosophy and the institution's work process. The location of this study is an educational hospital, receiving many students needing guidance, training and constant supervision by professionals, especially nurses, professionals who are constantly close to the patients, which influences the number of hours of assistance. Furthermore, the research institution is internationally accredited and has a work process based on patient safety protocols. Similarly, the realization of systematization of nursing care is included in the daily work, and daily the nurses perform the steps of the Nursing Process. These different work demands require a good level of knowledge and time for the meeting. Often this demand can not be measured using only the patient classification instruments, but the proper planning of human resources should also be taken into account.

As a limitation of this study, we can mark the sample size and the single study unit, which do not allow generalizations or other inferential analysis. This fact reaffirms the need to maintain a systematic implementation tool to know the profile of patients in relation to nursing care in detail.

FINAL CONSIDERATIONS

The results showed the dependency of patients in relation to nursing care and showed greater concentration on semi-intensive care, followed by intermediate and intensive. These results lead us to reflect on the changes in the epidemiological profile of patients admitted to the institution. Thus, we can think about the need for systematic application of classification tools as a way to assist in the planning and management of the institution to ensure better reallocation of resources and hence greater safety for patients and for health professionals.

Nursing leaders need to commit to the implementation of enforcement tools that assist in the management of human, material, technological and financial resources in order to ensure the achievement of a comprehensive care and insurance that seek better care practices, guiding the service organization and decision making. In this sense, the use of SCP as a management tool may favor using a uniform language to assist in restructuring and adaptation of institutional resources, promoting quality care, since the definition of the number of patients assigned to each nursing professional may be more needs to know when best to care complexity profile.

REFERENCES

1. Magalhães AMM, Riboldi CO, Dall' Agnol CM. Planejamento de recursos humanos de enfermagem: desafio para as lideranças. Rev Bras Enferm. 2009; 62(4): 608-20.
2. Marquis BL, Huston CJ. Administração e liderança em enfermagem: teoria e prática. 8ª ed. Porto Alegre: Artmed; 2015.
3. Macedo ABT. Avaliação da carga de trabalho, estresse psicossocial e resiliência nos profissionais de enfermagem em uma unidade de internação para adultos portadores de germes multiresistentes [dissertação de mestrado]. Porto Alegre: Universidades Federal do Rio Grande do Sul; 2013.
4. Gaidzinski RR, et al. Dimensionamento informatizado de profissionais de enfermagem: inovação tecnológica. Rev Esc Enferm USP. 2009; 43(spe2): 1314-19.
5. Magalhães AMM, Dall' Agnol CM, Marck PB. Carga de trabalho da equipe de enfermagem e segurança do paciente - estudo com método misto na abordagem ecológica restaurativa. Rev Latino-Am Enfermagem. 2013; 21(spe): 146-54.
6. Conselho Federal de Enfermagem (Br). Resolução COFEN-189/1996, de 25 de março de 1996. Estabelece parâmetros para dimensionamento do quadro de profissionais de enfermagem nas instituições de saúde. Rio de Janeiro: COFEN; 1996. [citado em: 25 jan 2015]. Disponível em: http://www.cofen.gov.br/resoluo-cofen-1891996-revogada-pela-resoluo-cofen-2932004_4249.html.
7. Conselho Federal de Enfermagem (Br). Resolução COFEN-293/2004, de 21 de setembro de 2004. Fixa e estabelece parâmetros para dimensionamento do quadro de profissionais de enfermagem nas unidades assistenciais das instituições de saúde e assemelhados. Rio de Janeiro: COFEN; 2004. [citado em: 25 jan 2015]. Disponível em: http://www.cofen.gov.br/resoluo-cofen-2932004_4329.html.
8. Perroca MG. The new version of a patient classification instrument: assessment of psychometrics properties. J Adv Nurs. [Wiley Online Library] 2012 [citado em 20 Mar. 2015]. 69(8):1862-8. Disponível em: http://onlinelibrary.wiley.com/doi/10.1111/jan.12038/pdf.

9. Perroca MG. Desenvolvimento e validação de conteúdo da nova versão de um instrumento para classificação de pacientes. Rev Latino-Am Enfermagem. 2011; 19(1): 58-66.
10. Conselho Nacional de Saúde (Br). Resolução CONEP-466/2012, de 12 de dezembro de 2012. Define as diretrizes e normas reguladoras para as pesquisas envolvendo os seres humanos. Brasília: Diário Oficial da União; 2013. [citado em: 28 jan 2015]. Disponível em: http://conselho.saude.gov.br/resolucoes/2012/Reso466.pdf.
11. Lopes ACS. Classificação do grau de dependência de pacientes em uma unidade de internação cirúrgica de um hospital geral universitário de Porto Alegre [monografia de conclusão de curso]. Porto Alegre: Universidade Federal do Rio Grande do Sul; 2000.
12. Fonseca JP, Echer IC. Grau de dependência de pacientes em relação à assistência de Enfermagem em uma unidade de internação clínica. Rev Gaúcha Enferm. 2003; 24(3): 346-54.
13. Perroca MG. Instrumento de classificação de pacientes: opinião de usuários e análise de indicadores de cuidado. Rev Esc Enferm USP. 2008; 42(4): 656-64.
14. Freitas ERFS. Perfil e gravidade dos pacientes das unidades de terapia intensiva: aplicação prospectiva do escore APACHE II. Rev Latino-Am Enfermagem. 2010; 18(3): 317-23.
15. Urbaneto JS, et al. Grau de dependência de idosos hospitalizados conforme o sistema de classificação de pacientes. Rev Bras Enferm. 2012; 65(6): 950-4.
16. Brito AP, Guirardello EB. Nível de complexidade assistencial dos pacientes em uma unidade de internação. Rev Bras Enfe 2012; 65(1): 92-6.