

COMPARATIVE STUDY BETWEEN TWO INSTRUMENTS FOR CLASSIFYING PATIENTS¹

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ABSTRACT

This study aimed to comparing patients' classification by areas and categories of care assessed through the application of two versions of a patients' classification instrument proposed by Perroca (original and new versions). Ninety patients from a teaching hospital in the countryside of the State of São Paulo were ranked by 12 nurses, allocated in five inpatient units. These professionals were divided into two groups and each of them applied a version of the instrument (original and new) with the same patients. The Kappa statistic (ponderated) with 95% of confidence interval was applied to determining the level of agreement between the two versions. There was found kw of 0,60 (95% CI: 0,49 to 0,70). The instruments showed agreement in the categories of care in 49/90 patients evaluated. Of the 41 disagreements obtained, in the new version, 40/41 were classified in the category of care above the original version and 1/41 below. The highest agreement was observed in the categories of intensive and semi-intensive care, and the lowest in the category of intermediate care. The new version of the instrument seems to capture more precisely the patient's care category in relation to nursing.

Keywords: Needs Assessment. Nursing Assessment. Nursing Care. Workload.

INTRODUCTION

Scales to measure phenomena have been common in various areas of knowledge and, in nursing, their application has been growing. Nurses need, increasingly, to base their practice on valid and reliable scales for sustainable decision-making in evidence⁽¹⁾. One of these scales, the patient classification instrument (ICP) can be considered as a performance indicator related to people management. Its application allows the identification of the care of patients for nursing needs, generating data that can be used for planning and effective evaluation of nursing care, management decision making on quantitative adjustment / quality of staff, cost of services and monitoring productivity⁽²⁾.

Two parameters of fundamental importance to ensure the legitimacy of a measure are its validity and reliability. The term validity refers to the level to which the instrument shows appropriate to measure what is supposed to measure. Already reliability relates to the level of precision^(3,4). That way, when a range is developed it needs to go through a series of psychometric tests to ensure its validation.

The classification instrument proposed by Perroca, original version^(5,6) is based on the individual needs nursing care and is intended for adult patients. Developed and validated at the end of the nineties, it is composed of 13 areas grouped the patients into four care categories (minimum, intermediate, semi-intensive and intensive). Its use in several hospitals; however, provided comments that the instrument would not be estimating the patient's care category according to the perception of nurses.

Since then, it has undergone a series of tests in search of updating and refinement culminating in its reconstruction and validation at the end of the 2000^(1,7). In this new version, also based on individualized nursing care needs, nine areas of care are described and the same categories of covered care. Although they were obtained evidence of reliability and validity indicating its use to guide the care and managerial practice of nurses and their effective implementation in different care settings, emerged the concern to investigate whether this new version is able to capture more accurately the demand for nursing care of patients and their variations from the original version. *What is the level of agreement in the gradations of care*

¹Study linked to the research group Health Services Management and Nursing (GESTSAÚDE).

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areas and in the categories of care between the two versions of the instrument?

In pursuit of this outlined to this survey response that aims to compare the classification of patients by field and category of care obtained through the application of two versions of a patient classification instrument proposed by Perroca (original and new versions).

MATERIALS AND METHODS

This comparative descriptive study was conducted in a public teaching hospital with extra capacity, located in the state of São Paulo. The institution study field acts as referral hospital throughout the region attending various clinical and surgical specialties through the Unified Health System (SUS) and agreements. For this purpose we used two versions of a classification instrument^(1,5-7).

Ninety patients were classified by 12 nurses placed in four hospital units, a medical clinic, Surgical and two specialized (Intensive Care Unit Adult and Infectious Diseases and Parasitic) during the period from September / 2011 to April / 2012. The choice of these units was due to a familiarity of nurses with the instruments used.

After the free and informed consent of the nurses working in the investigated units, orientation was conducted on the content and form of operation of the instruments with subsequent simulated situation. The evaluator nurses were divided into two groups. The first applied the original version^(5,6) and the other the new version^(1,7). Both instruments were applied simultaneously in the same patients.

Forms were distributed to participants to record the data. They had two parts: the first covered patient identification data, date and time data collection; and the second part of a table containing the fields of care and space for the registration of the marks obtained in each area, the total score, care category to which the patient belonged and nurse who carried the name of the classification.

It is noteworthy that the collection was initiated only after the permission of the hospital administration, nursing management, consent of

the participating nurses and favorable opinion of the Ethics Committee of the institution's field of study (Opinion No. 254/2011).

The Kappa statistic (weighted) with 95% confidence interval (CI) was used to verify the degree of agreement in the areas of care and the different care categories (minimum, intermediate, semi-intensive and intensive) between the two versions instrument. The figures were interpreted by the agreement levels suggested in the literature⁽⁸⁾ as follows: <0.20 = poor; 0.21- 0.40 = relative; 0.41-0.60 = moderate; 0.61-0.80 = good and 0.81-1.00 = very good.

The scales were considered ordinal level of measurement. Thus, we used the Spearman correlation coefficient to establish associations between care areas of the instruments ($p < 0.05$). The Cronbach's alpha was used to assess the internal consistency. It was considered one degree of disagreement when the patient was classified in a next higher care category (minimum / intermediate) or lower (intermediate / minimum) found in the other and so for the other grades. For statistical analysis we used the Vassarstats web site for Statistical Computation⁽⁹⁾ and Minitab Statistical Software (MINITAB) version 15.

RESULTS AND DISCUSSION

The patients were mostly male (61.1%) and were admitted the following units: Clinical-Medical (35.5%), Surgery (33.3%), UTIA (16.7%) and Infectious and Parasitic Diseases (14.5%).

The original instrument had a mean score of 28.2 (SD = 15.2) and the new version of 17 (SD = 5.5). In both versions the patients were classified mostly as minimal care, respectively, 53.4% and 30%. This category also represented the highest percentage agreement between the two instruments - 30%.

A more homogeneous distribution was observed between categories and more semi-intensive care patients ($n = 25$, 27.8%) and intensive ($n = 13$, 14.4%) in the new version.

The classification of patients according to each of the instruments is presented in Table 1.

Table 1. Classification of patients into categories of care according to the two instruments (original and new version) (N=90). São José do Rio Preto, 2012.

Categories of care	Original N(%)	New Version N(%)	Concordance N(%)
Minimum	48(53,4)	27(30,0)	27(30,0)
Intermediate	20(22,2)	25(27,8)	6(6,6)
Semi-intensive	13(14,4)	25(27,8)	8(8,8)
Intensive	9(10,0)	13 (14,4)	8(8,8)

The new version ranked 40/41 patients in the above categories care and 1/41 of the original version below. The highest agreement was observed in the intensive care categories

and semi-intensive, and less in the category of intermediate care.

It can be seen from Table 2 that there was diversity in grades obtained in the assessments of 90 patients. The gradation refers to each of the items of the care areas of the instruments. There are five in the original and four versions in the new version. The higher the gradient, the greater the patient's attention demands in relation to nursing.

However, the ratings higher incidence occurred in gradation 1 in all care areas. It was observed that eight of them were above 50% on this gradation. Vital signs (76.6%), Education for Health (71.1%) and oxygenation (63.3%) were the areas that had higher percentages.

Table 2. Variation of found gradations according to the original instrument. São José do Rio Preto, 2012.

Areas of care	Gradation1 N(%)	Gradation2 N(%)	Gradation3 N(%)	Gradation4 N(%)	Gradation5 N(%)
Mental State	55(61,1)	12(13,3)	8(8,8)	8(8,8)	7(7,7)
Oxygenation	57(63,3)	17(18,8)	2(2,2)	2(2,2)	12(13,3)
Vital Signs	69(76,6)	6(6,6)	1(1,1)	-	14(15,5)
Nutrition	46(51,1)	12(13,3)	7(7,7)	10 (11,1)	15(16,6)
Motility	38(42,2)	13(14,4)	7(7,7)	12(13,3)	20(22,2)
Locomotion	39(43,3)	13(14,4)	2(2,2)	4(4,4)	32(35,5)
Body Care	36(40,0)	13(14,4)	3(3,3)	7(7,7)	31(34,4)
Eliminations	37(41,1)	12(13,3)	11(12,2)	8(8,8)	22(24,4)
Therapeutic	35(38,8)	16(17,7)	33(36,6)	-	6(6,7)
Health Education	64(71,1)	7(7,7)	7(7,7)	2(2,2)	10(11,1)
Behavior	54(60,0)	19(21,1)	2(2,2)	6(6,7)	9(10,0)
Communication	55(61,1)	12(13,3)	-	9(10,0)	14(15,5)
Cutaneous Integrity	53(58,8)	14(15,5)	14(15,5)	4(4,4)	5(5,5)

Considering the new version of the instrument there was a greater variety in the distribution of patients in gradations, and only two areas showed higher percentage than 50% in grading 1 - emotional support (70%) and therapy (53%) (Table 3).

To assess the internal consistency of the instruments there was used Cronbach's alpha yielding values of 0.94 for the original tool and 0.89 to the new version. The item-total correlation in the original version ranged from 0.24 to the area of Health Education 0.94 for

the Body Care and Eliminations, while the new version ranged from 0.15 to 0.89 Education and Health Care for body and Eliminations (Table 4).

The associations between care areas of the two instruments (except the area of Planning and Coordination of Care Process) are shown in Table 5. There was a variation of 0.37 (Emotional Behavior Support x) to 0.89 (x Body Care Eliminations and Locomotion or Activity x Locomotion).

Table 3. Variation of found gradations according to the new version. São José do Rio Preto, 2012.

Areas of care	Gradation 1 N(%)	Gradation 2 N(%)	Gradation 3 N(%)	Gradation 4 N(%)
Care Process Planning and Coordination	24(26,6)	50(55,5)	4(4,44)	12(13,3)
Search and Monitoring	44(48,8)	15(16,6)	16(17,7)	15(16,6)
Body Care and Eliminations	33(36,6)	15(16,6)	24(26,6)	18(20,0)
Care of Skin and Mucous Membranes	37(41,1)	31(34,4)	15(16,6)	7(7,7)
Nutrition and Hidratation	44(48,8)	23(25,5)	10(11,1)	13(14,4)
Locomotion or Activity	35(38,8)	19(21,1)	24(26,6)	12(13,3)
Therapeutic	48(53,3)	25(27,7)	14(15,5)	3(3,3)
Emotional Support	63(70)	23(25,5)	3(3,3)	1(1,1)
Health Education	42(46,6)	41(45,5)	6(6,6)	1(1,1)

This study compared the classification of patients by field and category of care by applying an original instrument and its new version. According to the original version, most patients (53.4%) belonged to the category of minimal care, while in the new version it represented only 30% of the patients. It was observed that the distribution of patients among the four categories of care occurred differently in the two scales. At first,

there was a clear concentration of patients in the minimal care category with a gradual decrease in the subsequent categories. A more equitable distribution between the categories found when applied to refined version. Also, the latter ranked a higher number of patients, as belonging to the category of intermediate and semi-intensive care, like a more accurate assessment of the demand for nursing care of patients from the original version.

Table 4. Item- total correlation of each instrument. São José do Rio Preto, 2012.

Original Instrument	r_s	New Version	r_s
Mental State	0,79**	Planning	0,48**
Oxygenation	0,76**	Search and Monitoring	0,50**
Vital Signs	0,67**	Body Care and Eliminations	0,89**
Nutrition	0,85**	Care of Skin and Mucous Membranes	0,82**
Motility	0,93**	Nutrition and Hydration	0,82**
Locomotion	0,91**	Locomotion or Activity	0,84**
Body Care	0,94**	Therapeutic	0,73**
Eliminations	0,94**	Emotional Support	0,37**
Therapeutic	0,80**	Health Education	0,15**
Health Education	0,24*		
Behavior	0,57**		
Communication	0,77**		
Cutaneous Int.	0,55**		

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).

It was found moderate agreement - κ W 0.60 (95% CI: 0.49 to 0.70) between the two scales and predominance of degree of disagreement¹. It was demonstrated that in situations of

disagreement, the new version assessed patients, almost in its entirety (40/41) above the category of the original version.

Table 5. Correlation between areas of the original instrument and the new version. São José do Rio Preto, 2012.

New Version	Original Instrument	r_s
Search/ Monitoring	Mental State	0,40**
	Oxygenation	0,59**
	Vital Signs	0,57**
Body Care/ Eliminations	Body Care	0,86**
	Eliminations	0,89**
Care skin and mucous	Cutaneous Mucous Membranes Int.	0,58**
Nutrition and Hydration	Nutrition/Hydration	0,86**
Locomotion or Activity	Motility	0,83**
	Locomotion	0,89**
Therapeutic	Therapeutic	0,67**
Emotional Support	Behavior	0,37**
	Communication	0,11**
Health Education	Health education	0,57**

**Correlation is significant at the 0.01 level (2-tailed).

These results were expected, since the instrument's reconstruction aimed at updating and also address the perception of nurses⁽¹⁰⁾ that he had a tendency to underestimate the category of patient care. It is believed that the score of the standardization of the review was instrumental to the most reliable redistribution of patients between care categories. The previous method used class interval, ie the score distributed evenly across all categories. With the change, the intervals become differentiated being considered that patients who had more than 40% of the following gradation characteristics should belong to that gradient⁽¹⁾. One has to consider also the effects of the new structure of the instrument with reducing the number of care areas from 13 to nine and a reformulation of the scores of the care areas of 1-5 to 1-4.

There was a positive correlation between all the scales care areas. However, the strength of this relationship varied considerably from moderate to very strong (original version) and moderate to strong (new version). In both the area of Health Care Education presented a weak correlation with the other items. It was observed higher correlations in items related to psychobiological and lower dimension in psychosocial dimension.

The implementation of management tools helps the nurse's work by providing grants for the construction of humanized care and safe⁽¹¹⁾.

Despite the importance of workload measurement and the wide proliferation of classification instruments in several countries, since the 80's, few studies have been concerned to assess whether they realize, similarly to patient care demand relation to nursing. Comparison and equivalence of instruments in relation to the assessment of the complexity of the patients identified service hours and the ability to adequately predict the amount of nursing staff was performed⁽¹²⁾. The findings indicated that they do not measure the resources used in the same way, even when applied in the same population, and which used different evaluation criteria. Survey of populations of different countries (Brazil and Sweden)⁽¹³⁾ compared the level of agreement between two classification instruments meeting certain similarity in the rankings while highlighting the influence of cultural differences. However, none of the above studies established comparisons between versions of the same instrument.

Brazilian study⁽¹⁴⁾ about ICP found that its use is still restricted to the identification of the patient care demand in relation to nursing and more focused on the quantitative and qualitative dimensions of staff in the units. It showed many unexplored areas, among them the use for cost management, improving the quality of its care, productivity and worker health.

Considering the findings of this investigation, it can be seen that the refined version of the instrument seems to represent more faithfully to the patients' care needs enabling more accurate calculation of the time spent by the nursing team in the care process. Since its psychometric properties have been tested, with evidence of validity and reliability^(1,7), it is recommended to carry out further research to analyze the views of users on the use of the new version and its adaptation to the nurse professional practice.

FINAL CONSIDERATIONS

In this research we identified moderate agreement between the two instruments in the different categories of care and also that the new version seems to capture more accurately the patient's care category in relation to nursing. Future research is needed to analyze the views of users on the use of the new version of the instrument.

ESTUDO COMPARATIVO ENTRE DOIS INSTRUMENTOS PARA CLASSIFICAÇÃO DE PACIENTES

RESUMO

Este estudo teve como objetivo comparar a classificação de pacientes por áreas e categorias de cuidados obtidas através da aplicação de duas versões de um instrumento de classificação de pacientes proposto por Perroca (original e nova versão). Noventa pacientes de um hospital de ensino público do interior do Estado de São Paulo foram classificados por 12 enfermeiros, alocados em cinco unidades de internação. Os enfermeiros foram divididos em dois grupos e cada um deles aplicou uma versão do instrumento (original e nova) aos mesmos pacientes. A estatística Kappa (ponderado) com 95% de intervalo de confiança foi aplicada para a verificação do grau de concordância entre as duas versões. Encontrou-se κ de 0,60 (IC 95%: 0,49 - 0,70). Os instrumentos apresentaram concordância nas categorias de cuidado em 49/90 pacientes avaliados. Das 41 discordâncias encontradas, na nova versão, 40/41 foram classificados na categoria de cuidados acima da versão original e 1/41 abaixo. A maior concordância foi observada nas categorias de cuidados intensivos e semi-intensivos, e a menor, na categoria de cuidados intermediários. A nova versão do instrumento parece captar mais precisamente a categoria de cuidado do paciente em relação à enfermagem.

Palavras-chave: Determinação de Necessidades de Cuidados de Saúde. Avaliação em Enfermagem. Cuidados de Enfermagem. Sobrecarga de Trabalho.

ESTUDIO COMPARATIVO ENTRE DOS MÉTODOS PARA LA CLASIFICACIÓN DE PACIENTES

RESUMEN

Este estudio tuvo como propósito comparar la clasificación de pacientes por áreas y categorías de cuidados obtenidas utilizando dos versiones de un instrumento de clasificación de pacientes desarrollado por Perroca (el original y su nueva versión). Noventa pacientes de un hospital de enseñanza en el interior de São Paulo fueron clasificados por doce enfermeros alocados en cinco unidades de internación. Los enfermeros fueron divididos en dos grupos y cada uno de ellos aplicó una versión del instrumento (original y nueva) a los mismos pacientes. La estadística Kappa (ponderado) con un intervalo de confianza de 95% fue aplicado para determinar el nivel de acuerdo entre las dos versiones del instrumento. Se encontró el κ de 0.60 (IC de 95%: 0,49 a 0,70). Los instrumentos demostraron acuerdo en las categorías de cuidado en 49 de 90 pacientes evaluados. De los 41 desacuerdos en la nueva versión, 40 de 41 fueron clasificados en la categoría de cuidado por encima de la versión original e 1 de 41 por debajo. El más alto acuerdo fue observado en las categorías de cuidado intensivo y cuidados semi-intensivos, y el menos, de cuidado intermediario. La nueva versión del instrumento parece capturar más precisamente la categoría del cuidado de pacientes en relación a la enfermería.

Palabras clave: Evaluación de Necesidades de Cuidados de Salud. Evaluación de Enfermería. Atención de Enfermería. La Carga de Trabajo.

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