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Knowledge of resident nurses on the management of cancer pain: a cross-sectional study

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ABSTRACT

Aims: to evaluate the knowledge of resident nurses regarding the management of cancer pain and the associated sociodemographic and professional variables. **Method**: a cross-sectional study with a target population of nurses who were enrolled in a multi-professional oncology residency program. The nurses' knowledge was evaluated through the "Nurses' knowledge about the cancer pain management – WHO" instrument. Poisson regression with robust variance was used to analyze the association between the variables. **Results**: most (68.2%) of the interviewees presented inadequate knowledge. Adequate knowledge was dependent on training time, as individuals with more than one year of training (PR=0.14, CI 95%, 0.02-0.97) were less likely to present inadequate knowledge. **Conclusions**: there was a predominance of ignorance about the management of cancer pain and adequate knowledge was dependent on professional training time.

Descriptors: Pain; Medical Oncology; Knowledge; Teaching; Nursing.

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INTRODUCTION

Inadequate knowledge and erroneous beliefs of health professionals are among the main barriers to adequate pain control[1], since they lead to underestimation of patients' complaints about pain, use of inadequate analgesic regimes and the persistence of myths and misconceptions of patients and relatives[1-2].

The beliefs related to the control of cancer pain, from the point of view of professionals, are well described in the literature, highlighting the fear of addiction and respiratory depression related to the use of opioids[3].

In addition to the beliefs mentioned above, among Brazilian nurses we observed a lack of knowledge about the concepts related to strategies for the evaluation of cancer pain and to the pharmacological and non-pharmacological measures to control it[1].

These inadequate conceptions are pointed out as reasons for the inadequate control of pain[1-3], which, although frequent and considered an emergency in patients with cancer, is still poorly understood by professionals, a fact that has limited the provision of care to patients.

Cancer pain occurs in between 62.0% and 90.0% of patients, manifesting at all stages of the disease[1] and may be related to the procedures required for diagnosis or treatment, to disease progression or its associated morbidity. Currently, due to its high incidence and mortality, cancer is considered a serious public health issue and 596 thousand new cases of the disease are estimated to be diagnosed in Brazil for the 2016/2017 biennium[4]. We expect, therefore, that cancer pain will remain as one of the most prevalent symptoms.

Pain control requires a multi-professional and multidisciplinary approach and, in this context, nurses take a prominent role, since, although they are not the only professionals in charge of implementing anti-anxiety treatment, they are the ones that most frequently assess pain, the response to implemented therapies and the occurrence of any adverse reactions, which are variables that directly affect the evaluation of the effectiveness of the proposed control strategies and treatment[1,5].

Given the importance of nurses' training in pain and analgesia, as well as in the evaluation of the effectiveness of the inclusion of the theme in undergraduate and postgraduate curricula, diagnosing the knowledge of health professionals about the evaluation and control of these symptoms is of utmost importance, since such measures allow us to identify the gaps and variables related to inadequate control and provide resources to adjust and improve education and training strategies about the pain theme[2].

Some studies have evaluated nurses' knowledge about pain assessment and management[6,7]. However, studies that have evaluated the knowledge of nurses in the training process regarding painrelief[8-10] at the postgraduate level are scarce.

AIMS

To evaluate the knowledge of resident nurses about the management of cancer pain and its associated sociodemographic and professional variables.

METHOD

Sample, Location and Period

This is a cross-sectional study whose target population was the resident nurses who were enrolled in 2013 in the multi-professional oncology residency program (n=29) of a High

Complexity Oncology Center (CACON) in the city of Rio de Janeiro. All subjects of the target population were invited to participate in this study, and the convenience sample consisted of 22 individuals. Six nurses refused to participate (four residents of the first year and two of the second year) and one participated as a researcher and, thus, was not included in the sample. The curricular program included theoretical classes on pain and analgesia, concentrated throughout the second year of residence.

Data collection instruments

To perform the data collection, we used the instrument "Nurses' knowledge about the management of cancer pain – WHO"[11]. It is a self-report instrument, built according to the recommendations of the World Health Organization (WHO), comprising 24 items of the Likert scale, distributed in three domains (pain evaluation, control strategies and continuous care), with 8 items each. Each item is graded and scored according to the frequency of occurrence of the statements that make up the instrument (always=4.16 points, sometimes=1.04 points and never=0). The scores of the domains varied between 0 to 33.28 points and the total score varied between 0 and 100 points, which can be obtained by summing the scores of each item[11].

The instrument had already been used in a previous study performed in this field[12] and we evaluated its reliability through internal consistency in the present study. The overall scale presented good reliability (Cronbach's alpha=0.71) and its domains, pain assessment (Cronbach's alpha=0.64) and continuous care (Cronbach's alpha=0.66), presented reasonable reliability. The 'control strategies' domain presented insufficient reliability (Cronbach's alpha=0.31).

We determined the cut-off point for the total score and for domains using the Receiver Operating Characteristic (ROC) curve. Assuming a sensitivity of 100% and a specificity of 99.0%, the cut-off point was set as 67 points; 22.4 points for the 'pain assessment' and 'continuous care' domains, and 22 points for the 'pain control strategies' domain; lower values than these were considered to be inadequate knowledge.

Data collection procedure

The instrument was distributed during theoretical classes for residents of the first and second years, between June and July 2013. The researchers involved waited for the questionnaires to be returned on the occasion, which took 30 minutes on average.

Data analysis

The statistical analysis was developed in four steps: descriptive analysis, bivariate analysis, multivariate analysis and residue analysis. In the descriptive analysis of the data, we calculated measures of central tendency and dispersion, as well as the absolute (n) and relative (%) frequencies of the classificatory variables. The next step involved the bivariate analysis to verify the existence of an association between each independent variable and the knowledge about the management of pain in cancer. The relationship between the classificatory variables was assessed using the Pearson chi-square test or Fisher's exact test. We used the t-student test to evaluate the quantitative variables and the difference between the means, after verification of normality through the Shapiro-Wilk test.

We performed the multivariate analysis to evaluate the factors associated with knowledge about pain management in cancer, as well as

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to monitor possible confounding variables. In this step, we used the Poisson regression with robust variance; the outcome being adequate or inadequate knowledge. The prevalence ratio (PR) and confidence intervals (95%, CI) were calculated. In these analyzes, we used the sandwich library of the R 3.2.7.1 statistical program.

The response variable was categorized into adequate and inadequate knowledge. The independent variables were gender, religion, year of residence, training time, professional working time, age and level of education, since we believe that they influence the knowledge, beliefs and attitudes related to pain.

All independent variables were categorized, except for the age variable, as there was little variation between these, making it difficult to categorize age groups.

In the unadjusted analysis, the covariates that presented a critical level of $p \leq 0.20$ were considered as choices for permanence in the multivariate model. The adjustment of potentially confounding variables was performed using the step-by-step multivariate technique, with the inclusion of the variables being significantly associated with the response variable in the final model. After the simultaneous inclusion of all major effects, plausible interactions were tested.

The selection of the final model considered the value of the Akaike Criterion (AIC), residue analysis by graphic observation and epidemiological significance. Values of $p \leq 0.05$ were considered significant.

Ethical aspects

The study was approved by the Research Ethics Committee of the institution involved under the opinion 228,334, according to Resolution 466/12 of the National Health Council.

RESULTS

Women and individuals of Christian religion predominated in the study sample. Half of the sample had a training time of greater than one year, 54.5% of the interviewees were in the first year of residence, 50.0% had less than one year of professional experience as nurses and 54.5% had not undergone post-graduation education (Table 1).

Table 1. Socio-demographic and professional characteristics of resident nurses, 2013, Rio de Janeiro

Variables	n (%)	P*
Gender		
Men	1 (4,5)	
Women	21 (95,5)	**0,00001**
Religion		
Christian	19(86,4)	
Non-Christian	3(13,6)	**0,001**
Residence Time		
R1†	12 (54,5)	
R2‡	10 (45,5)	0,66
Training Time		
< 1 year	5(22,7)	
1 year	6(27,3)	
> 1 year	11(50,0)	**0,24**
Active Professional Time		
< 1 year	11(50,0)	
1 year	2(9,1)	
> 1 year	9(40,9)	**0,04**
Education level		
Graduation	12(54,5)	
Post-Graduation	10(45,5)	**0,66**

*Source: Study data *Pearson's chi-square test †1st year ‡2nd year*

Most of the resident nurses presented inadequate knowledge about cancer pain management (68.2%) and a statistically significant difference was found between knowledge level and training time (Table 2).

Source: Study data. § T - Student test

Table 2. Comparison of resident nurses' knowledge about pain management according to sociodemographic and professional characteristics, 2013, Rio de Janeiro

Variables		Adequate		Inadequate		P Value
		n	%	n	%	
Knowledge		7	31,8	15	68,2	
Age	Average (SD)	24,86 (2,54)		25,73 (4,35)		0,56§
Religion						
	Christian	7	100,0	12	80,0	0,52
	Non Christian	0	0,0	3	20,0	
Residence Time						
	R1	6	50,0	6	50,0	
	R2	1	10,0	9	90,0	0,06
Training Time						
	< 1 year	2	28,6	3	20,0	
	1 year	4	57,1	2	13,3	
	> 1 year	1	14,3	10	66,7	0,04
Active Professional Time						
	< 1 year	6	40,0	5	71,4	
	1 year	1	6,7	1	14,3	
	> 1 year	8	53,3	1	14,3	0,22
Education level						
	Graduation	4	57,1	8	53,3	0,60
	Post-Graduation	3	42,9	7	46,7	

Source: Study data. § T-Student test

Table 3. Comparison of the mean scores obtained by resident nurses according to the knowledge about pain management in cancer, 2013, Rio de Janeiro

Knowledge about pain management	Domains							
	Pain Evaluation	P Value	Control Strategies	P Value	Continuous Care	P Value	Total	P Value
Adequate		0,0001§		0,001§		0,0001§		0,0001§
Average	27,5		23,6		28,8		75,8	
(Standard deviation)	(4,2)		(0,6)		(3,2)		(9,0)	
Inadequate								
Average	16,2		15,1		15,3		57,0	
(Standard deviation)	(3,9)		(3,6)		(6,4)		(8,4)	

Source: Study data §T-Student test

Nurses with adequate knowledge had higher average knowledge in all domains and total score than those who presented inadequate knowledge (Table 3).

In the multivariate analysis, the "training time" and "year of residence" variables were included, as they presented a value of p≤0.20 in the univariate analysis of the Poisson regression with robust variance. The model with only the "training time" variable presented the best fit to the data, since it was the only one that remained statistically significant at the 5% level (p≤0.05) and presented a lower AIC value (31.7), when compared to the model that included the variables, "training time" and "year of residence" (p=0.10, AIC=33.6).

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We observed that the knowledge regarding the management of cancer pain was dependent on the time of formation or, in other words, individuals with more than one year of completed graduation had a lower chance of presenting inadequate knowledge (PR=0.14, CI 95%, 0.02-0.97), when compared to those with less than one year of graduation (Table 4).

Table 4. Prevalence ratio of the final regression model of the factor associated with resident nurses' knowledge on pain management in cancer, 2013, Rio de Janeiro.

Variables	Adequate/inadequate knowledge		
	n	%	||PR (CI 95%)
Training time			
<1 year	6	27,3	1
1 year	5	22,7	0,60 (0,17-2,02)
>1 year	11	50,0	0,14 (0,02-0,97)

Source: Study data | |Prevalence ratio

DISCUSSION

The study showed that most of the resident nurses had inadequate knowledge regarding the management of cancer pain. In addition, there was no difference in the level of knowledge among residents of the first and second year, and knowledge was dependent on training time (Table 1 and Table 2).

It was expected that, because they were enrolled in a residency program in oncology, nurses presented basic knowledge and were sensitized to the evaluation, intervention and monitoring of pain, since, in this context, this is one of the most prevalent symptoms and is considered to be an oncology emergency. This prerogative was not observed, although, we found its support in the literature.

A longitudinal study showed that, in the initial evaluation, resident nurses showed moderate prior knowledge regarding aspects of pain management. However, the effects of educational intervention about acknowledgement and attitudes regarding pain, performed between the follow-up assessments, were considered unsatisfactory[12].

These findings can be explained by failures in training in painmanagement and analgesia observed in undergraduate courses in the health area and documented in the literature[8,9,11,12], as well as in those observed at postgraduate level[2], which are confirmed by our results. It may still be related to the time of acquisition of knowledge in the residence and to the application of the instrument of this study, since, possibly the knowledge acquired during the residence period may present decline[12].

Typically, undergraduate curricula do not address specific disciplines on pain. The subject is approached intermittently within larger theoretical blocks or in elective subjects, and there is no concern about the resumption and interconnection of previous information[13].

In the same sense, postgraduate programs in the form of residency, are characterized as in-service training, i.e., there is a prioritization of practice scenarios over theoretical training, which should account for only 20% of the total workload of the program[14].

The theoretical content about pain and analgesia in the residency program, in which the respondents were inserted, was characterized by two theoretical classes that did not reach a total of 10 hours, were concentrated in the second year by the practical activities in hospitalization units, where the students had contact with the systematized evaluation and registry of pain as the 5th vital sign from their first year of residence.

A study that evaluated the knowledge, care measures, pain portfolios and satisfaction measures of 118 students in their first year of medicine, with the aim of proposing a new course based on pain knowledge, stated that pain management was a challenge and that education

in pain relief was an important matter to change mistaken practices. This study concluded that the addition of four days of classes with specialists was an effective educational approach[15].

In this respect, it is considered that this view of the post-graduation in the form of residence should be adapted to the proposed objectives, since the theoretical bases are the foundation for the clinical practices, which, in turn, question the theory, in an interdependent relationship[8], especially when considering that the training of these professionals regarding pain at the undergraduate level is deficient[2,13] and, although it is one of the pillars of the residency, the teaching-practice integration as one of the proposals for the development of specific skills, is still a challenge.

These characteristics contribute to maintain a significant deficit of knowledge about pain, even in professionals at the postgraduate level, and evidence the need for targeted and systematized clinical practice for the consolidation of knowledge[8].

It was also expected that the nurses of the second year of residence presented a higher level of knowledge than the first, since, theoretically, they had more theoretical content on the subject and experienced more opportunities to deal with patients with cancer pain.

However, this assumption was not confirmed and differed from the observed results in a study that analyzed the evolution of knowledge and attitudes of nursing students regarding pain, in one year of follow-up. In the mentioned study, the score related to knowledge and attitudes, which increased significantly as the training time of the students increased, reaching 40% at the end of the four years of the course[8].

It is important to note that, in addition to the fact that we could observe no difference between the knowledge presented by the nurses of the first (R1) and the second (R2) year of residence, the proportion of nurses with inadequate knowledge was higher (90% vs 50%) among R2 nurses (Table 2). These figures are contrary to the findings of the aforementioned studies, which evaluated students at different training moments[8].

It is possible that these results are related to the fact that first-year residents reflect the learning and knowledge acquired during graduation and the inadequate pain teaching strategy used in the residency program, which is characterized by two expository classes in the second year. The lack of theoretical-practical articulation, which is one of the proposals of the residence postgraduate model and a prerogative of training in the pain field, and the lack of knowledge, or insufficient knowledge, of the preceptors[2] that accompany residents in the practice scenarios, are also possible explanations.

Half of the nurses in the first year of residence (R1) also presented knowledge that is considered to be inadequate (Table 2). This finding reinforces the fact that, in addition to theoretical training, other variables are related to knowledge about pain management in cancer, such as the characteristics of the postgraduate program and the training of preceptors on the subject[2,14].

Considering the final model that best fit the data in the multivariate analysis, the variable "training time" was the only one which was related to knowledge about pain management in cancer, i.e., the residents with a longer training time had less chance of presenting inadequate knowledge (Table 4).

This finding differed from that observed in a study among 91 emergency nurses, in which age, time training and professional experience did not influence knowledge about pain and analgesia[16].

These findings show that, for this group, the experiences during the training time were

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more important for the knowledge about pain and analgesia in oncology than the specific training itself. They also confirm the explanatory variables already mentioned and reveal a relevant gap in the training process of these professionals, since it is recommended that the training and sensitization of the students on the subject is developed in a continuous, sequential and progressive way[8].

National validated instruments to assess knowledge about the management of cancer pain are scarce, as are the Brazilian studies that have evaluated the knowledge of health professionals in the process of training on the subject[2,8,9,12].

Education on the subject is a need perceived by professionals and seems to contribute to the improvement of professionals' performance in pain control[17-19]. Among Portuguese nursing graduates, there was a tendency to increase the level of self-perceived knowledge, over the years of training[8]. Among medical students in Greece, undergraduates who attended extracurricular courses related to the subject presented more adequate knowledge regarding the treatment of chronic pain and were more familiar with the classification of the types of pain. In contrast, students who did not have this type of training had little information about pain clinics and little knowledge about opioid use in cancer and chronic non-oncologic pain[13].

Training on cancer pain management improved the average knowledge score of Kenyan nurses between pre- and post-intervention educational assessment, and the mean score of the evaluation performed two weeks after the intervention remained stable[18]. In the same sense, the sensitization of professionals for systematized evaluation and recording, in the context of implementing pain as the fifth vital sign[19], increased the evaluation registries by 70%, and the analgesia in patients with intense pain registry by 88%. This was the best strategy for the control of postoperative pain, since it was related to the increase in the frequency of administration of supplemental morphine and the lower intensity of pain reported by the patients[17].

It is important to emphasize, however, that educational interventions are more effective in increasing knowledge than in changing attitudes, as for the latter, the contact with specialists or specific training seems to be more effective[20].

The study included the majority (78.6%) of the resident nurses and allowed a diagnosis to be made to direct future curricular interventions in this postgraduate program.

The limitations of this study are related to the instrument used in that, although originally submitted to content validation through a committee of experts, it did not have its psychometric properties previously analyzed[14]. In order to obtain a parameter of the accuracy of the measurement used, the reliability of the instrument was tested for the studied population.

The instrument presented good reliability (Cronbach's α=0.71) and its domains, "pain evaluation" (Cronbach's α=0.64) and "continuous care" (Cronbach's α=0.66), presented reasonable reliability. However, the "control strategies" domain presented reliability considered insufficient (Cronbach's α=0.31).

When comparing the average performance of the participants, both in relation to the total score and in relation to the scores observed by domain, a statistically significant difference was observed for all outcomes between individuals with adequate knowledge and individuals with inadequate knowledge (Table 3).

These findings demonstrated that the instrument was able to discriminate between the two groups in relation to knowledge about the management of cancer pain, which was desirable and could be considered as an indication of

its construct validity. We recommend analyzing the psychometric properties of this when applied in larger and different samples.

In view of the findings of the present study, it is extremely important to reformulate the teaching program of this multi-professional residency so that there is no gap between theoretical content and clinical practice. In this sense, a strategy to be used is the discussion of clinical cases, in which the focus is the evaluation and control of pain. In addition, during the postgraduate course, refresher courses on the subject should be offered to both resident and care nurses, and also to preceptors, as they are responsible for the training of resident nurses as well.

CONCLUSIONS

There was a predominance of ignorance about the management of cancer pain among resident nurses and adequate knowledge was dependent on professional training time.

REFERENCES

1. Cunha FF, Rego LP. Nursing and cancer pain. Rev. dor 2015;16(2):142-45. doi: 10.5935/1806-0013.20150027
2. Duke G, Haas BK, Yarbrough S, Northam S. Pain Management Knowledge and Attitudes of Baccalaureate Nursing Students and Faculty. Pain Manag Nurs 2013;14(1):11-19. doi:10.1016/j.pmn.2010.03.006.
3. Ortiz MI, Ponce-Monter HA, Rangel-Flores E, Castro-Gamez B, Romero-Quezada LC, O'Brien JP, et al. Nurses' and Nursing Students' Knowledge and Attitudes regarding Pediatric Pain. Nurs Res Pract 2015;2015:210860. doi:10.1155/2015/210860
4. Instituto Nacional de Câncer José Alencar Gomes da Silva [homepage]. Estimativa 2016: incidência de câncer no Brasil. [internet]. 2015 Nov 27 [cited 2015 Dec 14]. Available from: http://www.inca.gov.br/wcm/dncc/2015/index.asp
5. Buchanan A, Davies A, Geerling J. Breakthrough cancer pain: the role of the nurse. Int J Palliat Nurs. 2014;20(3):126-9. doi:10.12968/ijpn.2014.20.3.126
6. Al-Shaer D, Hill PD, Anderson MA. Nurses' knowledge and attitudes regarding pain assessment and intervention. Medsurg Nurs. 2011;20(1):7-11.
7. Ribeiro MC, Pereira CU, Sallum AM, Alves JA, Albuquerque MF, Fujishima PA. Knowledge of doctors and nurses on pain in patients undergoing craniotomy. Rev Lat Am Enfermagem. 2012;20(6):1057-63. doi:10.1590/S0104-11692012000600007
8. Lobo AJS, Martins JP. Pain: knowledge and attitudes of nursing students, 1 year follow-up. Texto Contexto Enferm 2013;22(2):311-7. doi:10.1590/S0104-07072013000200006
9. Barros SRAF, Pereira SSL, Neto AA. Nursing students qualification as to pain perception in two universities. Rev dor 2011;12(2):131-7. doi:10.1590/S1806-00132011000200010
10. Chow KM, Chan JC. Pain knowledge and attitudes of nursing students: a literature review. Nurse Educ Today. 2015;35(2):366-72. doi: 10.1016/j.nedt.2014.10.019.
11. Ramos MCMH. Manejo da dor no câncer: conhecimento do enfermeiro. [Dissertação]. Salvador: Universidade Federal da Bahia; 1994.
12. Coelho JC, Santos J, Silva MAS, Meira KC, Valle AC. Conhecimento de enfermeiros residentes sobre o manejo da dor no câncer: a influência de uma intervenção educativa. Arq Med Hosp Fac Cienc Med Santa Casa São Paulo. 2016. [No Prelo]. Disponível em: http://www.fcmsantacasasp.edu.br/images/Arquivos_medicos/2016/AO96.pdf
13. Argyra E, Siafaka I, Moutzouri A, Papadopoulos V, Rekatsina M, Vadalouca A, et al. How does an undergraduate pain course influence future physicians' awareness of chronic pain concepts? A comparative study. Pain Med 2015;16(2):301-11.
14. Instituto Nacional de Câncer José Alencar Gomes da Silva. Plano de Curso do Programa de Residência Multiprofissional em Oncologia. Coordenação Geral de Gestão Assistencial. Coordenação de Educação. [Internet]. 2012 Dec [cited 2015 Dec

15]. Available from: http://www1.inca.gov.br/inca/Arquivos/livro_residencia.pdf.
15. Murinson BB, Nenortas E, Mayer RS, Mezei L, Kozachik S, Nesbit S, et al. A new program in pain medicine for medical students: integrating core curriculum knowledge with emotional and reflective development. Pain Med 2011;12(2):186-95. doi:10.1111/j.1526-4637.2010.01050.x.
16. Moceri JT, Drevdahl DJ. Nurses' knowledge and attitudes toward pain in the emergency department. J Emerg Nurs 2014;40(1):6-12. doi:10.1016/j.jen.2012.04.014.
17. Silva MA, Pimenta CA, Cruz DALM. Pain assessment and training: the impact on pain control after cardiac surgery. Rev Esc Enferm USP 2013;47(1):84-92. doi:10.1590/S0080-62342013000100011
18. Machira G, Kariuki H, Martindale L. Impact of an educational pain management programme on nurses pain knowledge and attitudes in Kenya. Int J Palliat Nurs 2013;19(7):341-6. doi:10.12968/ijpn.2013.19.7.341
19. Purser L, Warfield K, Richardson C. Making pain visible: an audit and review of documentation to improve the use of pain assessment by implementing pain as the fifth vital sign. Pain Manag Nurs 2014;15(1):137-42. doi:10.1016/j.pmn.2012.07.007
20. Bartoszczyk DA, Gilbertson-White S. Interventions for Nurse-Related Barriers in Cancer Pain Management. Oncol Nurs Forum. 2015;42(6):634-41. doi:10.1188/15.ONF.634-641.

Authors' contribution in research:

Flávia dos Santos Ferreira: Effective scientific and intellectual contribution to the study; Conception; Acquisition of data; Interpretation of data; Preparation of the manuscript; Writing of the manuscript.

Juliano dos Santos: Effective scientific and intellectual contribution to the study; Design; Data analysis and interpretation; Preparation of the manuscript; Writing of the manuscript. Critical review of the manuscript; Final approval.

Karina Cardoso Meira: Effective scientific and intellectual contribution to the study; Analysis and Interpretation of data; Preparation of the manuscript; Writing of the manuscript. Critical review of the manuscript; Final approval.

All authors participated in the phases of this publication in one or more of the following steps, in According to the recommendations of the International Committee of Medical Journal Editors (ICMJE, 2013): (a) substantial involvement in the planning or preparation of the manuscript or in the collection, analysis or interpretation of data; (b) preparation of the manuscript or conducting critical revision of intellectual content; (c) approval of the versión submitted of this manuscript. All authors declare for the appropriate purposes that the responsibilities related to all aspects of the manuscript submitted to OBJN are yours. They ensure that issues related to the accuracy or integrity of any part of the article were properly investigated and resolved. Therefore, they exempt the OBJN of any participation whatsoever in any imbroglios concerning the content under consideration. All authors declare that they have no conflict of interest of financial or personal nature concerning this manuscript which may influence the writing and/or interpretation of the findings. This statement has been digitally signed by all authors as recommended by the ICMJE, whose model is available in http://www.objnursing.uff.br/normas/DUDE_eng_13-06-2013.pdf

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