





Knowledge of primary care nurses about the treatment of chronic wound in elderly people

Conhecimento de enfermeiros da atenção básica sobre tratamento de feridas crônicas em pessoas idosas
Conocimiento de los enfermeros de la Atención Primaria sobre el tratamiento de heridas crónicas en ancianos

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Abstract

Objective: To analyze the knowledge of primary care nurses regarding the treatment of chronic wounds in elderly people. **Methods:** This is an analytical and cross-sectional study conducted with nurses from the Family Health Strategy in the urban area of Teresina-PI, between November 2022 and January 2023, using an online survey instrument. A total of 149 nurses participated, selected through stratified sampling proportional to the number of nurses in the regional health districts. Student's t-test, Mann-Whitney U test, ANOVA and Kruskal-Wallis H test, and Spearman's non-parametric correlation were used to verify the relationship between quantitative variables, with a significance level of $p < 0.05$. **Results:** Of the total of 149 nurses, 50(33.6%) were from the South Regional Health District, and 45(30.2%) were from the North, East, and Southeast regions, each with 27(18.1%). The average overall score of the participating nurses was 25.6(SD \pm 4.1), with 101(68%) rating their specific knowledge as good, 39(26%) as excellent, and nine (6%) as fair. There was a statistical association between knowledge score and updating on the subject matter ($p = 0.006$) and a negative correlation between age and knowledge score in neuropathic ulcers ($r = -0.197$) and wound care ($r = -0.227$), as well as between the latter topic and time as a nurse ($r = -0.176$). **Conclusion:** Nurses possess good knowledge of the subject matter.

Descriptors:

Knowledge. Wounds and Injuries. Nurses. Aged. Primary Health Care.

Whats is already known on this?

Nurses are responsible for the care and monitoring of wounds and how they affect the quality of life of elderly people.

What this study adds?

Updating institutional protocols, preventive actions, and the use of correct head dressings enables older adults to achieve independence and quality of life, and reaffirms the need for continuing education for nursing professionals.

Resumo

Objetivo: Analisar o conhecimento de enfermeiros da Atenção Básica sobre o tratamento de feridas crônicas em pessoas idosas. **Métodos:** Estudo analítico e transversal realizado com enfermeiros da Estratégia Saúde da Família, zona urbana de Teresina-PI, entre novembro de 2022

e janeiro de 2023, utilizando instrumento online do tipo survey. Participaram 149 enfermeiros, por amostragem estratificada proporcional ao quantitativo de enfermeiros das regionais. Utilizaram-se os testes t de Student, U Mann-Whitney, ANOVA e H de Kruskal-Wallis, além da correlação não paramétrica de Spearman, para verificar a relação entre variáveis quantitativas, com nível de significância de $p < 0,05$. **Resultados:** Do total de 149 enfermeiros, 50(33,6%) eram da DRS Sul, 45 (30,2%) das DRS Norte, Leste e Sudeste, cada uma com 27(18,1%). A média da pontuação geral de acertos dos enfermeiros participantes foi de 25,6(DP \pm 4,1), sendo que 101(68%) apresentaram classificação do conhecimento específico como bom, 39(26%) como ótimo e 9(6%) como regular. Houve associação estatística da pontuação de conhecimento com a atualização na temática ($p=0,006$), e correlação negativa entre idade e pontuação de conhecimento em úlceras neuropáticas ($r=-0,197$) e curativos ($r=-0,227$), bem como deste último tema com o tempo como enfermeiro ($r=-0,176$). **Conclusão:** Os enfermeiros possuem conhecimento bom sobre a temática em questão.

Descritores:

Conhecimento. Ferimentos e Lesões. Enfermeiros. Idoso. Atenção Primária à Saúde.

Resumen

Objetivo: Analizar los conocimientos de los enfermeros de la Atención Primaria sobre el tratamiento de heridas crónicas en ancianos.

Métodos: Estudio analítico y transversal realizado con enfermeros de la Estrategia de Salud Familiar, zona urbana de Teresina-PI, entre noviembre de 2022 y enero de 2023, utilizando un instrumento en línea del tipo encuesta. Participaron 149 enfermeros, mediante muestreo estratificado proporcional al número de enfermeros de las regiones. Se utilizaron las pruebas t de Student, U de Mann-Whitney, ANOVA y H de Kruskal-Wallis, además de la correlación no paramétrica de Spearman, para chequear la relación entre variables cuantitativas, con un nivel de significación de $p < 0,05$. **Resultados:** Del total de 149 enfermeros, 50(33,6%) eran de la DRS Sur, 45(30,2%) de las DRS Norte, Este y Sudeste, cada una con 27(18,1%). El promedio de la puntuación general correcta de los enfermeros participantes fue de 25,6(DP \pm 4,1), y 101(68%) obtuvieron una calificación de conocimientos específicos como buena, 39(26%) como excelente y 9(6%) como regular. Hubo una asociación estadística entre la puntuación de conocimientos y la actualización en la temática ($p=0,006$), y una correlación negativa entre la edad y la puntuación de conocimientos sobre úlceras neuropáticas ($r=-0,197$) y curativos ($r=-0,227$), así como entre este último tema y el tiempo de ejercicio de la enfermería ($r=-0,176$). **Conclusión:** Los enfermeros tienen un buen conocimiento sobre el tema en cuestión.

Descriptores:

Conocimiento. Heridas y lesiones. Enfermeros. Anciano. Atención Primaria de Salud.

INTRODUCTION

Chronic wounds are skin lesions that can affect the most superficial layer, the epithelial tissue, to the deepest layer involving nerves and tendons, resulting from trauma or preexisting pathologies, and have a difficult healing process, lasting longer than six weeks.⁽¹⁾ Therefore, they constitute a serious public health problem in Brazil, associated with different factors, such as vascular impairments, diabetes mellitus, systemic arterial hypertension, neuropathies, prolonged immobility and neoplasms,⁽²⁾ common with the aging process.

In Primary Health Care (PHC), wound treatment is part of the nurse's daily routine, which includes systematic patient assessment, development of a care plan for choosing the ideal coverage, and monitoring wound evolution in order to observe the effectiveness of the treatment and reduce wound complications.⁽³⁾ In view of this, the management of complex wounds is a growing challenge for health systems, especially given the aging population, the higher prevalence of chronic diseases, and the demand for continuous care.⁽⁴⁾

Within the strategies for seeking healthy aging, primary health care plays a strategic role, facilitating the monitoring of prevalent chronic conditions such as diabetes and hypertension, recognized as risk factors for chronic wounds.⁽⁵⁾ Therefore, the nurse responsible for wound care needs to have a broad view of the territory where they work and must be able to monitor the evolution of the lesion, guide the necessary care and perform the dressing.⁽⁶⁾ To this end, caring for wounds in the elderly requires specific knowledge, and it is essential that the nursing professional remains up-to-date for consultation and monitoring with quality and efficiency.⁽⁷⁾

Considering the high prevalence of chronic wounds among elderly people assisted in primary health care in the municipality, the consequent impact on quality of life, and the importance of systematized treatment based on scientific evidence, this study is justified due to the problems that the occurrence of wounds of various etiologies brings to the Family Health Strategy and the limited experience of nurses at this level of care in assisting chronic wounds in the elderly, who in many situations need to transfer the patient to referral units for effective treatment.

Therefore, this study aims to analyze nurses' knowledge regarding the treatment of chronic wounds in older adults assisted in Primary Health Care.

METHODS

This is an analytical and cross-sectional study with a quantitative approach, conducted in Primary Health Care in the city of Teresina, capital of the state of Piauí, in northeastern Brazil.

The research was carried out in the urban area of the municipality, which has 242 Family Health Strategy teams distributed across four Regional Health Directorates (RHD): South (82 teams), East (44 teams), Southeast (45 teams), and North (71 teams). The study population consisted of all nurses working in the Family Health Strategy in the municipality. Participants were recruited through invitations sent via smartphone communication applications (WhatsApp®) or email.

To determine the sample size, the formula for finite populations was used, considering a 95% confidence level ($Z\alpha = 1.96$), a 5% sampling error, and a population of 242 nurses. The calculated sample consisted of 149 nurses. In the first stage, proportional distribution of the number of nurses by Regional Health Directorate was performed. In the second stage, teams from each region were randomly selected using the software R (Project for Statistical Computing), version 3.0.2, thus selecting the required number of elements in each stratum (RHD) to compose the sample.

A total of 149 nurses participated in the study, meeting the following inclusion criteria: working in the Family Health Strategy in the municipality for at least six months and providing care to older adults with wounds. Professionals who were on vacation or on leave during the data collection period were excluded. After recruiting nurses from the selected FHS teams and confirming eligibility according to the inclusion and exclusion criteria, participants who agreed to take part in the study received an electronic questionnaire via WhatsApp® or email. The link initially directed them to the Informed Consent Form.

Data collection took place between November 2022 and January 2023 using an online survey instrument adapted from the questionnaire developed and validated by Hoelz.⁽⁸⁾ The questionnaire was developed by two specialists, and the responses were considered appropriate according to systematic reviews and updated guidelines. The reliability of the questionnaire was estimated using Cronbach's alpha coefficient, which was 0.799.⁽⁸⁾

The electronic questionnaire was developed on the Google Forms® platform and divided into four parts: the first part included variables related to sociodemographic characteristics, education, and occupation; the second was related to nurses' knowledge about wounds; the third included variables regarding clinical practice in wounds in older adults; and the fourth included variables about nurses' specific knowledge regarding wounds and dressings (treatment).

The collected data were entered into a Microsoft Excel spreadsheet and subsequently analyzed using the IBM Statistical Package for the Social Sciences, version 20.0. The level of significance adopted was $p < 0.05$. For data analysis, absolute and relative frequencies were used for qualitative variables, and means

and standard deviations were used for quantitative variables. The Kolmogorov-Smirnov test was also applied to verify whether the data followed a normal distribution. Differences between variables were verified using Student's t-test and the non-parametric Mann-Whitney U test for samples with two categories, as well as ANOVA and the non-parametric Kruskal-Wallis H test for samples with three or more categories. Subsequently, the non-parametric Spearman correlation was used to verify the relationship between quantitative variables.

Regarding the overall score in the knowledge questionnaire, the instrument classifies results as follows: less than 25% correct answers were considered poor knowledge; 26% to 50% fair; 51% to 75% good; and above 75% excellent. The percentage of correct answers was also calculated for specific themes: pressure injuries (questions 8, 14, 28, 29, 30, and 32), venous and arterial ulcers (questions 7, 10, 20, 25, and 37), neuropathic ulcers (questions 9, 16, and 31); clinical assessment of wounds, such as general wound assessment and concepts of colonization and infection (questions 1, 2, 3, 11, 12, 13, 15, 23, and 36); concepts of cleaning, antiseptics, and debridement (questions 18, 19, 21, 22, 24, 27, 33, 34, and 35); and dressings (questions 4, 5, 6, 17, and 25).⁽⁸⁾

The study was reviewed and approved by the Research Ethics Committee of the Federal University of Piauí (CEP/UFPI) under opinion no. 5.652,015 and complied with all ethical principles established in resolutions no. 580/2018, no. 510/2016, and no. 466/2012, as well as Circular Letter no. 1/2021 of the National Health Council, which addresses the ethical aspects of research involving human beings and research conducted in a virtual environment.

RESULTS

Of the total of 149 nurses who participated in the study, 50(33.6%) were from the South Regional Health Directorate (RHD), 45(30.2%) from the North, East and Southeast regions, each one with 27(18.1%) participants. In relation to sociodemographic characteristics, the majority were female, with 45(30.2%) aged 50 years or older, 42(28.2%) younger than 35 years, and a mean age of 43.4 years. The mean time since graduation was 17.9 years, the mean time working as a nurse was 14.9 years, and the mean time working in the Family Health Strategy (FHS) was 9.89 years (Table 1).

Among the institutions where participants completed their training, the Federal University of Piauí (UFPI) stood out (36.2%). All participants had postgraduate education, distributed as follows: specialization (59.7%), master's degree (36.2%), and doctorate (4.0%). Regarding workplace, in addition to working in the FHS, 51(34.2%) also worked in hospitals and 13(8.7%) worked in emergency care units (UPA/Emergency Department) (Table 1).

Table 1. Sociodemographic profile of the participating nurses. Teresina, Piauí, Brazil, 2023. (n=149)

| <i>Variables</i> | <i>N</i> | <i>%</i> | <i>Mean ± SD</i> |
|------------------------------------|----------|----------|------------------|
| Age group | | | 43.4 ± 11,1 |
| Less than 35 years | 42 | 28.2 | |
| 35 to 39 years | 29 | 19.5 | |
| 40 to 44 years | 11 | 7.4 | |
| 45 to 49 years | 22 | 14.8 | |
| 50 years or older | 45 | 30.2 | |
| Sex | | | |
| Female | 120 | 80.5 | |
| Male | 29 | 19.5 | |
| Institution | | | |
| UFPI | 54 | 36.2 | |
| UESPI | 19 | 12.8 | |
| UNINOVAFAPI | 19 | 12.8 | |
| UNIFSA | 16 | 10.7 | |
| UNIFACID | 9 | 6.0 | |
| Other | 32 | 21.5 | |
| Years since graduation | | | 17.9 ± 11.4 |
| < 5 years | 3 | 2.0 | |
| 5 to 10 years | 50 | 33.6 | |
| > 10 years | 96 | 64.4 | |
| Type of postgraduate degree | | | |
| Especialization | 89 | 59.7 | |
| Master's degree | 54 | 36.2 | |

| | | | |
|---------------------------------------|-----|-------|-------------|
| Doctorate | 6 | 4.0 | |
| Workplaces* | | | |
| Family Health Strategy | 149 | 100.0 | |
| Hospital – inpatient ward | 51 | 34.2 | |
| Other | 43 | 28.9 | |
| Emergency Care Unit | 13 | 8.7 | |
| Hospital – outpatient clinic | 8 | 5.4 | |
| Municipal reference outpatient clinic | 2 | 1.3 | |
| Years working as a nurse | | | 14.9 ± 9.98 |
| < 5 years | 18 | 12.1 | |
| 5 to 10 years | 53 | 35.6 | |
| > 10 years | 78 | 52.3 | |
| Years working in the FHS | | | 9.89 ± 7.43 |
| < 5 years | 47 | 31.6 | |
| 5 to 10 years | 54 | 36.2 | |
| > 10 years | 48 | 32.2 | |

*Multiple variable (the sum of percentages exceeds 100%); SD = Standard Deviation.

Source: authors, 2023.

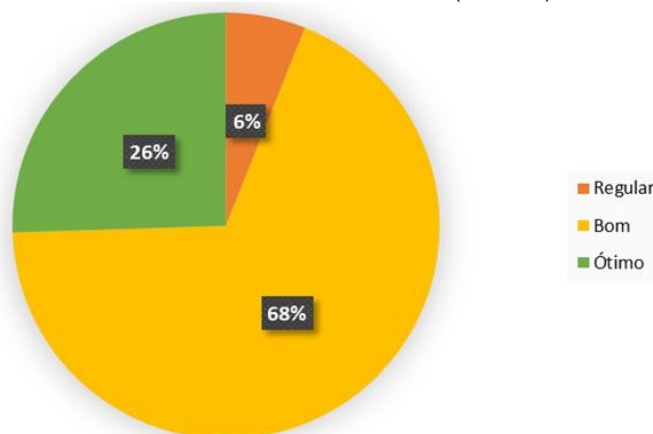
The data presented below are described descriptively due to the volume of information. Among the participants, 127(85.2%) reported that they sometimes attend older adults with wounds, while 22(14.8%) stated that they always provide such care. With respect to training in this field, 88(59.1%) rated their undergraduate education as good, 31(20.8%) as excellent, 16(10.7%) as regular, and 14(9.4%) as poor. Most participants (n=138;92.6%) reported that they keep themselves updated on the treatment of wounds in older adults, mainly through websites (30.2%), congresses and lectures (29.5%), continuing education courses (26.8%), and reading scientific articles (12.1%). Participation in extension courses or study groups was less frequent (0.7%).

Among the selected teams, 50(33.6%) work in FHS units that have institutional wound care protocols. Of these, 55(77.2%) perform nursing consultations to prescribe some type of dressing. In 141 units (94.6%), dressings are performed by nursing technicians or assistants; in 121(81.2%), they follow the prescriptions of the nurse; and in 128(85.9%), dressings are performed in dedicated dressing rooms. Most nurses, 108(78.5%), reported knowing the underlying disease that caused the wound.

Among the dressings known and used by nurses, essential fatty acids were known and used by 144(96.6%); papain was known by 133(89.3%) and used by 98(65.8%); silver sulfadiazine was known by 112(75.2%) and used by 72(48.3%); hydrogel was known by 127(85.2%) and used by 58(38.9%); hydrocolloids were known by 123(82.6%) and used by 23(15.4%); calcium alginate was known by 83(55.7%) and used by 23(15.4%); collagenase was known by 69(46.3%) and used by 14(9.4%); and hyperbaric oxygen therapy was known and used by only one participant (0.7%).

Specific knowledge about wound treatment was assessed through a questionnaire consisting of 37 items. The mean overall score of correct answers among participating nurses was 25.6(SD ± 4.1). Among them, 101(68%) were classified as having good knowledge, 39(26%) excellent knowledge, and nine nurses (6%) regular knowledge (Chart 1).

Chart 1. Overall knowledge score of participating nurses on wound treatment: excellent, good, and fair. Teresina, Piauí, Brazil, 2023. (n = 149)



Source: authors, 2023.

The distribution of knowledge scores by region showed that, in the South region, 33(66.0%) nurses had good knowledge, 14(28.0%) excellent knowledge, and three (6.0%) regular knowledge. In the East region, seven (25.9%) had excellent knowledge, 18(66.7%) good knowledge, and two (7.4%) regular knowledge. In the Southeast region, 25(92.6%) had good knowledge and two (7.4%) excellent knowledge. In the North region, 26(57.8%) had good knowledge, 15(33.3%) excellent knowledge, and four (8.9%) regular knowledge.

Table 2 presents the 37 questions and their respective percentages of correct and incorrect answers. Five presented less than 50% correct responses: Q3, Q7, Q10, Q15, and Q25. The item with the highest number of correct answers was Q33 (Cleaning wounds with 0.9% saline solution), with 98%, and the item with the lowest number of correct answers was Q7 (Unna boot for arterial ulcers), with 35.6%. The item with the highest number of "I do not know/no response" answers was Q25 (Occlusive dressings and compression therapies), with 28.9%.

Table 2. Distribution of questions according to the percentage of correct and incorrect answers among nurses. Teresina, Piauí, Brazil, 2023. (n = 149)

| Question topic | Correct % | Incorrect % | Don't know/No response % |
|--|-----------|-------------|--------------------------|
| Q1-Best environment for wound healing | 96.7 | 2.0 | 1.3 |
| Q2-Swab should be routinely performed in chronic wounds | 58.4 | 32.2 | 9.4 |
| Q3-Swab differentiates colonized wounds from infected wounds | 36.9 | 58.4 | 4.7 |
| Q4-Hydrogel dressings | 76.5 | 22.1 | 1.3 |
| Q5-Hydrocolloid dressings | 87.9 | 10.7 | 1.3 |
| Q6-Activated charcoal with silver | 75.2 | 14.1 | 10.7 |
| Q7-Unna boot for arterial ulcers | 35.6 | 57.0 | 7.4 |
| Q8-Braden Scale | 95.3 | 0.7 | 4.0 |
| Q9-Diabetes and risk of neuropathic wounds | 89.9 | 8.7 | 1.3 |
| Q10-Chronic wounds and rest with the lower limbs elevated | 39.6 | 57.0 | 3.4 |
| Q11-Indication of topical antibiotics in the treatment of colonized ulcers | 58.4 | 35.6 | 6.0 |
| Q12-Biofilm | 59.7 | 30.2 | 10.1 |
| Q13-Indication of systemic antibiotics | 57.0 | 40.3 | 2.7 |
| Q14-Pressure ulcers | 77.2 | 22.8 | - |
| Q15-Critical Colonization | 45.6 | 52.3 | 2.0 |
| Q16-Clinical characteristics of plantar perforating ulcer | 85.2 | 9.4 | 5.4 |
| Q17-Essential fatty acids | 77.9 | 21.5 | 0.7 |
| Q18-Indication for mechanical debridement | 73.2 | 26.2 | 0.7 |
| Q19-Knowledge about devitalized tissue and debridement | 62.4 | 34.2 | 3.4 |
| Q20-Indication for compression therapies | 62.4 | 29.5 | 8.1 |
| Q21-Use of antiseptics in daily wound cleaning | 77.9 | 19.5 | 2.7 |
| Q22-Knowledge about debridement of venous ulcers and pressure injuries | 62.4 | 32.9 | 4.7 |
| Q23-Knowledge about healthy granulation tissue | 86.6 | 10.7 | 2.7 |
| Q24-Use of sterile gloves in chronic wound dressings | 83.9 | 16.1 | - |

| | | | |
|--|------|------|------|
| Q25–Occlusive dressings and compression therapies | 39.6 | 31.5 | 28.9 |
| Q26–Dressings for ulcers with a high level of exudate | 80.5 | 14.8 | 4.7 |
| Q27–Daily wound cleaning with water and soap | 53.7 | 45.0 | 1.3 |
| Q28–Need for nutritional assessment in pressure ulcers | 66.4 | 32.9 | 0.7 |
| Q29–Use of ring-shaped cushions in pressure ulcers | 52.3 | 44.3 | 3.4 |
| Q30–Use of water-filled gloves in the prevention and treatment of heel pressure ulcers | 65.8 | 32.9 | 1.3 |
| Q31–Plantar perforating ulcer and reduction of plantar load | 73.2 | 14.1 | 12.8 |
| Q32–Use of hospital mattresses as pressure-reducing devices | 90.6 | 9.4 | - |
| Q33–Wound cleaning with 0.9% saline solution | 98.0 | 2.0 | - |
| Q34–Wound cleaning with treated water | 61.1 | 34.2 | 4.7 |
| Q35–Knowledge about potassium permanganate | 61.7 | 24.2 | 14.1 |
| Q36–Use of sugar in colonized wounds | 68.5 | 26.8 | 4.7 |
| Q37–Knowledge about arterial ulcers | 85.9 | 10.1 | 4.0 |

Source: authors, 2023.

With regard to the regions, the question with the highest percentage of correct answers in the South Zone was Q33 (Wound cleaning with 0.9% saline solution) (98%), and the one with the highest percentage of incorrect answers was Q7 (Unna boot for arterial ulcers) (74%). In the East Zone, the question with the highest percentage of correct answers was Q7 (100%), and the one with the highest percentage of incorrect answers was Q36 (Use of sugar in colonized wounds) (73.1%). In the Southeast Zone, the highest percentage of correct answers was observed for Q1 (Best environment for wound healing) (96.3%), while the highest percentage of incorrect answers was for Q3 (Swab differentiates colonized wounds from infected wounds) (77.2%). In the North Zone, the question with the highest percentage of correct answers was also Q1 (100%), and the lowest percentage of correct answers was for Q25 (Occlusive dressings and compression therapies) (35.6%).

The mean percentage of correct answers by specific themes was as follows: concepts of cleaning, antiseptics, and debridement (nine questions) with a mean of 6.3; clinical evaluation of wounds (nine questions) with a mean of 5.7; pressure injuries (six questions) with a mean of 4.5; dressings (five questions) with a mean of 4.4; venous and arterial ulcers (five questions) with a mean of 2.6; and neuropathic ulcers (three questions) with a mean of 2.3.

Table 3 shows that there was no statistically significant association between the overall knowledge score and the variables time since graduation ($p=0.298$), time working as a nurse ($p=0.495$), and time working in the Family Health Strategy ($p=0.776$). A statistically significant association was observed only with the variable related to updating/continuing education in wound care ($p=0.006$).

Table 3. Association between the overall level of nurses' knowledge and time since graduation, time working as a nurse, time working in the Family Health Strategy (FHS), and updating/continuing education in wound care. Teresina, Piauí, Brazil, 2023.

| Variables | Conhecimento | | p-value |
|---|-----------------------|---------------------------|--------------------------|
| | Good (n=111) n (%) | Excellent (n=38) n (%) | |
| Time since graduation | | | |
| < 5 years | 2 (66,7) | 1 (33,3) | 0,298 ^b |
| 5–10 years | 41 (82,0) | 9 (18,0) | |
| More than 10 years | 68 (70,8) | 28 (29,2) | |
| Time working as a nurse | | | |
| < 5 years | 15 (83,3) | 3 (16,7) | 0,495 ^a |
| 5–10 years | 37 (69,8) | 16 (30,2) | |
| More than 10 years | 59 (75,6) | 19 (24,4) | |
| Time working in the Family Health Strategy | | | |
| < 5 years | 36 (76,6) | 11 (23,4) | 0,776 ^a |
| 5–10 years | 41 (75,9) | 13 (24,1) | |
| More than 10 years | 34 (70,8) | 14 (29,2) | |
| Updating education in wound care | | | |
| No | 4 (36,4) | 7 (63,6) | 0,006^b |
| Yes | 107 (77,5) | 31 (22,5) | |

^aChi-square test; ^bFisher's exact test.

Source: authors, 2023.

It was also observed that nurses' age showed a statistically significant negative correlation with the score for neuropathic ulcers ($r=-0.195$) and dressings ($r=-0.227$), indicating that as age increased, the score for these topics decreased. Similarly, time working as a nurse also showed a statistically significant negative correlation with the topic of dressings ($r=-0.176$).

Table 4. Association between the scores of correct answers for specific themes and the age, time since graduation, and work experience of the participating nurses. Teresina, Piauí, Brazil, 2023.

| Variables | Age | Time working as a nurse (years) | Time working in the Family Health Strategy - FHS (years) | Time providing care to older adults with wounds (years) |
|--|----------------|---------------------------------|--|---|
| Pressure lesion | -0,132 | -0,080 | -0,150 | -0,069 |
| Venous and arterial ulcers | 0,114 | -0,019 | -0,044 | 0,073 |
| Neuropathic ulcers | -0,195* | -0,122 | -0,016 | 0,053 |
| Clinical assessment of wounds | 0,066 | -0,075 | 0,002 | 0,094 |
| Concepts of cleaning, antiseptics, and debridement | -0,039 | -0,052 | -0,053 | -0,086 |
| Dressings | -0,227* | -0,176* | -0,129 | 0,009 |
| Overall score | -0,002 | -0,078 | -0,044 | 0,038 |

*Spearman's correlation (r) significant at the 5% level ($p<0.05$).

Source: authors, 2023.

DISCUSSION

In the present study, the results confirmed the predominance of females, which is expected given the historical background of the profession that associates care with women's work.⁽⁹⁾ The mean age was 43.4 years, a finding similar to another study conducted with Primary Health Care nurses in another city in the Northeast region of Brazil, which reported a mean age between 35 and 45 years.^(6,7) Regarding education, most participants considered their training in the field of wound care to be good. However, a study conducted with 77 undergraduate nursing students, with greater participation from students in the 4th and 9th semesters of a public university in Northern Minas Gerais, identified a deficit in knowledge regarding the prevention, classification, and treatment of pressure injuries among the participants.⁽¹⁰⁾

Most participants reported that they had always sought updates regarding the topic "treatment of wounds in older adults," mainly through websites, followed by congresses/lectures and refresher courses. The reading of scientific articles was among the two least used forms of updating, alongside extension courses and research groups. Similar results were found in a study conducted with 56 nursing professionals, which indicated that most respondents updated their knowledge informally, mainly through information shared with other members of the nursing team.⁽¹¹⁾

Among the professionals who perform nursing consultations, most prescribe some type of dressing, with essential fatty acids being the most known and used. Papain, silver sulfadiazine, hydrogel, hydrocolloid, calcium alginate, and collagenase were also known and used. On the other hand, collagenase, fibrinolysin, and hyperbaric oxygen therapy were the least identified. In a quantitative and descriptive study conducted with 55 Primary Health Care nurses, the most well-known dressing was silver sulfadiazine, known by 53(96.4%) and used by 44(80%) professionals. Similarly, papain was known by 52(94.5%) and used by 35(63.6%), and collagenase was known by 51(92.7%) and used by 34(61.8%).⁽¹²⁾

The overall mean score on the questionnaire used to assess cognitive knowledge regarding wound treatment was 25.6, with most nurses achieving performance scores classified as good or excellent, and a smaller proportion presenting a regular overall performance score. Similar findings were observed in another study in which participants obtained an average of 24 correct answers (64.9%), considered good performance.⁽¹³⁾

In the present study, when evaluating the number of correct answers for each of the 37 questions, five questions presented less than 50% correct answers, which is considered a small number when compared to the study that developed and validated the questionnaire used in this research, in which 13 questions achieved less than 50% correct answers.⁽⁸⁾

The question with the highest number of correct answers was “Wound cleaning with 0.9% saline solution,” while the question with the lowest number of correct answers was “Unna boot for arterial ulcers.” In comparison, a study conducted with 128 nursing professionals from a University Hospital found that in the statement that 0.9% saline solution is considered the most ideal cleaning solution, there was an error rate higher than 60%.⁽¹⁴⁾

The Unna boot is indicated for wounds of venous etiology as a compression method, associated with zinc oxide and non-elastic bandages that provide sufficient pressure both during activity and at rest, accelerating the healing process of ulcers while allowing ambulation. This type of ulcer occurs in areas of the skin with alterations in blood vessel flow or reflux, with different causes, such as obstruction of venous return.⁽¹⁶⁾

Other questions with lower percentages of correct answers were “Swab differentiates colonized wounds from infected wounds,” “Chronic wounds and rest with the lower limbs elevated,” “Critical colonization,” and “Occlusive dressings and compression therapies.” A cohort study conducted through the collection of biological material from wounds using sterile swabs was able to differentiate the type of microorganism colonizing 25 wounds, making the nurse’s prescription of dressings more accurate, especially when colonization was critical and required mechanical or even surgical debridement.⁽¹⁷⁾

Regarding occlusive dressings, compression therapies, and resting with the lower limbs elevated, these are indicated for venous ulcers, since they favor venous return. In contrast, arterial ulcers have a different etiology, are painful, and tend to worsen when the limb is elevated; therefore, the aforementioned indications should not be applied.⁽¹⁶⁾

When analyzing the results of nurses’ specific knowledge by regions through the 37 questions, the highest percentage of correct answers in the South and East regions was related to wound cleaning with 0.9% saline solution. About errors in these two regions, the South region presented the highest percentage in the question related to the use of the Unna boot for arterial ulcers, whereas in the East region the highest error rate was related to the use of sugar in colonized wounds. Respect this topic, a study conducted with low-income families showed that refined sugar is used to reduce pain, decrease exudate, and promote granulation tissue formation; however, it may also cause infection by attracting insects, and there is no scientific evidence proving its effectiveness.⁽¹⁸⁾

In the Southeast and North regions, the highest percentage of correct answers was related to the best environment for wound healing. It is known that even if the best dressing or combination of dressings is used, if it is not appropriate for the wound environment or if the wound bed is not moist, free of biofilm, and presenting granulation tissue, treatment will not be effective.⁽¹²⁾ However, the highest error among nurses in the Southeast region was related to the use of swabs to differentiate microorganisms infecting wounds. As previously mentioned, this differentiation is necessary for appropriate treatment.⁽¹⁷⁾ In the North region, the question with the highest error rate was related to occlusive dressings and compression therapies, which are prescribed for venous ulcers in an attempt to improve circulation and healing.⁽¹⁸⁾

A positive finding was that the highest mean percentage of correct answers by specific themes was related to concepts of cleaning, antiseptics, and debridement. This reflects nurses’ knowledge regarding the need for proper hygiene and dressing changes, either sterile or non-sterile depending on the wound, as well as debridement, which may be autolytic, enzymatic, biological, mechanical, or surgical, each with its ideal dressing.⁽¹⁹⁾ Furthermore, clinical wound assessment presented the second highest mean of correct answers, providing positive feedback that nurses are evaluating lesions before indicating dressings and are concerned with providing the most appropriate treatment.⁽²⁰⁾

In relation to the themes addressing types of chronic wound, pressure injuries (PI), venous ulcers (VU), arterial ulcers (AU), and neuropathic ulcers, the questions related to pressure injuries presented the highest mean of correct answers, whereas neuropathic ulcers presented the lowest. This finding may be explained by the fact that pressure injuries are statistically more prevalent with population aging and are more frequent among bedridden or wheelchair-bound patients at home due to the difficulty in repositioning, which facilitates their development.⁽²¹⁾ Neuropathic ulcers are common in patients with diabetes or leprosy due to loss of nerve sensitivity, followed by dryness of the feet, lack of care, and inadequate hygiene.⁽²²⁾

Each individual and their wound, especially in the case of chronic wounds in older adults, should be managed in an individualized manner, considering the cause, location, and characteristics of the wound, the skin changes resulting from the aging process, and the factors that affect the healing of skin lesions.⁽²²⁾

It is necessary for nurses to seek updates regarding wound treatment and advances in the field, which will likely result in greater knowledge, increased confidence, and improved care for patients with wounds.⁽²³⁾

It was also observed that there was a negative association between nurses' age and the scores for "neuropathic ulcers" and "dressings," meaning that as age increases, the number of correct answers decreases. Respect the dressing theme, it was also found that a longer time working as a nurse was associated with lower scores. Older professionals often find it difficult to keep up with updates in the pharmaceutical industry and curricular changes, such as the inclusion of stomatherapy as a discipline in nursing courses. In addition, some may not believe in changes or may not perceive benefits in scientific research.^(24,25)

These results highlight the need for specific training for nurses addressing prevention measures, nursing consultations using the nursing process for better wound assessment and treatment, and gerontology. Additionally, the structuring of Primary Health Care Units with adequate human and material resources and investment in more recent treatments is necessary.

The main limitation of this study was the difficulty in data collection due to some professionals' refusal to participate and the difficulty older nurses had in dealing with technology to respond to the questionnaire. Another limitation refers to the fact that the data were collected based on participants' responses, without on-site evaluation of the activities performed by nurses. Despite this, the sample represents a relevant proportion of professionals working in the municipality, and the data obtained may be useful in promoting possible training for nurses working in the Family Health Strategy who provide care to people with chronic wounds, including older adults.

CONCLUSION

The knowledge of the nurses evaluated and working in the Family Health Strategy reached a high overall score, with most classified as having good to excellent performance. This is a relevant aspect for the adequate management of chronic wounds in older adults at this level of care and for ensuring the quality of nursing care. However, some topics need to be reviewed by participants, as they represent important points in wound treatment, especially issues related to differentiating colonization, the use of dressings such as the Unna boot, and the correct indications and differentiation between venous and arterial ulcers.

It was also observed that updating knowledge regarding care for older adults with wounds was statistically associated with better knowledge scores, that as nurses' age increases, the score of correct answers in specific themes, dressings and neuropathic ulcers, decreases. It was also identified that increased time spent working as a nurse decreases the success rate in wound care, reinforcing the importance of ongoing training for nurses to learn about new technologies, update institutional protocols, and promote evidence-based practice.

CONTRIBUTIONS

Contributed to the conception or design of the study/research: Moura MCS, Vieira CPB de. Contributed to data collection: Moura MCS. Contributed to the analysis and/or interpretation of data: Moura MCS, Vieira CPB de. Contributed to article writing or critical review: Moura MCS, Vieira CPB de, de Galiza FT, Vasconcelos CDA. Final approval of the version to be published: Moura MCS, Vieira CPB de, de Galiza FT, Vasconcelos CDA.

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