

PREVENTION OF PRESSURE ULCERS: EVALUATION OF NURSING PROFESSIONALS' KNOWLEDGE

Layrienne Emmanuely Silva Rocha¹, Edna de Freitas Gomes Ruas², Jaciara Aparecida Dias Santos³, Cássio de Almeida Lima⁴, Jair Almeida Carneiro⁵, Fernanda Marques da Costa⁶

¹RN. Specialist in Family Health. Municipal Health Department. Jaíba, State of Minas Gerais (MG), Brazil.

²RN. M.A in Health Sciences. Lecturer in the Department of Nursing of the Montes Claros State University. Montes Claros, MG, Brazil.

³Undergraduate student of Medicine. Montes Claros State University. Montes Claros, MG, Brazil.

⁴RN. Undertaking Master's degree in Health, Society and Environment. Federal University of Jequitinhonha and Mucuri Valleys. Diamantina, MG, Brazil.

⁵Physician. Doctoral student in Health Sciences. Lecturer at the Integrated Faculties of Pitágoras de Montes Claros. Montes Claros, MG, Brazil.

⁶RN. Doctoral student in Health Sciences. Lecturer at the Integrated Faculties of Pitágoras de Montes Claros. Montes Claros, MG, Brazil.

ABSTRACT: The aim was to assess the nursing team's knowledge regarding measures for preventing pressure ulcers in adults and older adults. The research was descriptive-exploratory with a quantitative approach. A structured questionnaire was used, based on the Pieper Pressure Ulcer Knowledge test. Data collection took place in October – December 2013. The descriptive and bivariate analysis of the data was undertaken with the support of the Statistical Package for the Social Sciences software, version 18.0. Among the 85 professionals, the global mean of the test applied was 84.21% for the nurses, and 68.42% for the nursing technicians. Only 22% of the nurses obtained correct answers for more than 90% of the test on their knowledge, and only 12% of the technicians reached this level. There was a statistically significant difference between greater length of service, greater age and professional category, indicating greater knowledge, above all on the part of the nurses in certain aspects. There is a shortage of knowledge, requiring constant and effective educational interventions so as to improve the care provided.

DESCRIPTORS: Pressure ulcer; Prevention of diseases; Nursing care.

PREVENÇÃO DE ÚLCERAS POR PRESSÃO: AVALIAÇÃO DO CONHECIMENTO DOS PROFISSIONAIS DE ENFERMAGEM

RESUMO: Objetivou-se avaliar o conhecimento da equipe de enfermagem sobre medidas de prevenção de úlceras por pressão em adultos e idosos. Pesquisa descritivo-exploratória e de abordagem quantitativa. Foi utilizado questionário estruturado, a partir do teste de conhecimento de Pieper. A coleta de dados ocorreu entre outubro e dezembro de 2013. O software *Statistical Package for the Social Sciences* versão 18.0 subsidiou a análise descritiva e bivariada dos dados. Entre os 85 profissionais, a média global do teste aplicado foi 84,21% para os enfermeiros e de 68,42% para os técnicos de enfermagem. Apenas 22% dos enfermeiros acertaram mais que 90% do teste de conhecimento e apenas 12% dos técnicos atingiram essa nível. Houve diferença estatisticamente significativa entre o maior tempo de serviço, maior idade e categoria profissional, indicando maior conhecimento, sobretudo pelos enfermeiros em alguns aspectos. Há deficiência de conhecimento, necessitando de intervenções educativas constantes e efetivas, a fim de melhorar a assistência.

DESCRIPTORES: Úlcera por pressão; Prevenção de doenças; Cuidados de enfermagem.

PREVENCIÓN DE ÚLCERAS POR PRESIÓN: EVALUACIÓN DEL CONOCIMIENTO DE LOS PROFESIONALES DE ENFERMERÍA

RESUMEN: El objetivo fue evaluar el conocimiento del equipo de enfermería sobre medidas de prevención de úlceras por presión en adultos y ancianos. Investigación descriptivo exploratoria y de abordaje cuantitativo. Fue utilizado cuestionario estructurado, con test de conocimiento de Pieper. Los datos fueron obtenidos entre octubre y diciembre de 2013. El software *Statistical Package for the Social Sciences* versión 18.0 subsidió el análisis descriptivo y bivariado de los datos. Entre los 85 profesionales, la media global del test aplicado fue 84,21% para los enfermeros y de 68,42% para los técnicos de enfermería. Solamente 22% de los enfermeros tuvieron más aciertos que 90% del test de conocimiento y solo 12% de los técnicos llegaron a ese nivel. Hubo diferencia estadística significativa entre el mayor tiempo de servicio, mayor edad y categoría profesional, apuntando mayor conocimiento, sobretudo por los enfermeros en algunos aspectos. Hay deficiencia de conocimiento, necesitando de intervenciones educativas constantes y efectivas, a fin de mejorar la asistencia.

DESCRIPTORES: Úlcera por presión; Prevención de enfermedades; Cuidados de enfermería.

Corresponding author:

Cássio de Almeida Lima
Universidade Estadual de Montes Claros
Av. Rui Braga, S/N - 39401-089 - Montes Claros, MG, Brasil
E-mail: cassioenf2014@gmail.com

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INTRODUCTION

Medical and scientific advances, concentrated, above all, in tertiary level hospitals, have led these to attend patients who require increasingly complex care⁽¹⁾. The more complex the therapy required, the greater are the chances of developing hospital complications such as infections and errors in the administration and preparation of medications, as well as skin lesions. In this panorama, pressure ulcers are among the most expensive lesions resulting from inpatient care. It therefore falls to health institutions to offer quality care services which aim to ensure the client's rights⁽²⁾.

The teaching hospitals are inserted in this context and also face the challenge of offering safe and quality care to the population. To this end, they must implement improvement strategies based in quality indicators, developed in accordance with each context⁽²⁾. One important indicator of care quality is the prevalence of pressure ulcers (PUs), which increase the period of inpatient treatment and make the care more expensive, as, in addition to time, they require financial outlay for the treatment, which is sometimes protracted. In the light of this, the PUs are constant topics for discussion and concern among professionals in the area of healthcare, and above all among the nursing professionals⁽³⁾.

The prevention of PUs is essential for the quality of the care provided, given that this affects all the actors involved in the care process: patient, family, hospital, health institutions and society as a whole, significantly – interfering in the self-image and self-esteem of those who have them, given that they affect the largest and most external organ of the human body^(1,4).

For the prevention to be successful, it is necessary for the professionals to have sufficient scientific knowledge. In the international ambit, there are numerous evidence-based guidelines guiding actions for approaching PUs. In Brazil, however, there is no specific guideline for the prevention of pressure ulcers, in spite of the rise in the number of scientific publications on the issue⁽⁵⁻⁶⁾.

In order to achieve success in preventing PUs, bearing in mind their multifactorial nature, it is necessary for all the members of the interdisciplinary team to commit themselves to preventing and treating them. However, the largest proportion of the care falls to the nursing team. This is because it is the nursing team that is responsible for the direct care and for the

management of the care. It therefore needs to be prepared for this⁽⁷⁻⁸⁾.

In this context, the present study is justified by its relevance for ascertaining the knowledge that the nursing team has regarding the prevention of PUs, as the same is directly related to the daily care, both in prevention and treatment. Furthermore, it may contribute to the advance of knowledge in this area. As a result, the study aimed to assess the nursing team's knowledge regarding methods of preventing pressure ulcers in adults and older adults.

METHOD

This study has a descriptive-exploratory nature and a quantitative approach. The study was undertaken in the Clemente de Faria Teaching Hospital (HUCF), situated in the city of Montes Claros, in the north of the state of Minas Gerais (MG). Data collection was undertaken in October – December 2013, in the day and night periods, following the approval of the institution in which the study took place.

At the time of data collection, the HUCF had 104 nurses, 293 nursing technicians and 91 auxiliary nurses, distributed across the various departments of the hospital. The population was made up of the professionals working at the time of data collection, in the departments of Internal Medicine (A and B), Clinical Surgery, Adult Intensive Care Unit (ICU) and Emergency Room, after the application of the inclusion criteria: to accept to participate in the study; to be present on the day of data collection; to provide direct care to adults and older adult clients; and to be aged over 18 years old. The following were excluded from the study: the professionals who were on holiday or on sick leave; those who refused to participate in the investigation; and those who were not found for data collection after three attempts.

A questionnaire adapted to this study's objectives was used, made up of items referent to sociodemographic data and the knowledge test, termed the Pieper Pressure Ulcer Knowledge test, validated in a previous study undertaken in Brazil⁽⁴⁾. The test aims to measure interviewees' level of knowledge regarding the recommendations for preventing PUs. In order to make the test, the researchers based their decisions on the recommendations of international guidelines. The original instrument has 41 statements classified as true or false, encompassing topics on evaluation, classification and preventive measures for pressure ulcers. The instrument used in this study

has 19 statements with questions on evaluation, classification and preventive measures regarding PUs.

The participant responded to each question with a judgment of True (T), False (F) or Don't Know (DK). For each correct response, one point was attributed, while for incorrect responses or responses of "Don't Know", the score attributed was zero. The total score of the test on knowledge was the sum of all the correct responses. For the knowledge to be considered adequate, it is expected that the participants should obtain 90% or over for the items in the test; hence the scores were divided in <70%, from 70 to 89% and >90% of correct answers⁽⁴⁾.

The analysis considered the scores of the two groups of professionals: the nursing technicians and nurses. The data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 18.0. The descriptive analysis was processed, followed by the bivariate analysis, using the Pearson Chi-squared test. A level of significance of 5% was considered.

The research project was approved by the Research Ethics Committee of the Montes Claros State University (UNIMONTES), under Decision 126.191/2012. All the participants read and signed the terms of informed consent.

RESULTS

A total of 85 nursing professionals participated in the study, among whom nine (10.58%) were nurses and 76 (89.42%) were nursing technicians. None of the participants belonged to the category of auxiliary nurses. Table 1 shows the participants' sociodemographic characteristics: 43 (56.9%) nursing technicians were aged between 30 – 60 years old, 59 (77.6%) were female and 52 (68.4%) had from 5 to 10 years of service. Regarding the nurses, seven (77.8%) were aged below 30 years old, six (66.7%) were female and five (55.6%) had been in the career for less than five years.

Table 2 presents the correct answers obtained by nurses and nursing technicians for each question on the Pieper Pressure Ulcer Knowledge test. The nurses obtained correct answers (78%) for between 70 to 90% of the test, while only 22% obtained correct answers for more than 90%, and none obtained below 70% correct answers.

The majority of the nursing technicians (88%) had shortcomings in knowledge on the recommendations for prevention of ulcers, as

Table 1 - Sociodemographic characteristics of the nursing professionals. Montes Claros, MG, Brazil, 2013

Sociodemographic characteristics	Nursing technicians (n=76)		Nurses (n=09)		Total (n=85)	
	n	%	n	%	n	%
Age						
<30 years old	30	39.5	07	77.8	37	43.6
30-60 years old	43	56.9	02	22.2	45	52.9
Did not say	03	3.9	0	0	03	2.5
Sex						
Female	59	77.6	06	66.7	65	75.5
Male	17	22.4	03	3.3	20	24.5
Length of service						
Less than 5 years	10	13.2	05	55.6	15	17.6
5 to 10 years	52	68.4	04	44.4	56	65.8
10 to 20 years	11	14.5	0	0	11	12.9
Did not say	03	3.9	0	0	03	3.7

5% of them obtained correct answers for less than 70% of the questions, 83% obtained correct answers for between 70 and 90% and only 12% obtained more than 90% correct answers.

There was a statistically significant difference ($p<0.05$) between greater length of service and greater age in the increase in knowledge regarding prevention of PUs. Significance was also identified between the nurses' and nursing technicians' knowledge in relation to the questions "Changing position every three hours", "Specific change of position for each patient", "Use of gloves for protecting the heel", and "A person who cannot move him or herself should be repositioned every 2 hours while sitting in a chair". It being the case that the nurses showed greater knowledge (Table 3).

DISCUSSION

The sociodemographic characteristics of the professionals who took part in this study resemble those identified in a study undertaken in a teaching hospital in Ribeirão Preto in the state of São Paulo, in which 386 members of the nursing team participated, of whom 250 were nursing technicians/auxiliary nurses, and 136 were nurses. The participants' age range was also evaluated, with the majority of the professionals (36.3%) falling in the range of 30 – 40 years old. The auxiliary nurses/nursing technicians had a mean age of 38.5 years old, and the nurses, 37.8 years old. Regarding sex, a greater frequency was observed of women (85.3%) in both professional

Table 2 – Verification of the Pieper Pressure Ulcer Knowledge test. Montes Claros, MG, Brazil, 2013

Question	Number of correct answers			
	Nurses		Technicians/ Auxiliary nurses	
	Absolute freq. (n= 9)	Relative freq. (%)	Absolute freq. (n= 85)	Relative freq. (%)
01. Risk factors for development of pressure ulcers are immobility, incontinence, impaired nutrition, and altered level of consciousness (T)	9	100	60	78.9
02. It is important to massage bony prominences if they are hyperemic. (F)	4	44.4	26	34.2
03. Persons confined to bed should be repositioned every 3 hours. (F)	8	88.9	32	42.1
04. A turning schedule should be written for every patient. (T)	8	88.9	56	73.7
05. Protectors, such as rubber gloves filled with water, relieve the pressure on the heels. (F)	6	66.7	18	23.7
06. The head of the bed should be maintained at a degree of elevation of up to 30°, consistent with conditions. (T)	6	66.7	49	64.5
07. A person who cannot move him or herself should be repositioned every 2 hours while sitting in a chair. (F)	3	33.3	50	65.8
08. The epidermis should remain clean and dry. (T)	9	100	70	92.1
09. Prevention measures do not need to be used to prevent further lesions when the patient already has a pressure ulcer. (F)	8	88.9	66	86.8
10. Sheets or mattress protectors must be used to transfer or move the patient. (T)	9	100	68	89.5
11. The bony prominences may remain in direct contact one with the other. (F)	9	100	74	97.4
12. Skin exposed to humidity is damaged more easily. (T)	9	100	68	89.5
13. All care administered for preventing or treating pressure ulcers does not need to be documented. (F)	9	100	66	86.8
14. Friction can occur when one moves a person in the bed. (T)	7	77.8	71	93.4
15. For people who are incontinent, cleaning of skin must take place when they soil themselves and in the routine intervals. (T)	8	88.9	61	80.3
16. Stage I pressure ulcer is defined as intact skin, with hyperemia of a localized area, which does not present visible blanching or difference in the surrounding area. (T)	8	88.9	58	76.3
17. A pressure ulcer scar will break down faster than unwounded skin. (T)	9	100	65	85.5
18. A blister on the heel is nothing to worry about. (F)	8	88.9	70	92.1
19. Stage II pressure ulcers may be extremely painful due to exposure of nerve endings. (T)	7	77.8	68	89.5

groups. The auxiliary nurses/nursing technicians had less time working in the profession (a mean of 11.8 years) than the nurses (mean of 12.1 years) ⁽²⁾.

This situation may be explained by the fact that nursing is a profession in which the majority are female, and the proportion of technicians is greater than that of nurses, due to the greater demand in the hospital environment for this professional. The shorter length of service may be related to the lower age range of the samples.

Furthermore, the greater length of service and greater age were significant variables, which suggests greater experience and contact as a result of greater time in situations which lead to the health issue mentioned, viabilizing greater knowledge.

Differently to this, in another work, it was observed that the percentage of correct answers in the test of the auxiliary nurses/nursing technicians reduced with time since professional training ($p=0.009$), as with length of service

Table 3 - Bivariate analysis of the results obtained in the Pieper test and sociodemographic characteristics. Montes Claros, MG, Brazil, 2013

Variables	Nurse		Nursing Technician		P value
	n	%	n	%	
Sex					
Female	6	7.1	59	69.4	0.35
Male	3	3.5	17	20	
Age					
Up to 30 years old	7	8.2	30	35.3	0.03
Over 30 years old	2	2.4	46	54.1	
Length of service					
Up to 5 years	5	5.9	10	11.8	0
Over 5 years	4	4.7	66	77.6	
1. Risk factors for PU					
Knows (correct)	9	10.6	60	70.6	0.14
Does not know (error)	0	0	16	18.8	
2. Massaging hyperemic bony prominences					
Inadequate (correct)	4	4.7	26	30.6	0.40
Adequate (error)	5	5.9	50	58.8	
3. Change of position every three hours					
Inadequate (correct)	8	9.4	32	37.7	0
Adequate (error)	1	1.2	44	51.8	
4. Specific change of position for each patient					
Adequate (correct)	8	9.4	32	37.6	0
Inadequate (error)	1	1.2	44	51.8	0
5. Use of gloves for protecting the heel					
Inadequate (correct)	6	7.1	18	21.2	0
Adequate (error)	3	3.5	58	68.2	
6. Bedhead must be kept at 30°					
Adequate (correct)	6	7.1	49	57.6	
Inadequate (error)	3	3.5	27	31.8	0.60
7. A person who cannot move him or herself should be repositioned every 2 hours while sitting in a chair					
Inadequate (correct)	3	3.5	50	58.8	0.05
Adequate (error)	6	7.1	26	30.6	
8. The epidermis must be kept clean and dry					
Adequate (correct)	9	10.6	70	82.4	0.50
Inadequate (error)	0	0	6	7.1	
9. A patient who already has a PU does not need prevention of PU					
Inadequate (correct)	8	9.4	66	77.6	0.70
Adequate (error)	1	1.2	10	11.8	
10. Use sheets for moving patients					
Adequate (correct)	9	10.6	68	80.0	0.40
Inadequate (error)	0	0	8	9.4	
11. Bony prominences can remain in direct contact					
Inadequate (correct)	9	10.6	74	87.1	0.80
Adequate (error)	0	0	2	2.4	

(continues p. 597)

Table 3 - Bivariate analysis of the results obtained in the Pieper test and sociodemographic characteristics. Montes Claros, MG, Brazil, 2013 (continuation)

Variables	Nurse		Nursing Technician		P value
	n	%	n	%	
12. Wet skin is damaged more easily					
Adequate (correct)	9	10.6	68	80.0	0.40
Inadequate (error)	0	0	8	9.4	
13. Care with PUs does not need to be documented					
Inadequate (correct)	9	10.6	66	77.6	0.30
Adequate (error)	0	0	10	11.8	
14. Friction can occur when moving patients					
Adequate (correct)	7	8.2	71	83.5	0.15
Inadequate (error)	2	2.4	5	5.9	
15. Persons with incontinence must be cleaned constantly					
Adequate (correct)	8	9.4	61	71.8	0.46
Inadequate (error)	1	1.2	15	17.6	
16. Definition of Stage I PU					
Adequate (correct)	8	9.4	58	68.2	0.35
Inadequate (error)	1	1.2	18	21.2	
17. A healed PU scar is damaged more easily					
Adequate (correct)	9	10.6	65	76.5	0.30
Inadequate (error)	0	0	11	12.9	
18. Blisters on the heel are not a risk					
Inadequate (correct)	8	9.4	70	82.4	0.55
Adequate (error)	1	1.2	6	7.1	
19. Definition of PU, stage II					
Adequate (correct)	7	8.2	68	80.0	0.30
Inadequate (error)	2	2.4	8	9.4	

($p=0.049$). However, in the group of nurses, the correlation found between the percentage of correct answers and these variables was not statistically significant⁽²⁾.

A similar study undertaken in a teaching hospital in the non-metropolitan region of the state of São Paulo showed that, in relation to the 33 test questions, in 16 items the nurses obtained 100% correct answers, and in 10, obtained 85.7% correct answers. The item which obtained the lowest rate of correct answers (28.6%) was the statement referent to the need to reposition the patient in a wheelchair (who could not manage to move without help) every two hours, which evidences lack of knowledge in relation to the ideal time for relieving pressure areas. It is recommended that one should not remain in a chair/wheelchair for over two hours, during which one should alternate the areas of pressure at least once per hour⁽⁴⁾.

The knowledge of the measures for prevention, and of the characteristics of the pressure ulcer, must be part of the knowledge of all professionals in the area of nursing, given that these are avoidable forms of harm to health. Hence, the lack of knowledge presented in the study may be associated with a lack of training and continuing education of the nursing team in relation to this topic.

Statement number two, which deals with the contraindication of massaging hyperemic bony prominences, presented a low rate of correct answers in both the categories of nursing professional. In one study undertaken, 40 professionals of the nursing team working in an intensive care unit, in the city of João Pessoa (in the state of Paraíba), a similar result was obtained, in which only 36.9% of the professionals who participated in the study answered the question correctly⁽²⁾.

It is worth emphasizing that this is a recommendation with level of evidence B, in accordance with the Pieper test, as in hyperemic bony prominences, there is the presence of acute inflammation, in which there is the possibility of there being damaged blood vessels or fragile skin, which makes it an important factor in preventing ulcers⁽⁹⁾.

In one investigation which evaluated knowledge regarding prevention and treatment of pressure ulcers in a hospital in Minas Gerais, the preventive measures cited most were change of position, in which 100% stated that they knew and practiced the correct answer. Five professionals (33.3%) reported keeping the patient dry/undertaking patient hygiene. The undertaking of massage was mentioned by three of the professionals (20%); one participant mentioned raising the bed head at 30°⁽¹⁰⁾.

In analyzing the global mean of correct answers, in this study, we noted 84.21% of correct answers for the nurses and 68.42% for the nursing technicians/auxiliary nurses. A considerable difference in the percentage of correct answers between the two categories was observed (15.79%). The scores of the two categories varied from 10 to 19 points. This study's result demonstrates a shortage of knowledge on the part of the research participants. For the knowledge to be considered adequate, it was expected that the participants should obtain correct answers for 90% or more of the items in the Pieper test.

In the United States, one investigation with nurses in the urban and rural zones of Montana used the preliminary version of the Pieper Pressure Ulcer Knowledge test, and the mean percentage of correct answers obtained in the test was 78%⁽¹¹⁻¹²⁾. A study undertaken in Spain, on the other hand, using a questionnaire based on national guidelines, with 37 questions, also assessed the level of knowledge of the nurses and nursing technicians regarding ulcer prevention. It attained a rate of correct answers of 78%, it being the case that for the preventive measures, the level of correct answers was 79.1%⁽¹³⁾.

The majority of the nurses and nursing technicians present shortcomings in knowledge on the recommendations for the prevention of PUs. One study undertaken for assessing the impact of an educational intervention, using the adapted Pieper Pressure Ulcer Knowledge test, identified that, in the pre-intervention phase, the nurses obtained 86.4% correct answers, however, no professional participated in the subsequent

evaluation. The auxiliary nurses and nursing technicians obtained 74.3% correct answers, in the pre-intervention phase, and 81.2% in the post intervention phase, undertaken 20 weeks after the course. Therefore, for the professional group in question, the in-service education contributed to improvement in the test results⁽⁴⁾.

Although it is an indicator for negative quality in the health services, the pressure ulcer continues to be a problem which is underestimated by the professionals. Its frequent occurrence persists among inpatients, characterizing a scenario which shows the need for urgent measures for turning the situation around. The lack of knowledge, allied with the use of inappropriate practices by the professionals, contributes to maintaining the current context. The prevention of the occurrence of the pressure ulcer requires better understanding on the part of the nursing team regarding all the aspects which involve its development, as well as attitudes for ethical care with the adoption of the recommended practices, including seeking appropriate resources. Various strategies may be used in order to improve the professionals' level of knowledge, but it is necessary to identify the personal and institutional barriers which hinder meeting this goal^(4,8).

The nursing team's knowledge regarding pressure ulcers is as important as preventing the risk for developing it. Planning effective interventions, based on the creation of prevention and training protocols, becomes important, in an untiring and continuous quest to improve the quality of the nursing care, performing the care with responsibility and autonomy, without compromising professional life and without worsening the patient's clinical status⁽¹⁴⁾, which without a doubt will promote greater patient safety.

Thus, the use of scales, such as the Braden Scale for evaluating risk for pressure ulcers, requires little skill from the professional nurse, although it requires more time in the care for its evaluation and monitoring. It is, however, extremely important for the prognosis, as the identification of patients who are at risk makes it possible to implement preventive measures at an early stage, which can reduce the incidence of PUs by half⁽¹⁵⁻¹⁶⁾. Furthermore, it is extremely important to implement the Systematization of Nursing Care (SAE), which can raise questions for risk and elaboration of individualized care plans for patients with risk factors for developing pressure ulcers⁽¹⁶⁻¹⁸⁾.

The present work has as limitations the fact that the individuals allocated were restricted to a limited scenario, which may affect the ability to generalize from the results. The design was transversal, which prevents declarations of cause and effect. In this regard, these limitations, and the context relative to the local scenario and its particular characteristics, could be the object of further studies.

CONCLUSION

In the present study, it was possible to evidence that the majority of the nursing professionals showed unsatisfactory knowledge regarding the prevention of PUs. This was even more present among the nursing technicians. There was a significant difference of knowledge between the two categories: the nurses showed great knowledge in the test, unlike the nursing technicians. These findings indicate a concerning context, above all, when one considers that the prevention of PUs is directly linked to patient safety and quality of the care.

Furthermore, being older and having greater time of service are characteristics which contributed to greater knowledge among the professionals studied. This being the case, the professionals who possess these characteristics may contribute to turning around the context identified, in the sense of providing guidance to their colleagues. Such support would also be relevant to issues regarding the massaging of any prominences and the use of protectors such as rubber gloves filled with water, which were items in which there was major shortage of knowledge.

Thus, the shortage of knowledge regarding the issue in question is evident. In this regard, emphasis is placed on the need for continuous and ongoing education regarding measures for preventing PUs, as well as issues related to the staging of the same. Continuing education, accompanied by continuous evaluation of the knowledge of the nursing professionals of the institution, would incorporate new knowledge, technologies and options available for use in their practice; as well as clarification of their responsibility in relation to the issue of preventing PUs.

REFERENCES

1. Wada A, Teixeira Neto N, Ferreira MC. Úlceras por pressão. *Rev Med.* [Internet] 2010; 89(3) [acesso em 11 nov 2014]. Disponível: <http://www.revistas.usp.br/revistadc/article/view/46293/49949>
2. Miyazaki MY, Caliri MHL, Santos CB. Conhecimento dos profissionais de enfermagem sobre prevenção da úlcera por pressão. *Rev Latino-Am Enfermagem.* [Internet] 2010; 18(6) [acesso em 19 nov 2014]. Disponível: http://www.scielo.br/pdf/rlae/v18n6/pt_22
3. Albuquerque AM, Souza MA, Torres VSF, Porto VA, Soares MJGO, Torquato IMB. Assessment and prevention of pressure ulcer by nurses from intensive care: knowledge and practice. *Rev Enferm UFPE On line.* [Internet] 2014; 8(2) [acesso em 22 nov 2014]. Disponível: http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/4688/pdf_4510
4. Fernandes LM, Caliri MHL, Haas VJ. The effect of educative interventions on the pressure ulcer prevention knowledge of nursing professionals. *Acta Paul Enferm.* [Internet] 2008; 21(2) [acesso em 14 nov 2014]. Disponível: <http://dx.doi.org/10.1590/S0103-21002008000200012>
5. Ferreira AM, Rigotti MA, Pena SB, Silva Paula D, Ramos IB, Sasaki VDM. Conhecimento e prática de acadêmicos de enfermagem sobre cuidados com portadores de feridas. *Esc Anna Nery.* [Internet] 2013; 17(2) [acesso em 14 nov 2014]. Disponível: <http://dx.doi.org/10.1590/S1414-81452013000200002>
6. Chayamiti EMPC, Caliri MHL. Pressure ulcer in patients under home care. *Acta Paul Enferm.* [Internet] 2010; 23(1) [acesso em 14 nov 2014]. Disponível: <http://dx.doi.org/10.1590/S0103-21002010000100005>
7. Morita ABPS, Poveda VB, Santos MJ, Marcelino AL. Conhecimento dos enfermeiros acerca dos instrumentos de avaliação de risco para úlcera por pressão. *REENVAP.* [Internet] 2012; 02 [acesso em 19 nov 2014]. Disponível: <http://publicacoes.fatea.br/index.php/reenvap/article/viewFile/555/386>
8. Trueman P, Whitehead SJ. The economics of pressure relieving surfaces: an illustrative case study of the impact of high-specification surfaces on hospital finances. *Int Wound J.* 2010; 7(1):48-54.
9. Smith ME, Totten A, Hickam DH, Fu R, Wasson N, Rahman B, et al. Pressure ulcer treatment strategies: a systematic comparative effectiveness review. *Ann Intern Med.* 2013; 159(1):39-50.
10. Martins AD, Soares FFR. Conhecimento sobre prevenção e tratamento de úlceras por pressão entre trabalhadores de enfermagem em um hospital de Minas Gerais. *Cogitare enferm.* [Internet] 2008; 13(1) [acesso em 19 nov 2014]. Disponível: <http://ojs.c3sl.ufpr.br/ojs/index.php/cogitare/article/view/11956/8437>
11. Zulkowski K, Avello EA, Wexler S. Certification and education: do they affect pressure ulcer knowledge in nursing?. *Adv Skin Wound Care.* 2007; 20(1):34-8.
12. Blanc G, Meier MJ, Stocco JGD, Roehrs H, Crozeta

K, Barbosa DA. Effectiveness of enteral nutritional therapy in the healing process of pressure ulcers: a systematic review. *Rev Esc Enferm USP*. [Internet] 2015; 49(1) [acesso em 25 jul 2015]. Disponível: <http://dx.doi.org/10.1590/S0080-623420150000100020>

13. Pancorbo-Hidalgo PL, García-Fernández FP, López-Medina IM, López-Ortega J. Pressure ulcer care in Spain: nurses' knowledge and clinical practice. *J Adv Nurs*. 2007; 58(4):327-38.

14. Anselmi ML, Peduzzi M, França Junior I. Incidence of pressure ulcer and nursing interventions. *Acta Paul Enferm*. [Internet] 2009; 22(3) [acesso em 04 jan 2014]. Disponível: <http://dx.doi.org/10.1590/S0103-2102009000300004>

15. Borghardt AT, Prado TN, Araújo TM, Rogenski NMB, Bringunte MEO. Evaluation of the pressure ulcers risk scales with critically ill patients: a prospective cohort study. *Rev Latino-Am Enfermagem*. [Internet] 2015; 23(1) [acesso em 24 jul 2015]. Disponível: <http://dx.doi.org/10.1590/0104-1169.0144.2521>

16. Araújo TM, Araújo MFM, Caetano JA, Galvão MTG, Damasceno MMC. Diagnósticos de enfermagem para pacientes em risco de desenvolver úlcera por pressão. *Rev Bras Enferm*. [Internet] 2011; 64(4) [acesso em 04 nov 2014]. Disponível: <http://dx.doi.org/10.1590/S0034-71672011000400007>

17. Van Hecke A, Beeckman D, Grypdonck M, Meuleneire F, Hermie L, Verhaeghe S. Knowledge deficits and information-seeking behavior in leg ulcer patients: an exploratory qualitative study. *J Wound Ostomy Continence Nurs*. 2013; 40(4):381-7.

18. Silva DC, Budó MLD, Schimith MD, Ecco L, Costa IKF, Torres GV. Experiences constructed in the process of living with a venous ulcer. *Cogitare enferm*. [Internet] 2015; 20(1) [acesso em 24 jul 2015]. Disponível: <http://ojs.c3sl.ufpr.br/ojs/index.php/cogitare/article/view/37784/24830>