




RESEARCH

**Nursing professional competencies related to quality of care in people with
pressure ulcers****Competencias profesionales de enfermería relacionadas con calidad del
cuidado en personas con úlceras por presión****Competências profissionais de enfermagem relacionadas com a qualidade dos
cuidados prestados às pessoas com úlceras de pressão**Francisca González-Basurto ^{1*} <https://orcid.org/0009-0001-7517-1651>Josefina Valenzuela-Gandarilla ² <https://orcid.org/0000-0002-3886-4977>Ruth Esperanza Pérez-Guerrero ³ <https://orcid.org/0000-0002-8991-0494>Ma. de Jesús Ruiz-Recéndiz ⁴ <https://orcid.org/0000-0002-7979-4215>

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Abstract

Introduction: Pressure ulcers are a public health problem. The study provides scientific evidence for quality assurance in nursing clinical practice. **Objective:** To analyze the relationship of nursing professional competencies with the quality of care in people with pressure ulcers in a public hospital. **Methodology:** Quantitative approach, cross-sectional, correlational design; sample of 150 patients and 96 nursing professionals, with non-probabilistic sampling. Inclusion criteria: Operational professionals with six months of work experience, from 3 hospitalization services, and patients over 65 years of age with risk and/or presence of pressure ulcers. The Nursing Competencies questionnaire with sociodemographic data for nurses and patients and the Pressure Ulcer Treatment Audit instrument were used, with prior informed consent. Descriptive and inferential statistics were performed with one-factor ANOVA. **Results:** Among nursing personnel 84.4% were women, with 2 to 25 years of professional experience; 52.1 % had a bachelor's degree. Among patients, 56.7 % were women and 36.7 % had a bachelor's degree. Some 34.4 % were proficient, and in the pressure management dimension, 28.1 % were proficient and in the nutrition dimension, 26 % were beginners. It was obtained that the quality of care was moderately efficient in treatment dimension, giving 36.0 %. The relationship between the variables was statistically non-significant. **Conclusion:** Three out of 10 nursing professionals were competent for care; in quality of care, patients sensed that almost half of nursing professionals were inefficient for providing prevention.

Key words: Pressure ulcer; Nursing care; Prevention and control (DeCS).

Resumen

Introducción: Las úlceras por presión son un problema de salud pública; el estudio aporta evidencia científica para garantizar la calidad en la práctica clínica de enfermería. **Objetivo:** Analizar la relación de las competencias profesionales de enfermería con la calidad del cuidado en personas con úlceras por presión de un hospital público. **Metodología:** Enfoque cuantitativo, diseño transversal, correlacional; muestra de 150 pacientes y 96 profesionales de enfermería, con muestreo no probabilístico. Criterios de inclusión, profesionales operativos con experiencia laboral de seis meses, de 3 servicios de hospitalización, y pacientes con riesgo y/o presencia de úlceras por presión, mayores de 65 años. Se empleó cuestionario de Competencias de Enfermería con datos sociodemográficos para enfermería y pacientes e instrumento de Auditoría Tratamiento de Úlceras por Presión, previo consentimiento informado. Se realizó estadística descriptiva e inferencial con ANOVA de un factor. **Resultados:** Enfermería 84.4 % mujeres, antigüedad de 2 a 25 años y grado académico de Licenciatura 52.1 %; pacientes 56.7 % mujeres y 36.7 % con Licenciatura. Un 34.4 % tuvo nivel competente, y en dimensión manejo de la presión fue aventajado con 28.1% y dimensión nutrición 26 % fueron principiantes. Se obtuvo que la calidad del cuidado fue moderadamente eficiente en dimensión tratamiento 36.0 %; ineficiente en prevención 46.7%. La relación entre las variables fue estadísticamente no significativa. **Conclusión:** Tres de cada 10 profesionales de enfermería fueron competentes para el cuidado; en calidad del cuidado los pacientes percibieron que casi la mitad de profesionales de enfermería fueron ineficientes para la prevención.

Palabras clave: Úlcera por presión; Cuidado de enfermería; Prevención y control (DeCS).



Abstrato

Introdução: As úlceras por pressão são um problema de saúde pública. O estudo fornece evidências científicas para a garantia de qualidade na prática clínica da enfermagem. **Objetivo:** Analisar a relação das competências profissionais de enfermagem com a qualidade do atendimento a pessoas com úlceras de pressão em um hospital público. **Metodologia:** Abordagem quantitativa, transversal e correlacional; amostra de 150 pacientes e 96 profissionais de enfermagem, com amostragem não probabilística. Critérios de inclusão: Profissionais operacionais com seis meses de experiência profissional, de 3 serviços de internação, e pacientes com mais de 65 anos de idade com risco e/ou presença de úlceras de pressão. Foram utilizados o questionário de competências de enfermagem com dados sociodemográficos de enfermeiros e pacientes e o Instrumento de auditoria do tratamento de úlceras por pressão, com consentimento informado prévio. Foram realizadas estatísticas descritivas e inferenciais com ANOVA de um fator. **Resultados:** Entre a equipe de enfermagem, 84,4 % eram mulheres, com 2 a 25 anos de experiência profissional; 52,1 % tinham diploma de bacharel. Entre os pacientes, 56,7 % eram mulheres e 36,7 % tinham diploma de bacharel. Cerca de 34,4 % eram proficientes, sendo que, na dimensão de gerenciamento de pressão, 28,1 % eram proficientes e, na dimensão de nutrição, 26 % eram iniciantes. Obteve-se que a qualidade do atendimento foi moderadamente eficiente na dimensão do tratamento, com 36,0 %. A relação entre as variáveis foi estatisticamente não significativa. **Conclusão:** Três em cada 10 profissionais de enfermagem eram competentes para o atendimento; na qualidade do atendimento, os pacientes sentiram que quase metade dos profissionais de enfermagem era ineficiente para fornecer prevenção.

Palavras-chave: Úlcera de pressão; Cuidados de enfermagem; Prevenção e controle (DeCS).

Introduction

Pressure ulcers (PUs) are currently referred to as skin lesions, considered as a lesion that occurs in the skin and underlying tissues as a result of ischemia and due to factors such as pressure, friction or shear ⁽¹⁾. The etiological mechanism may be due to pressure, friction, tearing and humidity and cause dependence, partial or total loss of mobility, physical, sensory and mental, requiring care ⁽²⁾. PUs can be triggered within hours or days immediately, due to intrinsic factors (prolonged hospitalization, impaired alertness, neuro-degenerative diseases, comorbidities, hypotension, cancer, aging, malnutrition or dietary restrictions, depression, urinary and fecal incontinence) ⁽³⁾ or extrinsic factors (pressure, friction, shear and humidity) ⁽⁴⁾.

Worldwide, the prevalence of PU development is 5-12 % ⁽⁵⁾, in Europe 6-23 % ⁽⁶⁾, in the United States 7.4 % and in Latin America 7 % ⁽⁵⁾. In Mexico, the general prevalence is 3-17 % in hospitalized patients with a higher prevalence in older adults, high incidence in internal medicine



(80 %) and surgery (52.8 %) ⁽⁷⁾; in Morelia, Mexico, a Regional Hospital reported a prevalence of 4.2 % of PUs ⁽⁸⁾.

PUs can produce primary and secondary complications. Primary complications can be local (necrosis) and systemic (anemia, endocarditis, sepsis, sepsis, tetanus, squamous cell carcinoma and fistulas); secondary complications are economic risks and prolonged hospital stays that generate high costs for health institutions ⁽⁹⁾. People with PUs or at risk of developing them often have limited mobility and prolonged hospital stays causing dependence on nursing care. PUs are considered adverse events due to the lack or omission of nursing care, leading to physical, economic, psychological and social alterations in people ⁽¹⁰⁾.

For this reason, competent nursing professionals are required to care for them in order to prevent their early onset and cure. However, the quality of care is affected by factors such as the nurse-to-patient ratio, shortages of materials and supplies, and the competencies of the nursing personnel to manage the aforementioned factors. Nursing competencies refer to an integrated set of knowledge, skills, abilities, aptitudes and values needed to perform a given activity. Moreover, Patricia Benner establishes levels of skill acquisition in nursing practice ⁽¹¹⁾.

Studies have been conducted to identify barriers to PUs prevention, nursing personnel knowledge ⁽¹²⁾, quality of care in PUs management ⁽¹³⁾, and patient perception of PUs care ⁽¹⁴⁾. Currently, there is a gap where the relationship between nursing competencies and quality of care in people with PUs needs to be explored, so the following is proposed: What is the relationship of nursing professional competencies with the quality of care in people with PUs in this Regional Hospital of Morelia? The purpose was to analyze the relationship of professional nursing competencies with the quality of care in people with PUs in a public hospital.



Methodology

A quantitative, non-experimental, correlational study was performed ⁽¹⁵⁾. The sample consisted of 96 nursing professionals and 150 hospitalized patients in a Regional Hospital of Morelia, selected by non-probabilistic and convenience sampling. Nursing professionals with a minimum work experience of six months in internal medicine and surgery and traumatology services were included. Nursing students and interns in nursing social service and service chiefs were excluded. Patients were older than 65 years, hospitalized in the same services, with risk and/or presence of PUs, excluding those with a stay of less than 8 hours or with communication difficulties.

The Nursing Competencies for the Care of PUs (ICCUPP) questionnaire ⁽⁵⁾ was used, which includes sociodemographic data and 48 items grouped into four dimensions: Prevention and skin care, pressure management, nutrition and treatment; with Likert-type response options (1-5); items 6 and 21 are recoded. Nursing competence was rated on the total scale as proposed by Benner ⁽¹¹⁾, with the scores: 48 to 86= beginner, 87 to 125= advanced beginner, 126 to 163= proficient, 164 to 202= advanced and 203 to 240= expert ⁽⁵⁾. The author found high reliability with Cronbach's alpha of 0.936 and excellent content validity (IVC= 0.9) according to Lawshe's model modified by Tristán ⁽⁵⁾.

The Pressure Ulcer Treatment Audit questionnaire ⁽¹⁶⁾, adapted from a quality verification scale of 20 activities with dichotomous responses, was used. Additional items validated by experts (IVC= 0.918) were included and evaluated psychometrically in a pilot test with 40 patients in a second level hospital, demonstrating high overall reliability with Cronbach's Alpha of 0.9. The final version consisted of 26 items, with two dimensions: Prevention and treatment; Likert-type response scale (1-3). The questionnaire with sociodemographic data was applied in a differentiated manner: the prevention dimension was applied to all patients, given that preventive measures are universal. The treatment dimension was administered to those who already had PUs (n=103) ⁽¹⁶⁾. The cut-off



points for the assessment of the results were: Prevention: 11 to 18= inefficient, 19 to 26= moderately efficient and 27 to 33= efficient; treatment: 12 to 20= inefficient, 21 to 32= moderately efficient and 33 to 42= efficient.

The study was approved by the Research Ethics and Research Committees of the School of Nursing (CI/FacEnf/006-PG-2022 and CEI/FacEnf/006-PG-2022) and the Research Ethics Committee of the Regional Hospital (N°.2.11.15.4.2/CEI/012/2022). In addition, it adhered to ethical and legal considerations with respect to the dignity, confidentiality and right of withdrawal of individuals ⁽¹⁷⁾ by signing an informed consent form.

Data processing was done with Statistical Package for the Social Sciences (SPSS) version 25. Initial assessment was performed with descriptive statistics; normality of data with Kolmogorov-Smirnov with Lilliefors correction ($p= 0.200$). Since the assumptions of normality ($p= 0.200$), homoscedasticity (homogeneous dispersion residual plot) and independence (Durbin-Watson= 1.657) were met, a one-factor ANOVA test was performed to compare the means of quality of care with the levels of nursing professional competencies.

Results

Nursing professionals were predominantly female (84.4 %), married (50 %), with a bachelor's degree (52.1 %) and classified employment category (76 %). The mean age of the nursing professionals was 38.5 years (SD= 8.8) and the mean number of years of seniority was 10.8 (SD= 6.9), (Table 1).



Table 1. Sociodemographic data of the nursing professionals of the Morelia Regional Hospital, 2022 (n=96)

Variable	<i>f</i>	%
Gender		
Woman	81	84.4
Man	15	15.6
Academic degree		
Nursing technician	13	13.5
Bachelor's Degree	50	52.2
Specialists	20	20.8
Master's Degree	12	12.5
PhD	1	1.0
Shift		
Morning	16	16.7
Evening	16	16.7
Night A	16	16.7
Night B	16	16.7
Weekend	16	16.7
Special shift	16	16.6*
Service		
Surgery and traumatology	48	50.0
Internal medicine	48	50.0
Contracting type		
Alternate	9	9.4
Temporary	14	14.6
Fixed	73	76.0
Marital status		
Single	21	21.9
Married	48	50.0
Common-Law marriage	10	10.4
Divorced	13	13.6
Widow(er)	3	3.1
Other	1	1.0
Residence address		
Morelia	81	84.4
Interior of Michoacán state	12	12.5
Other state	3	3.1

Source: Self-development. Note: The percentage was adjusted to 16.6% to compensate for cumulative rounding (16.6% per shift), but the theoretical total is 100%.

In relation to the persons at risk and/or presence of PU, 71.3 % showed a high risk according to the Braden scale, 56.7 % corresponded to the female gender and 62 % of the patients who came from the internal medicine service. The age range of the patients was between 65 and 98 years, (Table 2).



Table 2. Sociodemographic data of patients, 2022 (n=150)

Variable	<i>f</i>	%
Risk according to Braden Scale		
Low	4	2.7
Average	39	26.0
High	107	71.3
Gender		
Woman	85	56.7
Man	65	43.3
Academic degree		
Elementary	25	16.7
Secondary	18	12.0
Upper middle level	20	13.3
Higher level	55	36.7
Graduate studies	29	19.3
Other	3	2.0
Service		
Surgery and traumatology	57	38.0
Internal medicine	93	62.0
Marital status		
Single	5	3.3
Married	47	31.3
Common-Law marriage	16	10.7
Divorced	32	21.3
Widow(er)	50	33.3
Residence address		
Morelia	56	37.3
Interior of the Michoacán state	77	51.3
Other state	17	11.3

Source: Self-development

Table 3 shows that the nursing professionals were at the competent level on the total scale (34.4 %) and in the dimension's prevention and skin care (34.4 %) and treatment (30.2 %). The nutrition dimension showed the lowest level (beginner, 26 %) and the pressure management dimension showed the highest level (proficient, 28.1 %).

Table 3. Competency level of nursing professionals, 2022 (n= 96)

Competence of nursing professionals	Beginner		Advanced beginner		Competent		Advanced		Expert	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Total scale	10	10.4	19	19.8	33	34.4	24	25	10	10.4
Prevention and skin care	8	8.3	9	9.4	33	34.4	26	27.1	20	20.8
Pressure management	10	10.4	20	20.8	26	27.1	27	28.1	13	13.6*
Nutrition	25	26.0	23	24.0	22	22.9	18	18.8	8	8.3
Treatment	14	14.6	24	25.0	29	30.2	16	16.7	13	13.5

Source: Self-development. Note: The percentage was adjusted from 13.541% to 13.6% to compensate for the missing 01. %, but the theoretical total is 100%.



The quality of care was inefficient (47.3 %) in the prevention dimension and moderately efficient in the treatment dimension (36.0 %), (Table 4).

Table 4. Quality of care perceived by patients in the prevention and treatment dimensions, 2022 (n=150)

Dimensions of quality care	Prevention (n= 150)		Treatment (n= 103)	
	f	%	f	%
Inefficient	71	47.3	36	24.0
Moderately efficient	58	38.7	54	36.0
Efficient	21	14.0	13	8.7

Source: Self-development. Note: The prevention dimension was evaluated in all patients (n=150), while the treatment dimension only included the 103 patients with PUs. The percentages in treatment correspond to their subsample (n=103).

Finally, to answer the general objective, the results of one-way ANOVA showed that there was no significant statistical difference in the mean scores of qualities of care with different levels of nurses' professional competence, and prevention ($F= 0.883$, $p= 0.478$) and treatment ($F=1.204$, $p= 0.318$) dimensions.

Discussion

According to the sociodemographic data, the nursing professionals were mostly women, with a bachelor's degree, attached to the internal medicine service and with sufficient work experience, although with a variability in seniority that may mark differences in the acquisition of competencies and, therefore, in the quality of care provided. These results are consistent with those found in a study ⁽⁵⁾ in which most of the nursing professionals had a bachelor's degree and were assigned to the internal medicine service. However, in relation to age, it did not match the findings of another author ⁽⁵⁾, who mentioned an age of five years. Regarding the academic level, the above differs from what was reported by the Standing Commission on Nursing ⁽¹⁸⁾ where nursing professionals with a bachelor's degree were the minority.

Additionally, in people with risk and/or presence of PU, five out of 10 patients were women and from the internal medicine service, which was consistent with other results ⁽⁵⁾ where it was found



that older adults presented difficulty in their mobility, which increased the risk of falls, the possibility of fractures and the consequent prolonged bed rest, all of these, increasing the risk of triggering PUs ⁽¹⁹⁾.

Regarding the risk of presenting PUs, a high risk was found, which was consistent with the results reported in one study ⁽¹⁹⁾; however, this differs from other authors, where low risk was found ⁽²⁰⁾, although moderate risk was also reported ⁽²¹⁾. These results may be due to the characteristics of the sample, where all were older adults with limited mobility, malnutrition and cognitive, physical and sensory impairment who remained in the internal medicine service where the hospital stay was extend, thus influencing the occurrence of PUs ⁽²²⁾.

The nursing professional competencies of this study on the total scale of the instrument were at a competent level in three out of ten nurses, a result similar to other studies ⁽⁴⁾ where nurses were working in public sector health institutions. Other authors reported average ^(17,23) and adequate ⁽²⁴⁾ levels of competence, although it is difficult to compare the latter because different questionnaires were used and Benner's theoretical reference was not considered.

In relation to the dimension of prevention and skin care, a competent level was found. This result is consistent with other studies ⁽¹⁸⁾ but was also lower than other reports ⁽⁵⁾ where the level was advanced. In this regard, it should be noted that in Mexico there are regulatory documents such as the Clinical Practice Guidelines ⁽³⁾ and Guidelines for the prevention and management of PUs and chronic wounds ⁽²⁾, among others, which provide sufficient and updated information to nursing professionals, so it would be expected that their level of competence in the care of PUs would be higher.

In the pressure management dimension, three out of ten nurses presented an advanced level, similar to that reported by another author ⁽⁴⁾ where he referred to an advanced level in five out of ten nurses.



The nutrition dimension showed a level of competence of beginner, a much lower result than other studies ^(5,25). Moreover, another author reported a high level of competence and highlights its importance for the healing of PUs ⁽²⁶⁾. The results found in this research may be due to the fact that the questionnaire items include very specific knowledge of nutrition that few nursing professionals apply during their clinical practice, since nutritionists are responsible for the diet of patients.

Regarding the treatment dimension, this study reported a competent level, higher than that reported in nurses from a public institution where the level of competence was beginner, the result may be influenced by the academic level of the nurses in this sample, mostly with undergraduate and graduate degrees, in addition to the seniority in the institution, contrary to the institution of comparison ⁽⁵⁾.

The quality of care was inefficient in almost half of the sample in the prevention dimension and moderately efficient in the treatment dimension in one third, which was similar to that reported by other studies ^(15,27,28), where the quality of care provided by the nursing personnel was fair, confirming that the patients' perception of the care provided by nurses is usually positive. However, these studies differ from another report where inefficient quality of care was associated with the generation of adverse events such as the development of PUs, which should be preventable if efficient quality is provided ⁽²⁹⁾. It should be noted that these results were higher than those reported in a study of Cuban nurses ⁽¹³⁾. In this respect, nursing care in the clinical area rarely focuses on preventive interventions, and this phenomenon is repeated in UPs.

Regarding the association between nursing professional competencies with quality of care in people with PUs, although three out of 10 nursing professionals were classified as advanced, the quality of care was perceived as inefficient in prevention and only moderately efficient in treatment in four and three out of 10 patients, respectively, the quality of care was perceived as inefficient in prevention and only moderately efficient in treatment in four and three out of 10 patients,



respectively, which differs from Benner ⁽¹¹⁾, who states that greater professional nursing competencies should be present the longer the work experience.

This presents an opportunity to develop a theoretical model that explains the possible interaction between variables and integrates individual (age, seniority, etc.) and contextual factors (continuing education, available human resources, etc.) to help in understanding how professional nursing competencies impact the quality of care of people with PUs. Likewise, the results of the model would serve as a guide for studies that include these factors and generate new lines of research in nursing focused on the prevention of health problems in an innovative way.

It should be noted that, although no significant statistical relationship was found between the study variables, the results have practical implications for nursing professionals and managers, such as the need to carry out continuous and ongoing training for the acquisition of specific knowledge and skills in the care of people with PUs, as well as axiological competencies that favor care within a framework of respect, empathy and responsibility, since high levels of nursing competencies do not always guarantee the perception of efficient care.

The methodological limitations of this study should be highlighted. One of them refers to the type and size of the sample (due to the discrepancy in the sample size of nurses and patients) and to the sampling (non-probabilistic convenience sampling), which prevented correlational analyses and affected external validity.

Another limitation can be attributed to the selected instruments, which despite having adequate psychometric properties (content validity and reliability), have not been subjected to confirmatory factor assessment to confirm their factorial structure in the context of the selected hospital unit.

Conclusions

The nursing professionals presented a competent level in the care of Pus. However, it was seen that both in the general scale and in the dimensions the expert level is not achieved. This increases the



risk for people hospitalized who shows PUs or for those who present risk factors for their involvement. The quality of care was moderately efficient in the treatment dimension, except in prevention, which represents an opportunity for improvement in the care of PUs in this health unit in order to prioritize them and thus reduce the impact on people with the presence of PUs or risk factors.

It was also identified the possibility of improving the continuous training and updating of nursing professionals for the acquisition of competencies in the care of PUs, especially to prevent their appearance; it is also proposed to carry out supervisory activities in the care of these patients to guarantee risk-free nursing care.

This study is considered to make a contribution to the science of nursing care by addressing the relationship between professional nursing competencies and the quality of care in patients with PUs, since, although no statistically significant relationships were found, the level of competencies for the management of PUs is observed, especially in important areas such as nutrition and pressure management.

The importance of the perception of the quality of care reported by patients should also be emphasized because it involves not only objective data in terms of interventions, but also satisfaction with the treatment received. As a reflection, it is important to recognize that instrumental, objective care, focused on specialized interventions, must be intimately linked to individualized human treatment that transcends nursing practice.

Conflict of Interest

The authors stated that there is no conflict of interest.

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Artificial Intelligence

The authors stated that they have not used any type of artificial intelligence in any of the sections of this manuscript.

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