Agreement between nurses regarding patients' risk for developing pressure ulcer

Concordância entre enfermeiros quanto ao risco dos pacientes para úlcera por pressão

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Abstract

Objectives: To evaluate the agreement between nurses regarding classification and assessment of patients' risk for developing pressure ulcer.

Methods: A descriptive exploratory study conducted with 22 nurses in four intensive care units of Brazilian university hospitals. The Braden Scale was used for assessment and classification of the patients' risk for developing pressure ulcer. To assess agreement, we considered the score obtained by the researcher, nurse specialist, as gold standard parameter for comparison with scores punctuated by assisting nurses.

Results: There was general agreement among nurses only in the assessment of the subscales Sensory Perception, Mobility, Friction & Shear. For classification into risk levels, there was agreement in only two units.

Conclusion: There were differences of agreement between assisting nurses and difference in classification of patients into risk levels.

Resumo

Objetivos: Avaliar a concordância entre enfermeiros quanto à avaliação e classificação de risco dos pacientes para desenvolvimento da Úlcera por Pressão.

Métodos: Estudo descritivo exploratório realizado com 22 enfermeiros assistenciais em quatro Unidades de Terapia Intensiva de hospital universitário brasileiro. Utilizou-se a escala de Braden para avaliação e classificação do risco dos pacientes para Úlcera por Pressão. Para avaliação da concordância, considerou-se o escore obtido pela pesquisadora, enfermeira especialista, como parâmetro ouro para comparação com os escores pontuados pelos enfermeiros assistenciais.

Resultados: Verificou-se concordância geral entre os enfermeiros somente na avaliação das subescalas Percepção Sensorial, Mobilidade, Fricção e Cisalhamento. Quanto à classificação em níveis de risco, houve concordância apenas em duas Unidades.

Conclusão: Foram encontradas divergências de concordância entre os enfermeiros assistenciais e diferença na classificação dos pacientes em níveis de risco.

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Introduction

The prevention of pressure ulcers (PU) is considered an important issue regarding the global movement context for patient safety. It may cause harm of diverse natures to individuals and health services. The PU is also considered one of the negative indicators of healthcare quality of nursing and health services.[1,2]

The risk assessment for the development of the PU and the use of appropriate preventive measures are recommended by international guidelines and cited by the authors as "best practices". Therefore, it can lead to reduce incidence, improve the quality of nursing care and therefore greater safety for patients, especially those admitted to intensive care units.[3-6]

One of the most used scales to help identify the risk of developing PU is the Braden Scale. The total score ranges from 6 to 23, the scores 19-23 indicate patients without risk, 15-18 mild risk, 13-14 moderate risk, 10 to 12 high risk and score ≤ nine indicates very high risk patients.[6,7]

The purpose of the scale is to assist nurses in clinical care to predict whether a patient will develop pressure ulcers and point out risk factors in evidence. From this, the purpose is to plan effective and individualized strategies for prevention based on the risk factors found in patients through the instrument. In order for the scale of risk assessment to reach PU proposal, it is important that nurses know how to use the instrument and there is measure agreement among those who use it.[6,7] A high correlation indicates a high level of agreement between evaluators, a necessary condition to obtain valid scores.[8]

In Brazil, as in other countries, currently, the issue of agreement and reliability of the scale scores and subscale scores of the risk assessment, obtained by different nurses, is important for health care organizations, because it allows the proper classification of PU risk patients to the correct calculation of the incidence of ulcers and improvement of nursing care through the establishment of prevention protocols according to the risk level of the patient.[1,4,7,9-11]

Considering these questions, this study was planned from the situation experienced in a Brazilian university teaching hospital, inserted in the Hospital Quality Commitment Program (HQCP), where the assisting nurses as part of the strategy for Risk Management, use routinely Braden Scale for risk assessment of patients and to monitor the incidence of PU, as well as the prescription of preventive measures.

In this approach, the study aimed to evaluate the correlation between the assisting nurses regarding the assessment and classification of pressure ulcer risk in patients hospitalized in Intensive Care Units.

Methods

It is a descriptive exploratory study with quantitative analysis conducted at the Base Hospital in São Jose do Rio Preto, Brazil. The study was conducted in four intensive care units (ICUs) in the month of October 2009.

It was adopted as inclusion criteria: nurses who were scheduled and working in ICUs on any shift during the entire period of data collection. The study included 22 nurses, three from Emergency ICU, seven from the General ICU, six from the health insurance coverage ICU and six from Coronary ICU.

We selected 72 patients to assess the risk for developing PU. The selection criterion was the length of stay in the ICU of equal or greater than 48 hours, so that there were no significant changes in patient`s health and that all nurses could do the assessments in the same individuals.

For data collection two forms were used: the first, with questions regarding nurses demographics and the second, a standardized instrument in the institution containing the Braden Scale for risk assessment. Data collection was performed by the researcher, a certificated clinical nurse specialized in Dermatology and Stomatherapy, who conducted the physical examination and risk assessment of patients selected by applying the tool above, this assessment was considered the "gold standard" for comparison with assessments made by nurses.

Patient evaluation was made by the researcher twice a week during the month of data collection

in each ICU. Then, after the evaluation by the researcher, in the same day or at most the next day, the nurses performed the evaluation in the same patients during their work shift. They were instructed to only punctuate subscale scores and not to make comments on each others assessments.

The values of total scores and subscale scores of the Braden Scale obtained by assisting nurses were compared to those found by the researcher. To analyze the data we used the softwares Epi Info and Statistical Package for Social Science. The mean values, standard errors and confidence intervals (95%) values were calculated for the total score and subscale scores.

To investigate the agreement between the nurses, the results were analyzed using the Intraclass Correlation Coefficient in the case of observation of quantitative variables. The Kappa coefficient was used in the case of qualitative variable resulting from the total score of the Braden Scale: no risk, mild risk, moderate risk, high risk and very high risk.[12] The ICC values under 0.40 were considered poor; satisfactory, between 0.40 (including) and 0.75; and excellent, values greater than or equal 0.75. In the case of Kappa Statistics Test, it was adopted 1 as the value of total agreement and, negative values, inconsistency.[13,14] In all analyzes the level of significance was set at $\alpha = 0.05$.

The study followed the development of national and international ethics standards in research involving humans.

Results

From the 22 nurses participating in the study, most were female (90.9%), mean age 29 years old, mean time of profession of five years, mean experience time in ICU of four years, and the mean experience time in the current ICU of two years and eight months.

The results showed that only ICU 1 had excellent agreement between the mean subscale scores obtained by nurses and researcher for most subscales.

Considering the four ICUs, the subscales in which nurses and the researcher obtained excellent agreement were Sensory Perception and Mobility.

Table 1. Analysis of agreement between nurses and researcher on the risk assessment by the subscales of the Braden Scale for patients of ICU 1 and 2

Subscale	ICU 1*		ICU 2**	
	ICC*	p-value	ICC**	p-value
Sensory Perception (1–4)	0.99 (0.99 – 1.00)	<0.001****	0.96 (0.90 -0.98)	<0.001****
Moisture (1-4)	0.84 (0.64 – 0.94)	<0.001****	0.27 (0.20 - 0.63)	0.12
Activity (1-4)	0.77 (0.50 – 0.91)	<0.001****	0.56 (0.15 - 0.80)	<0.001****
Mobility (1-4)	0.96 (0.89 – 0.98)	<0.001****	0.91 (0.79 -0.97)	<0.001****
Nutrition (1-4)	0.45 (0.01 – 0.75)	0.02***	-0.55 (-0.80 - -014)	0.99
Friction & Shear (1-3)	0.91 (0.79 – 0.97)	<0.001****	0.86 (0.67- 0.94)	<0.001****

Legend: *ICU 1 (n=19), ICC (95% CI); **ICU 2 (n=19), ICC (95% CI); ***0.01<p≤0.05; **** p<0.01

Table 2. Analysis of agreement between nurses and researcher on the risk assessment by the subscales of the Braden Scale for patients of ICU 3 and 4

Subscale	ICU 3*		ICU 4**	
	ICC*	p-value	ICC**	p-value
Sensory Perception (1-4)	0.91 (0.78 - 0.96)	<0.001***	0.85 (0.62 -0.95)	<0.001***
Moisture (1-4)	-0.04 (-0.47 - 0.41)	0.56	0.21 (-0.32 - 0.64)	0.21
Activity (1-4)	0.00 (-0.44 - 0.44)	0.50	0.00 (-0.50 - 0.50)	0.50
Mobility (1-4)	0.88 (0.72 - 0.95)	<0.001***	0.80 (0.50 - 0.93)	<0.001***
Nutrition (1-4)	0.60 (0.22 - 0.83)	<0.001***	0.16 (-0.37 - 0.61)	0.28
Friction & Shear (1-3)	0.69 (0.35 - 0.87)	<0.001***	0.64 (0.21 - 0.86)	<0.001***

Legend: *ICU 3 (n=19), ICC (IC 95%); **ICU 4 (n=15), ICC (IC 95%); ***p<0,01

The subscale Moisture was the one with less agreement between the nurses and the researcher, classified as poor in ICUs two and four, and there was no degree of agreement in the ICU three (negative ICC).

Regarding the Activity subscale, the ICU two showed satisfactory agreement and the ICUs three and four showed no agreement.

Regarding the Nutrition subscale, there was satisfactory agreement only in ICUs one and three.

For the subscale Friction & Shear, the agreement was excellent in ICUs one and two; ICUs three and four showed satisfactory agreement.

Regarding the total score of the Braden Scale and the classification into risk levels, the results of the analysis of agreement between the researcher and the nurses are shown in Tables three and four. However, when risks were classified, patients who were considered by the researcher with no risk category had to be excluded from analysis because no nurse predicted this category to any patient, this way, so the number of patients was reduced from 72 to 56.

It was found that, in general, no significant difference between the mean total scores obtained by the researcher and nurses, and it was observed only partial agreement in ICUs one and two (kappa <1 and p <0.01).

Table 3. Analysis of agreement between nurses and researcher on the total score of the Braden scale and the classification of patients into risk levels

ICU	Researcher Score $\bar{x}$ ± SD	Nurse Score $\bar{x}$ ± SD	Kappa Coefficient	p-value
1 (n=15)	13.16 ± 3.74 (7-20)	12.5 ± 3.63 (7-19)	0.561	0.0001*
2 (n=12)	14.79 ± 3.52 (10-20)	14.08 ± 3.25 (10-19)	0.862	0.0001*
3 (n=17)	12.21 ± 2.85 (9-20)	12.42 ± 2.37 (10-18,5)	0	0
4 (n=12)	13.20 ± 2.73 (11-19)	13.30 ± 2.16 (10-18)	0.333	0.76

Legend: n - Number of patients assessed and considered for statistical analysis = 56; $\bar{x}$ – arithmetic Mean; SD – Standard Deviation; *p< 0,01

In ICU three, the Kappa value corresponded to zero because it was not possible to perform this coefficient calculation for the category "high risk" found by the researcher for some patients, no nurse predicted any patient in this category.

Considering the levels of risk, there was no difference between the risk assessments given by the researcher with greater frequency by nurses in their ICUs. In ICU one, the predictive predominant risk level was Moderate to researcher and Very High Risk for nurses, in ICU two, High Risk for the researcher and Mild Risk for nurses, in ICU three and four, High Risk for the researcher and Nurses.

Discussion

This study was limited by the size of the group studied. This limitation is due to the own characteristic of studies conducted in actual practice, in which several factors are limiting, such as, shifts change, hours taken, absences and sick leave by medical order.

However, even with this limitation, the study found that, although no significant difference between the mean total scores of the Braden scale obtained by the researcher and nurses, there were differences in the classification of patients into risk levels. The lack of agreement on this point, besides jeopardizing the correct calculation of the incidence of the respective sector, it can also interfere with the proper planning of preventive measures, as these should be prescribed according to the level of risk of each patient.[8,10,11]

Table 4. Classification of patients into risk levels predicted by the researcher and nurses in their ICUs

	ICU 1		ICU 2		ICU 3		ICU 4	
Classification Risk level	Resea (n)	Nur (nav)	Resea (n)	Nur (nav)	Resea (n)	Nur (nav)	Resea (n)	Nur (nav)
No risk	4	0	6	0	3	0	3	0
Mild	3	15	3	49	2	33	1	25
Moderate	6	7	2	19	2	33	2	28
High	3	15	7	37	10	67	8	29
Very high	3	19	1	9	2	0	1	8
Total	19	57	19	114	19	133	15	90

Resea - Researcher; Nur - Nurse; n – number of patients assessed by researcher; nav - number of patients assessed by nurses in their respective ICUs

As for the agreement regarding the six Braden subscales, only two were rated excellent in all ICUs. Moisture and Nutrition subscales presented the biggest agreement problems, corroborating the results obtained by other authors.[7,9-11]

Regarding Moisture, authors cite three possible explanations for the poor agreement found. The first would be that this subscale descriptors require the evaluator to have knowledge about the patterns of sweating and incontinence of the assessed patient. [10] The second, is the fact that these standards may not be evident at first evaluation of the patient, requiring more time for nurses to search for information.[10,11] The third explanation is still the possibility of problems in the interpretation of descriptions of items of the subscale. [7,10,15]

As for the poor agreement in Nutrition subscale, authors emphasize that as this subscale is rated according to the patient's intake, it may be necessary to seek information from other sources about the nutritional history, which require more time from the nurse, possibly representing a barrier for choosing the correct score. [11,15]

It is worth noting that the results showed that although nurses routinely use the instrument containing the summarized Braden Scale, difficulties were presented in the implementation of risk assessment for PU. Authors claim that having the complete version and not the summarized scale of risk available at the workplace, could help in choosing the appropriate descriptions.[6,10,11] It is noticeable that, formal and continuing education of students and professionals aimed at learning and practicing the use of this tool, is essential to improve performance and reliability in the use of the scale, which has been highlighted also by several national and international authors cited above.[2-4,6,8,10,11,15]

Whereas the lack of agreement on the assessment and classification of risk for pressure ulcer can lead to inadequate planning of patient care, this study brings contributions to the institution in which it was performed, since the work allow difficulties and directed planning improvements aimed at preventing the PU. Furthermore, this research contributes to knowledge in nursing because it demonstrates the need to assess agreement between nurses using risk assessment scales for PU in other institutions, to identify the occurrence of similar problems and the need for educational interventions.

Conclusion

Discrepancies were found regarding agreements between assisting nurses and, although no significant difference between the mean total scores of the Braden Scale, differences were found in the classification of patients into risk levels.

Contributions

Simão CMF; Caliri MHL and Santos CB declare that contributed to the conception and design, analysis and interpretation of data, drafting the article, revising it critically for important intellectual content and final approval of the version to be published.

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