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ORIGINAL ARTICLE

EDUCATIONAL INTERVENTION AS A PROCESS OF KNOWLEDGE CONSTRUCTION IN THE CARE OF PRESSURE ULCERS INTERVENÇÃO EDUCATIVA COMO PROCESSO DE CONSTRUÇÃO DO CONHECIMENTO NO CUIDADO DA ÚLCERA POR PRESSÃO INTERVENCIÓN EDUCATIVA COMO PROCESO DE CONSTRUCCIÓN DEL CONOCIMIENTO EN EL CUIDADO DE ÚLCERA POR PRESIÓN

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ABSTRACT

Objective: to evaluate the effect of an educational intervention in the construction of knowledge for nurses in the care of Pressure Ulcers. **Method:** this was a descriptive-exploratory study conducted with 49 nurses from a university hospital located in the State of Rio Grande do Sul. The Pieper Knowledge Test was used for data collection before and after an educational intervention on prevention/treatment of Pressure Ulcers. The research project was approved by the Research Ethics Committee, CAAE nº 0319.0.243.000-11. **Results:** nurses scored 80.54% correct answers in the pre-training phase and 86.64% in the post-training phase. **Conclusion:** the data related to the prevention and evaluation domains of Pressure Ulcers indicate that nurses have a satisfactory knowledge on the issue; however, increased focus in the classification/staging domains is required. The data will contribute in planning educational interventions for the prevention and care of Pressure Ulcers. **Descriptors:** Pressure Ulcer; Nursing Care; Health Education; Nursing.

RESUMO

Objetivo: avaliar o efeito de uma intervenção educativa na construção do conhecimento de enfermeiros no cuidado da Úlcera por Pressão. **Método:** estudo descritivo-exploratório, realizado com 49 enfermeiros de um hospital universitário localizado no Estado do Rio Grande do Sul. Foi utilizado o Teste de Conhecimento de Pieper para a coleta dos dados, antes e após uma intervenção educativa sobre prevenção/tratamento de Úlcera por Pressão. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, CAAE nº 0319.0.243.000-11. **Resultados:** os enfermeiros acertaram 80,54% das questões na fase de pré-capacitação e 86,64% na fase pós-capacitação. **Conclusão:** os dados relativos aos domínios prevenção e avaliação de Úlcera por Pressão indicam que os enfermeiros possuem conhecimento considerado satisfatório, sendo necessário maior enfoque no domínio classificação/estadiamento. Os dados auxiliarão no planejamento de intervenções educativas na prevenção e cuidado às Úlceras por Pressão. **Descritores:** Úlcera por Pressão; Cuidados de Enfermagem; Educação em Saúde; Enfermagem.

RESUMEN

Objetivo: evaluar el efecto de una intervención educativa en la construcción del conocimiento de enfermeros en el cuidado de Úlcera por Presión. **Metodología:** estudio descriptivo y exploratorio, realizado con 49 enfermeros de un hospital universitario del Estado do Rio Grande do Sul. Se utilizó el Test de Conocimiento de Pieper para la recolección de datos antes y después de una intervención educativa sobre prevención y tratamiento de Úlcera por Presión. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, CAAE nº 0319.0.243.000-11. **Resultados:** los enfermeros contestaron correctamente un 80,54% de cuestiones en la fase de pre-capacitación, y un 86,64% en la fase pos-capacitación. **Conclusión:** los datos sobre la prevención y evaluación de Úlcera por Presión indican que los enfermeros poseen un conocimiento considerado satisfactorio, siendo necesario el énfasis en clasificación y estadificación. La recolección de datos será importante para la planificación de intervenciones educativas y prevención en el cuidado de Úlceras por Presión. **Descriptores:** Úlcera por Presión; Cuidados de Enfermería; Educación en Salud; Enfermería.

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INTRODUCTION

The epidemiological transition that has occurred in the health sector in which infectious and parasitic diseases gave place the chronic degenerative diseases, associated with high costs for service maintenance and population aging has contributed to increase the national and international debate about the quality of health care. This quality is conditioned on the prevention of aggravations being essential that managers of health institutions pay attention to those related to Pressure Ulcers (PU), which is one of the aggravations that represent a challenge in nursing care because it demands exorbitant resources from the health system and hours of nursing care.¹

Pressure Ulcers are lesions located on the skin, tissue, or underlying structure, often over a bony prominence, due to pressure that can be isolated or associated with friction or shear. The following classification is used according to the PU staging: stage I - intact skin with non-blanchable erythema in a localized area, which is usually over a bony prominence (in dark pigmented skin the blanchable condition may not be visible); stage II - partial thickness skin loss or flictena, which can be closed or opened and filled with serous or serous-hematic fluid; stage III - total loss of skin thickness (visible subcutaneous tissue), without bone, tendon, or muscle exposure, however, the subcutaneous adipose tissue may be visible; stage IV - total loss of tissue thickness (muscles and bones are visible) and may be associated with the presence of devitalized tissue (wet fibrin) and/or necrotic tissue, often with cavities and fistulated.²

Some other ulcers cannot be classified and are characterized by lesions with a total loss of tissue in which the base of the ulcer is covered with slough or eschar on the lesion bed; the stage cannot be determined until the esfacelo or eschar removal. Some others are characterized by the suspicion of deep tissue lesion, which occurs when the localized area with intact skin, purple, light brown, or bloody in color is caused by the damage of soft tissues by friction or shear.²

The factors associated with the risk for developing PU are smoking, chronic degenerative diseases, and shear and friction;³ prevention and treatment are challenges to the nursing practice because specific scientific knowledge, sensitivity, and observation are necessary with respect to maintaining the integrity of the skin including a holistic approach to patient care.⁴

The presence of PU in health services represents high costs in treatments due to the prolonged hospital stay, and patients' morbidity mainly resulting from peculiarities of the treatment,⁵ which requires from managers the incentive to build groups that study the conducts related to skin lesions in an attempt to avoid and minimize the PU effects on the health of populations.

Scales have been developed to assist in the risk assessment of developing PU considering the necessity to prevent this problem. The Braden Scale stands out as an instrument that allows the evaluation of the patient's conditions and justifies the selection of preventive and curative actions.⁶ However, for its effective implementation, the establishment of uniform and nursing actions, directed to one end, are necessary and can be obtained through the implementation of a protocol for PU prevention that can be considered as a strategic tool in strengthening best practices at the institutional level.⁷

The training of all health team in the prevention and treatment of skin lesions, with a focus on the implementation of a Pressure Ulcer Protocol, was established as one of the goals for the year 2012 in the university hospital participating in the present study. To achieve such a goal, the training of the health staff, particularly nurses, on issues related to prevention, classification/staging, and evaluation of PU was necessary at first. Thus, the selected guiding question was: What is the effect of an educational intervention in the construction of knowledge for nurses in the care of Pressure Ulcers?

OBJECTIVE

- To evaluate the effect of an educational intervention in the construction of knowledge for nurses in the care of Pressure Ulcers.

METHOD

This was a descriptive-exploratory study carried out in a university hospital located in the State of Rio Grande do Sul. This hospital is a reference institution in tertiary attention for 45 municipalities in the West Central region of Rio Grande do Sul.

The inclusion criteria were established as: being a nurse, acting in direct assistance to patients, and having taken the training in prevention and treatment of skin lesions. All nurses on leave of any kind and on vacation were excluded from the study.

The training, which was offered to all health care professionals in the institution, was taught by members of the Skin Lesions

Study Group (GELP). The training was provided in December of 2011 (class 1) and March of 2012 (class 2). The weekly training sessions were in the morning and afternoon totaling 20 hours of training in each period. The themes developed concerned skin physiology and anatomy, PU staging and prevention, presentation of standardized coverage at the institution for the prevention and treatment of PU, presentation and guidance on filling the Braden Scale, which is the instrument adopted by the institution for risk assessment on the development of PU, and presentation of the institutional protocol.

The strategy of active learning methodology was used for the development of training, also called the questioning or problem-based learning. Active methodologies awaken curiosity because they stimulate and value the contributions of each of the parties involved and promote autonomy and a sense of engagement and belonging.⁸

On the first session and prior to the beginning of the training activities, despite the presence of other healthcare workers, nurses were invited to participate in the research; the objectives of the study and voluntary nature of participation were explained. After agreeing, they received the instrument of research and two copies of a Voluntary Informed Consent, were instructed to read, sign, return one copy to the researcher, and keep another for their records. The training started after the completion of the questionnaire. At the end of the fourth week, the nurses were again invited to answer the questionnaire.

The data collection instrument was the Pieper Knowledge Test questionnaire, which measures the level of knowledge about the recommendations for PU prevention. The questionnaire was developed by American authors, later being translated, adapted, and validated for the reality in Brazil.⁹ It consists of 41 true or false statements that are based on North American guidelines and addresses issues related to three areas: PU prevention (33 questions: 2, 3, 4, 5, 7, 8, 10, 11,12,13,14,15,16,17,18,19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 34, 35, 36, 37, 39, 40, and 41), PU classification/staging (6 questions: 1, 6, 9, 20, 33, and 38), and PU evaluation (2 questions: 31 and 32).

The respondents should mark "V" if considering the statement as true, "F" if false, and "NS" (I don't know) if the answer is not known. One point was scored when each answer matched the guidelines; zero points were scored for answers opposing the guidelines or those answered as NS. The partial score corresponded to the sum of questions related to each domain and the total score corresponded to the set of all correct answers. In addition to the items specific to the instrument, the nurses provided information regarding their age, and activity location and time at the institution.

The data were entered into a spreadsheet and used in the PASW Statistics Program® (Predictive Analytics Software from SPSS Inc., Chicago-USA, version 18.0 for Windows) to assist in the data analysis. The continuous measurements (age and time) and questions pertaining to each domain were analyzed according to descriptive statistics.

The parameter of 75% of correct answers, based on the North American guidelines, was used to consider a domain as knowledgeable by the nurses. This parameter followed suggested data in the literature considering it satisfactory after intervention programs.¹⁰

The completed instruments were coded with letters and numbers to preserve the identity of participants (E1, E2, E3, ...).

The research project followed the precepts of Resolution 466/12 and received a favorable opinion from the Ethics Committee in Research (CEP) from the Federal University of Santa Maria, in November of 2011, under the Ethics Assessment Presentation Certificate (CAAE): 0319.0.243.000-11, case number 23081.015118/2011-46.

RESULTS

The sample was composed of 49 nurses, with a predominance of females (n = 44; 89.79%), average age of 43.81 years ($\pm$ 9.81), and average service time of 14.47 years ($\pm$ 8.86).

The Tables were organized according to the distribution of questions in the domains of prevention, classification/staging, and evaluation. Tables 1 and 2 present the questions related to the PU prevention domain.

Table 1. Percentage of correct answers from nurses to questions in the PU prevention domain, before and after the educational intervention (part I). Santa Maria, RS. 2012

PU PREVENTION (PART I)	Before: N (%)	After: N (%)
2 - Are risk factors for the development of pressure ulcers: mobility, incontinence, inadequate nutrition, and altered level of consciousness. (V)	22 (44.90)	28 (57.14)
3 - All individuals at risk for pressure ulcers must have a systematic skin inspection at least once a week. (F)	30 (61.22)	35 (71.43)
4 - Hot water and soap can dry the skin and increase the risk for pressure ulcers (V)	43 (87.76)	42 (85.71)
5 - It is important to massage bony prominences if they show hyperemia. (F)	38 (77.55)	47 (95.92)
7 - Any individual, on admission at the hospital, should be assessed for risk of developing pressure ulcers. (V)	49 (100)	49 (100)
8 - Cornstarch, creams, transparent dressings (Tegaderm or Opsite type) and hydrocolloids dressings (Duoderm type) do not protect against friction effects. (F)	38 (77.55)	38 (77.55)
10 - A proper dietary intake of protein and calories should be maintained during the disease. (V)	49 (100)	49 (100)
11 - Bedridden people must be repositioned every 3 hours. (F)	31 (63.27)	40 (81.63)
12 - A schedule with timetables for decubitus change should be written for each patient. (V)	42 (85.71)	43 (87.76)
13 - Calcaneal protectors such as water gloves relieve the pressure on calcaneals. (F)	35 (71.43)	45 (91.84)
14 - Water wheels or ring type pads assist in preventing pressure ulcers. (F)	17 (34.69)	34 (69.39)
15 - In a lateral position, the person should be at an angle of 30 degrees with the bed. (V)	21 (42.86)	31 (63.27)
16 - The headboard should be kept in a low degree of elevation (preferably, no more than a 30-degree angle), consistent with the medical conditions. (V)	37 (75.51)	45 (91.84)
17 - A person who cannot move must be repositioned, while sitting in a chair, every 2 hours. (F)	11 (22.45)	22 (44.90)
18 - People who can learn must be directed to change their weight every 15 minutes, while sitting on a chair. (V)	33 (67.35)	39 (79.59)
19 - The people who remain seated on chairs should have a pillow for protection. (V)	39 (79.59)	31 (63.27)
21 - The skin should stay clean and dry. (V)	47 (95.92)	47 (95.92)

Table 2 presents other questions about the PU prevention domain before and after the educational intervention.

Table 2 Percentage of correct answers from nurses to questions in the PU prevention domain, before and after the educational intervention (part II). Santa Maria, RS. 2012

PU PREVENTION (PART II)	Before: N (%)	After: N (%)
22 - Preventive measures do not need to be used to prevent new lesions when the patient already has pressure ulcers. (F)	49 (100)	46 (93.88)
23 - Mobile sheet or lining must be used to transfer or move patients. (V)	47 (95.92)	44 (89.80)
24 - The mobilization and transfer of patients totally dependent must be made by two or more persons. (V)	48 (97.96)	49 (100)
25 - The rehabilitation should be instituted if the general condition of the patient allows. (V)	47 (95.92)	47 (95.92)
26 - Every patient admitted to the Intensive Care Unit must be subjected to risk assessment for developing pressure ulcers. (V)	48 (97.96)	48 (97.96)
27 - Patients and relatives should be instructed about the causes and risk factors for the development of pressure ulcers. (V)	49 (100)	49 (100)
28 - Bony prominences may be in direct contact with each other. (F)	48 (97.96)	49 (100)
29 - Every person assessed as at risk for developing pressure ulcers should be placed in a pressure-reducing mattress (ex: waterbed). (V)	37 (75.51)	44 (89.80)
30 - Skin macerated by moisture is more easily damaged. (V)	46 (93.88)	48 (97.96)
34 - A good way to lessen the pressure on calcaneals is raising them from bed. (V)	44 (89.80)	47 (95.92)
35 - All administered care, to prevent or treat pressure ulcers, does not need to be documented. (F)	48 (97.96)	49 (100)
36 - Shear stress is the force that occurs when the skin sticks to the surface and the body slides. (V)	43 (87.76)	47 (95.92)
37 - Friction can occur when moving the person up in bed. (V)	48 (97.96)	49 (100)
39 - For people with incontinence, skin cleaning must occur at the moment of the accident and routine intervals. (V)	45 (91.84)	14 (28.57)
40 - Education programs can reduce the incidence of pressure ulcers. (V)	49 (100)	49 (100)
41 - Hospitalized patients need to be evaluated about the risk for pressure ulcers once. (F)	49 (100)	49 (100)

Table 3 presents the questions related to the PU classification/staging domains before and after the educational intervention.

Table 3. Percentage of correct answers from nurses to questions in the PU staging domain, before and after the educational intervention (part II). Santa Maria, RS. 2012

PU CLASSIFICATION/STAGING	Before: N (%)	After: N (%)
1 - The stage I pressure ulcer is defined as an erythema that does not whitens. (V)	36 (76.47)	40 (81.6)
6 - A stage III pressure ulcer is a partial loss of skin involving the epidermis. (F)	34 (69.39)	32 (65.3)
9 - Stage IV pressure ulcers show a total loss of skin with intense tissue destruction and necrosis or damage to the muscles, bones, or supporting structures. (V)	47 (95.92)	49 (100)
20 - Stage II pressure ulcers show total thickness loss of skin. (F)	21 (42.86)	31 (63.2)
33 - A blister in the calcaneus should not be the cause for concern. (F)	47 (95.92)	49 (100)
38 - The stage II pressure ulcers can be extremely painful because of exposure of nerve endings. (V)	15 (30.61)	14 (28.5)

Table 4 presents the questions related to the PU evaluation domain before and after the educational intervention.

Table 4. Percentage of correct answers from nurses to questions in the PU evaluation domain, before and after the educational intervention (part II). Santa Maria, RS. 2012

PU EVALUATION	Before: N (%)	After: N (%)
1 - Pressure ulcers are sterile sores. (F)	44 (89.80)	39 (79.59)
32 - A pressure ulcer scar can injure more easily than intact skin. (V)	45 (97.84)	44 (89.80)

DISCUSSION

The provision of quality health care requires responsible and committed nurses to health services who are in continuous learning process. An analysis of the total scores from the Pieper Knowledge Test showed that the nurses correctly answered 80.54% of the questions in the pre-training phase and 86.64% in the post-training phase.

A study conducted in Brazil to assess the impact of an educational intervention used this questionnaire and identified that in the pre-intervention phase the nurses correctly answered 86.4% of the questions, however, none of the professionals participated in the subsequent evaluation. Nursing assistants and technicians obtained a score of 74.3% correct answers in the pre-intervention phase and 81.2% in the post-intervention phase.⁹

Another study found 79.4% of correct answers on the Knowledge Test for nurses and 73.6% for nursing assistants/technicians. However, it should be noted that it assessed the knowledge of professionals on pressure ulcers without an educational intervention.¹¹ A study in Sweden compared the knowledge of 415 nurses, nursing assistants, and nursing students about PU and found that nurses and assistants obtained the highest scores on items related to etiology. The average score for knowledge was 58.9%; the highest scores were observed on items related to nutrition (83.1%) and risk assessment. The lowest scores were found in items related to pressure and shear (55.5%). The authors concluded that there is a deficit of knowledge among nursing staff in that country.¹²

In the prevention domain, the partial score on the 33 questions was 82.07% in the pre-training phase and 88.07% in the post-training phase. Considering the identification of the knowledge of nursing staffs about PU prevention and treatment, a study shows the need for continuing education as a strategy of searching new knowledge for practical implementation.¹³

It was observed that 78.78% of the nurses in this study showed more than 75% correct answers on questions concerning prevention before the training. The questions with 100% correct answers after the training were: "any

individual, on admission at the hospital, should be assessed about at risk for developing pressure ulcers", "a dietary intake of protein and calories should be maintained during the disease", "the mobilization and transfer of totally dependent patients must be made by two or more persons", "patients and relatives should be instructed about the causes and risk factors for the development of pressure ulcers", "bony prominences may be in direct contact with each other", "all care administered, to prevent or treat pressure ulcers, does not need to be documented," "friction may occur when moving the person up in the bed", "educational programs can reduce the incidence of pressure ulcers", and "hospitalized patients need to be evaluated about the risk for pressure ulcers once".

After the training, some questions did not reach the 75% level of correct answers established in the methodology as the parameter to evaluate knowledge obtained after training. However, a considerable improvement was observed in the case of question 14, among others presented in Tables 1 and 2: "water wheel or ring type pads aid in the prevention of pressure ulcer", which presented a percentage of correct answers of 34.69% in the pre-training phase and 69.39% in the post-training phase.

Addressing the prevention of PU requires an attitude of professional ethical care and adoption of best practices.⁹ A study on nursing diagnoses in patients at risk of developing PU, shows that knowledge about early risks favors preventive actions.¹⁴ Thus, in addition to the implementation of PU preventive and therapeutic measures, which still need improvement, the expansion of research in this field, including its prevalence and incidence, is of fundamental importance.¹⁵

The nurses showed 68.53% correct answers in the pre-training phase and 73.13% in the post-training phase to questions in the classification/staging domain, which may suggest that the intervention contributed in knowledge construction for these professionals; however, they did not reach the 75% parameter, a percentage that would set the domain as known by the participants in the study. This means that for this study, the knowledge related to questions concerning

classification/staging still need to be worked in the institution with a view to assisting nurses and other healthcare professionals in the evaluation of PU.

Regarding this aspect, a study performed with doctors and nurses that used the Pieper instrument, associated with the use of photos from the lesion, found 69% of correct answers among doctors and 76% among nurses; the doctors had greater difficulty in identifying suspected deep tissue injury and ulcer without stage than the nurses. The study suggests that questions involving PU prevention, classification, and evaluation should be included in the medical education.¹⁶

The question that showed an increase in the percentage of correct answers after the intervention were: "the stage I pressure ulcer is defined as an erythema that does not whitens" and " stage II pressure ulcers show total thickness skin loss ". It should be noted that the following questions were 100% answered correctly after the intervention "Stage IV pressure ulcers show a loss of skin with intense tissue destruction and necrosis or damage to muscles, bones, or supporting structures" and "a blister in the calcaneus should not be the cause for concern".

The questions that presented correct answer index slightly lower after than before the training were "Stage III pressure ulcer is a partial loss of skin involving the epidermis" and "Stage II pressure ulcers can be extremely painful because of exposure of nerve endings".

The question "Stage II pressure ulcers can be extremely painful because of exposure of nerve endings" might have been a reason of doubt among nurses since less than half of the nurses answered it correctly, both before and after the training (30.61% and 28.57%, respectively); a study with nursing professionals found a result similar to that in which the correct answer index was 28.6%.⁹

The responsibility for the identification of risks for developing PU is on the multidisciplinary team, and thus, the engagement of all with a view to prevention is necessary.¹⁷ The nursing staff, in particular, need to have good working conditions to act on ulcerative lesion prevention; these promote the early detection of risk factors and, in particular, awareness of these professionals regarding harms to patients, such as infection, psychological, and social alterations.¹⁸

The nurses correctly answered 75% of the questions in the PU evaluation domain. This result is similar to those in the study on the knowledge of nursing about PU in the

evaluation questions.¹¹ This index suggests knowledge in this domain by the professionals. However, health care services require the constant updating of professionals involved, and the conduction of trainings that promote discussion among professionals as one strategy for the qualification of the assistance provided. In patients with UP, risk assessment and assistance from health professionals who are sensitized and updated are necessary to prevent the occurrence of new lesions.¹⁷

The data from this study reinforce the need of using scales and protocols for the effective and organized PU evaluation by professionals in the multidisciplinary health team, which would decrease the likelihood of patients developing PU. ¹⁴ In addition, once the nurse identifies and evaluates the risk factors and complications for the development of PU, the possibility to implement the necessary care for PU prevention and development arises, ¹⁹ which will occur through the completion of the Nursing Process.

Nurses, in the exercise of their function, carry out the promotion, prevention, and recovery of health and are responsible for managing the nursing care. Therefore, the provision of educational interventions to all workers involved with care, and having nurses as educators, is essential to control and reduce the incidence of Pressure Ulcer in institutions. Education, in the workplace, provides security to workers for the performance of their duties, which should be a requirement in all healthcare services.

FINAL REMARKS

The percentage of correct answers in the Pressure Ulcer prevention and evaluation domains showed that nurses have knowledge that is considered satisfactory with respect to these aspects. However, in the classification/staging domain, greater focus in educational interventions at the institution is required because a lower correct answer index was observed in the knowledge related to this domain. Thus, it is understood that troubleshooting the situations in the work process favors the construction of knowledge, understood not as a transfer of knowledge but as a collective construction in which all individuals seek solutions from the everyday experience to answers to their own needs.

The results from this study may assist in identifying the deficiencies in the nurses' knowledge and guide in the studied context, and in the planning of actions to help in prevention and care for Pressure Ulcers.

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