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RESEARCH

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Nurses' understanding about the pressure injury prevention and care

Conhecimento de enfermeiros sobre prevenção e cuidados de lesão por pressão

Conocimiento de enfermeros sobre prevención y cuidados de la lesión por presión

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ABSTRACT

Objective: This study's purpose has been to identify the nurses' understanding of Pressure Injury (PI) prevention and care in medical and surgical clinics from a university hospital in *Brasília* city, Federal District, Brazil. **Methods:** It is a descriptive and cross-sectional study with a quantitative approach. Data were collected with an instrument containing information about the nurses' understanding of and training in PI. **Results:** The research sample was composed of 38 nurses, from which 78.9% scored between 70 and 89% of the instrument's items, and only two nurses (5.2%) scored 90% or higher. The lowest accuracy items are related to the use of devices such as water gloves (23.6%), cushions (23.6%), and items about positioning and repositioning, and bony prominence massage. **Conclusion:** It is concluded that the nursing team lacks understanding of PI, which may directly compromise the care towards the patient at risk of PI.
Descriptors: Pressure ulcer, nursing team, prevention.

RESUMO

Objetivo: Identificar o conhecimento dos enfermeiros assistenciais quanto à prevenção e aos cuidados com lesões por pressão (LPP) em unidades de clínica médica e cirúrgica de um hospital universitário de Brasília. **Métodos:** Trata-se de estudo descritivo, transversal com análise quantitativa. Os dados foram coletados por meio da aplicação de um instrumento com informações acerca da formação e conhecimento do enfermeiro acerca da LPP. **Resultados:** A amostra foi de 38 enfermeiros, na qual 78.9%, acertaram entre 70 a 89% do instrumento, e somente dois enfermeiros (5,2%) obtiveram nota igual ou maior a 90% de acerto. Os itens de menor acerto estão relacionados ao uso de dispositivos, como luva d'agua (23,6%), almofadas (23,6%), e em relação a posicionamento e reposicionamento, além da massagem em proeminências ósseas. **Conclusão:** Conclui-se que há um déficit do conhecimento da equipe de enfermagem deste hospital, o que pode comprometer diretamente na assistência principalmente do paciente em risco para LPP.
Descritores: Úlcera por Pressão, Equipe de Enfermagem, Prevenção.

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RESUMÉN

Objetivo: Identificar el conocimiento de los enfermeros asistenciales en cuanto a la prevención y cuidados con lesiones por presión (LPP) en unidades de clínica médica y quirúrgica de un hospital universitario de Brasilia. **Métodos:** Se trata de un estudio descriptivo, transversal con análisis cuantitativo. Los datos fueron recolectados por medio de la aplicación de un instrumento con informaciones acerca de la formación y conocimiento del enfermero acerca de la LPP. **Resultados:** La muestra fue de 38 enfermeros, donde 78.9%, acertaron entre 70 a 89% del instrumento, y solamente 2 enfermeros (5,2%) obtuvieron nota igual o mayor al 90% de acierto. Los elementos de menor acierto están relacionados al uso de dispositivos, como guante de agua (23,6%), cojines (23,6%), y en relación al posicionamiento y reposicionamiento, además del masaje en prominencia ósea. **Conclusión:** Se concluye que hay un déficit del conocimiento del equipo de enfermería de este hospital, lo que puede comprometer directamente en la asistencia principalmente del paciente en riesgo para LPP.

Descriptores: Úlcera por Presión, Equipo de Enfermería, Prevención.

INTRODUCTION

As a result of technological and scientific advances, many changes have occurred in society, changing people's patterns of consumption and lifestyle. These changes have increased life expectancy, leading to the rise of chronic diseases and trauma, which demand highly complex care. In these critical conditions and prolonged hospitalizations, the patient becomes more susceptible to complications that jeopardize his own safety, such as hospital infections, technical errors, skin injuries, among others.[1,2]

Pressure injuries (PIs) are a public health problem due to their high rate occurrence in hospitalized patients, making their recovery even more difficult, increasing the risk of developing other complications. PIs give rise to socioeconomic impacts in countries and their health systems because they impose high costs for patients, families, institutions, and communities, also inducing physical and emotional suffering to patients. PIs affect the quality of life of patients due to the reduction of their independence and functionality in performing the activities of daily life.[1-4]

PIs are injuries on the skin and/or in its underlying tissues as a consequence of isolated or combined pressure with friction and/or shear, usually located over a bony prominence in individuals with impaired physical mobility. It is classified according to NPUAP/EPUAP, 2009, in four stages and two descriptors, which are related to the extension of the affected tissue, demanding the implementation of therapeutic strategies.[5,6]

The descriptor 1 is composed by: suspicion of deep tissue injury; intact skin with a purple or brown area that may present a bloody blister due to soft tissue injury by pressure or shear. Stage I PI is characterized by: intact skin having non-blanchable erythema, usually over a bony prominence. Stage II PI is characterized by: partial loss of tissue thickness, pale red wound bed, and possible open or intact phlyctena of serous exudation. Stage III PI is characterized by: total loss of tissue thickness, adipose tissue possibly being exposed (bones remain unexposed), and tendons or muscles being exposed. Stage IV PI is characterized by: no tissue thickness, bone exposure, tendon and muscle exposure, the possible occurrence of bedsores in some parts of the lesion, detachment, and tunnel formation. The descriptor 2 is composed of: unclassified lesions and sphacelus or bedsores attached to the bed, which make evaluation impossible.[3, 7]

The risk factors for PI are: mobility limitation, hemodynamic instability, malnutrition, edema, drug vasoconstriction, altered consciousness, incontinence and vasculopathy, as well as environmental factors such as low humidity and cold that cause skin dryness. Recognizing patients vulnerable to PIs depends on professional clinical skills, as well as the use of guiding instruments for helping to identify the risks mentioned. These results are obtained through the application of scales, protocols and skin photographs of the patients. Among these, the Norton scale, Gosnell scale, Braden scale (adapted to the Portuguese language), and Waterlow scale are the most used.[5,8,9]

Nurses are an integral part of the multiprofessional health team as the leader of the nursing team and care manager, which is responsible for the decision making that allows the choice of the best care procedure for the hospitalized patients, seeking the quality of care. To guarantee the quality of care, it is necessary scientific knowledge of PI based on evidences for the optimization of the available human resources and reduction of costs for the institution. However, some studies indicate that the nursing knowledge of the prevention and treatment of PIs remains limited despite the technical-scientific advance in health care and the existence of protocols and guidelines for PI care.[1,10]

Due to the nurses' limited knowledge, it is necessary to rethink about professional values to improve care. In addition to the professional's interest in seeking qualification, it is also the institution's responsibility to encourage professionals to seek knowledge, promoting constant updates, corresponding to market perspectives, and enhancing the PI treatment.[7]

Some studies indicate that the nurses' lack of professional skills in dealing with patients with injuries may be resolved by discussing this subject throughout academic education, as the knowledge of this subject provided by educational institutions is limited and there is a need for stimulating the students to update themselves. Since new technologies for and research on injury care rise constantly, the nursing professional needs to be able to provide a quality assistance.[11]

Research on the professionals' knowledge of PI is scarce in the literature and this knowledge among the nursing professionals is still limited. Therefore, this study aims to identify the nurses' understanding of PIs regarding prevention, classification, and care in a university hospital and to reinforce the importance of nursing in the prevention, evaluation and treatment of PIs, improving this knowledge since academic education.[12]

METHODS

It is a descriptive and cross-sectional study with a quantitative approach. The study population consisted of 50 nurses who cared for adult and elderly patients from the

medical clinic unit and from the surgical clinic unit. Data were collected from July to October 2016. The exclusion criteria were: nurses were not performing nursing care, such as those who had administrative positions; students, trainees and nursing residents.

Data were collected by using a Brazilian version of a validated questionnaire that evaluates the nursing professionals' understanding of the prevention, evaluation and treatment of PIs based on the recommendations proposed by the international guidelines from the Agency for Health Care Policy and Research (AHCPR) and the Pieper and Mott knowledge test.[1]

The questionnaire consists of two sections. Section I describes sociodemographic data and professional background. Section II, which is the knowledge test, has 41 statements with three possible answers: true (V), false (F), and "I don't know" (IDK). Each correct answer counted one point towards the total score; however, the other answers were not considered. The data collected was transcribed into a Microsoft Excel spreadsheet for further revision and validation.

This study was approved by the Research Ethics Committee of the Health Sciences School from the *Universidade de Brasília* under the *Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appraisal] No. 55939716.4.0000.0030.

RESULTS

A total of 38 nurses were interviewed, which was corresponded to 76% of nurses from the two units. **Table 1** shows the distribution of the participants regarding sociodemographic characteristics and professional background.

Table 1 - Nurses' distribution according to sociodemographic characteristics and professional background (n = 38).

Variable	f	%
Age group (years)		
20-29	12	31.57
30-39	19	50
40-49	3	7.89
50-59	1	2.63
No answer	3	7.89
Gender		
Female	28	73.68
Male	9	23.68
No answer	1	2.63
Period of employment (years)		
<5	30	78.94
5 a 10	2	5.26
>10	3	7.89
No answer	2	5.26
Year of graduation		
Before 2000	1	2.63
2000 to 2004	8	21.05
2005 to 2009	14	36.84
2010 to 2015	13	34.21
No answer	2	5.26
Department		
Surgical Clinic	13	34.21
Medical Clinic	22	57.89
No answer	3	7.89
Specialization degree		
No	7	18.42
Yes	31	81.57
Master's degree		
No	34	89.47
Yes	4	10.52
PhD		
No	38	100.00
Total	38	100,00

As can be seen in **Table 1**, most participants were women (73.6%) in the age group 30-39 years (50%), working in the hospital for less than five years (78.9%).

With regards to the graduation year, 36.8% of the participants were graduated between 2005 and 2009, and 34.2% between 2010 and 2015. These results show that there is a relationship between the nurses' year of graduation and period of employment because 13 nurses (34.2%) worked in the institution for 5 years or less.

Considering the institution's departments, 57.8% of the nurses worked at the Medical Clinic. Regarding the postgraduate education, 81.5% reported having received the Specialization's Degree between 2004 and 2016 in the following fields: Nursing Work, Public and Family Health, Urgency and Emergency, Intensive Care, among others; 10.5% reported having received the Master's Degree between 2012 and 2016 in Collective Health, Molecular Pathology, and another unspecified field. None of the participants reported having received the Ph.D. degree.

The results related to the nurses' understanding of PIs regarding their prevention, classification and care are described in **Table 2**.

Table 2 - Distribution of the nurses' answers regarding their understanding about PIs (n = 38).

Question	f	%
1. Stage I pressure injury is defined by: intact skin with localized hyperemia, which shows no visible whitening or the color differs from the surrounding area (T)	27	71.05
2. The risk factors for the development of pressure injury are: immobility, incontinence, inadequate nutrition and altered level of consciousness (T)	37	97.36
3. All patients at risk for pressure injury should have systematic skin inspection at least once a week (F)	24	63.15
4. The use of hot water and soap can dry the skin and increase the risk for pressure injury (T)	23	60.52
5. It is important to massage the bony prominence regions if they have hyperemia (F)	17	44.73
6. A stage III pressure injury is characterized by partial loss of skin affecting the epidermis (F)	31	81.57
7. All patients should be assessed before hospital admission for risk of developing pressure injury. (T)	36	94.73
8. Transparent, curative creams and thin hydrocolloid dressings help protect the skin from friction effects. (T)	34	89.47
9. Stage IV pressure injury presents a total loss of skin with intense destruction and tissue necrosis or damage to muscles, bones or support structures. (T)	38	100
10. A proper protein and calorie intake should be maintained during illness/hospitalization. (T)	38	100
11. Patients lying in bed should be repositioned every 3 hours. (F)	29	76.31
12. A schedule for decubitus changes should be used for each patient with or at risk for pressure injury. (T)	38	100
13. Water or air gloves relieve calcaneus injury. (F)	9	23.68
14. Water or air-type cushions help to prevent pressure injuries. (F)	9	23.68
15. In lateral decubitus, the patient with or at risk for pressure injury should be positioned at an angle of 30 degrees from the bed mattress. (T)	12	31.57
16. Regarding patients with or at risk for pressure injury, the head of the bed should not be raised at an angle greater than 30 degrees if there is no medical contraindication. (T)	15	39.47
17. Patients unable to move on their own should be repositioned every 2 hours when sitting in the chair. (F)	10	26.31
18 The low-mobility patients who can change the body position without help should be instructed to relieve pressure every 15 minutes while sitting in the chair. (T)	21	55.26
19 The patient with limited mobility who can remain in the chair should have a seat cushion to protect the bony prominences. (T)	34	89.47
20. Stage II pressure injuries present total skin loss. (F)	22	57.89
21. The skin of the patient at risk for pressure injury should remain clean and free of moisture. (T)	37	97.36
22. Measures to prevent new injuries do not need to be continuously carried out when the patient already has a pressure injury. (F)	32	84.21
23. Movable sheets or linings should be used to transfer or move patients unable to move. (T)	37	97.36
24. Moving and transferring patients who cannot move on their own must always be performed by two or more people. (T)	37	97.36
25. In chronic patients who cannot move on their own, rehabilitation should be initiated using guidelines on the prevention and treatment of pressure injuries. (T)	38	100
26. Every patient who does not walk should be submitted to a risk assessment for pressure injuries. (T)	38	100
27. Patients and families should be oriented to the causes of and risk factors for pressure injury. (T)	37	97.36
28. Bony prominence regions may be in direct contact with one another. (F)	35	92.10
29. Every patient at risk of developing pressure injury should have a pressure-redistributing mattress. (T)	30	78.94
30. The skin, when macerated by moisture, is more easily damaged. (T)	38	100
31. Pressure injuries are sterile wounds. (F)	32	84.21
32. Pressure injury scars may be damaged faster than whole healthy skin. (T)	36	94.73
33. A calcaneus blister should not be a concern. (F)	35	92.10
34. A good way to decrease pressure in the calcaneal region is to keep them in a higher position from the bed. (T)	28	73.68
35. Any care to prevent or treat pressure injuries does not need be recorded. (F)	38	100
36. Shear is the force that occurs when the skin adheres to a surface, and the body slides. (T)	24	63.15
37. Friction can occur when the patient is moved over the bed. (T)	36	94.73
38. Stage II pressure injury may be extremely painful due to the exposure of the nerve endings. (T)	20	52.63
39. In the patient with incontinence, the skin should be cleaned at the time of elimination and at scheduled intervals. (T)	35	92.10
40. Educational programs in the institution can reduce the incidence of pressure injuries. (T)	38	100
41. Hospitalized patients need to be assessed for risk of pressure injury only once during hospitalization. (F)	38	100

T = true; F = false

According to **Table 2**, the participants obtained from 90 to 100% of correct answers in the items 9, 32 and 33; from 70 to 89.9% of correct answers in the items 1, 6 and 31; and below 70% in the items 20 and 38, which are referred to the classification of Stage II PI.

It is observed that regarding the remaining 33 items related to PI prevention, the participants obtained from 90 to 100% of correct answers 17 items (2, 7, 10, 12, 21, 23, 24, 25, 26, 27, 28, 30, 35, 37, 39, 40 and 41); from 70 to 89.9% of correct answers; 50 and 69.9% of correct answers 5 items (3,4, 18, 29 and 36); and lower than 50% in the remaining 6 items (5, 13, 14, 15, 16 and 17).

The items with the lowest accuracy are those related to the use of devices such as water gloves (23.6%) and cushions (23.6%), and item related to the patients' positioning: the cushion elevation with an angle greater than 30º (39.4%), lateral decubitus position (31.5%), repositioning time of patients seated in a chair (26.3%), and bony prominence massage (44.7%).

Although they obtained 63.1% of corrected answers in item 36, many participants had doubts about the meaning of "shear", requiring some clarifications. The average number of correct answers for the test was 78.5%.

DISCUSSION

Due to the high PI incidence in hospitalized patients and the high costs generated for the health system, recommendations were made for clinical practice by governmental institutions and associations of different classes, in order to assist in the evaluation and management of patients at risk for PI, in addition to the educational importance for patients, caregivers and health care team members. This knowledge should be part of all nursing team members' professional background in order to guide the implementation of therapeutic procedures and reduce the impact of this health problem.[13,14]

Bearing in mind the total number of correct answers obtained in the tests, the nurses' understanding was insufficient according to the literature because they were expected to reach 90% of the correct answers or higher.[15] Nevertheless, only two nurses (5.2%) scored 90% or more. Thirty nurses (78.9%), which represented the majority of them, scored between 70 and 89% of the test, which is considered inadequate according to some authors.[15] This study's results demonstrate that the nursing team needs to always update their understanding of PI care and seek continuous training in this field.

Concerning the primary study, in which the test for evaluating the knowledge of PIs was developed and used in this study, the average of the participants was 71.7%, and the research sites were two hospitals in the United States of America. The data from this study indicated that knowledge of PIs was significantly higher among nurses who had attended a lecture or read an article on the subject.[15]

In *Rio de Janeiro* city, *Rio de Janeiro* State, Brazil, in 2011, the same knowledge test was applied in a university hospital for all multidisciplinary teams from different departments, achieving an average of 73.6% of correct answers among nurses. In this study, none of the professional categories presented a percentage of correct answers of 90% or more.[7]

Another study carried out in the city of *Ribeirão Preto*, São *Paulo* State, Brazil, was conducted with 289 nursing team's members from a university hospital. One hundred and thirty-six participants were nurses, which scored 79.4%. Only 16 nurses (11.8%) scored 90% or more. The authors highlighted the need of the team's members to update their current understanding of PI prevention.[1]

This knowledge test was also applied in another university hospital from the city of *São Paulo*, *São Paulo* State, Brazil, to evaluate the effects of educational interventions on the intensive care nursing professionals' understanding of PI prevention. They scored 71% of the correct answers in the pre-intervention phase, but scored less in some items in the post-intervention phase, indicating a lack of knowledge after the educational intervention.[13]

The same knowledge test was applied in other international and national studies, and similar results were obtained, evidencing the professionals' lack of knowledge of prevention and treatment of PIs, even in the face of technological advances, which becomes a worldwide problem in many health care services.[1]

Among the aforementioned studies, all of them identified the nurses' lack of knowledge and the need for seeking updated professional qualification to care for PI patients. The occurrence of PIs in hospitals and the level of knowledge and commitment of the professionals are directly related, since most patients present a high degree of dependence, increasing the risk for PIs.[3]

Prevention of PIs is essential for caring for hospitalized patients and should be developed in a systematized way, based on previous studies. The nurse is fundamental in this process, being the professional more appropriate to manage this action and raise the quality of health care because the emergence of PIs is entirely linked to the quality of care, despite having other causes. The systematization of nursing care enables constant discussion on preventive interventions, stimulating nurses to develop their skills and autonomy to make the best decisions, seeking the patients' life quality.[16,5]

CONCLUSIONS

Despite current technologies, PIs are still a major and difficult-to-treat health problem, which is often expensive and complex. In this way, prevention becomes necessary and essential, aiming for a focused, individualized and integral care for patients at risk for PI. The nurse is responsible for the implementation of this care, requiring knowledge and mastery to provide appropriate assistance to patients at risk for or suffering from PI.

This study and the literature evidence the nursing team's lack of knowledge of the prevention, evaluation and classification of PIs and how much knowledge is linked to the quality of care provided. Furthermore, there are still few studies in Brazil that describe the professionals' understanding of PIs, evidencing its need for health care practices to improve professional qualification.

Nonetheless, this study's results help to identify the difficulties and limitations regarding the team's understanding, guiding the strategies that can be carried out to improve the nurses' actions, with the purpose of providing specific care through a humanistic and holistic perspective prioritizing the care quality.

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