FACTORS RELATED TO THE PREVALENCE OF PRESSURE INJURIES IN COMMUNITY CONTEXT

FATORES RELACIONADOS COM A PREVALÊNCIA DE LESÕES POR PRESSÃO EM CONTEXTO COMUNITÁRIO

FACTORES RELACIONADOS CON LA PREVALENCIA DE LESIONES POR PRESIÓN EN EL CONTEXTO COMUNITARIO

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Objective: to identify factors related to the prevalence of pressure injuries. Method: descriptive-correlational, cross-sectional study with dependent adult users in a community context. Data were collected in a form, through consultation of documentation in the Clinical Information System. The Statistical Package for the Social Sciences was used in the data processing. Results: of the total sample (n=771), the majority were female (68.2%) and belonged to the age group of 85 years or more (45.1%). The majority had a high risk of developing pressure injury (52.1%). Prevalence was 11.2%, differing significantly between the categories of the Degree of Risk and the Mobility dimension of the Braden scale (χ^2: p<0,000). Conclusion: factors related to the prevalence of pressure injury were identified, including the Degree of Risk and the mobility dimension.

Descriptors: Pressure Ulcer. Adult. Diagnosis. Public Health. Community Health Nursing.

Objetivo: identificar fatores relacionados com a prevalência de lesões por pressão. Método: estudo descritivo-correlacional, transversal, com usuários adultos dependentes em contexto comunitário. Os dados foram coletados em um formulário, mediante consulta de documentação no Sistema de Informação SClínico. No tratamento de dados foi utilizado o Statistical Package for the Social Sciences. Resultados: do total da amostra (n=771), a maioria era do sexo feminino (68,2%) e pertencia à faixa etária de 85 anos ou mais (45,1%). A maioria apresentava Alto Risco de desenvolver lesão por pressão (52,1%). A prevalência foi de 11,2%, diferindo significativamente entre as categorias do Grau de Risco e a dimensão Mobilidade da escala de Braden (χ^2: p<0,000). Conclusão: identificados fatores relacionados com a prevalência da lesão por pressão, entre os quais o Grau de Risco e a dimensão mobilidade.

Descritores: Lesão por Pressão. Adulto. Diagnóstico. Saúde Pública. Enfermagem em Saúde Comunitária.

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Objetivo: identificar factores relacionados con la prevalencia de lesiones por presión. Método: estudio descriptivo-correlacional, transversal con usuarios adultos dependientes en un contexto comunitario. Los datos fueron recolectados en una forma, a través de la consulta de la documentación en el Sistema de Información Clínica. En el procesamiento de datos se utilizó el Statistical Package for the Social Sciences. Resultados: del total de la muestra (n=771), la mayoría eran mujeres (68,2%) y pertenecían al grupo de edad de 85 años o más (45,1%). La mayoría tenía un alto riesgo de desarrollar lesiones por presión (52,1%). La prevalencia fue del 11,2%, difiriendo significativamente entre las categorías del Grado de Riesgo y la dimensión movilidad de la escala de Braden (χ^2: p<0.000). Conclusión: se identificaron factores relacionados con la prevalencia de lesión por presión, incluyendo el Grado de Riesgo y la dimensión de movilidad.

Descriptores: Úlcera por Presión. Adulto. Diagnóstico. Salud Pública. Enfermería en Salud Comunitaria.

Introduction

The terminology for designating a wound on the skin or tissues caused by a pressure force has undergone updates over the years. In 2016, the National Pressure Ulcer Advisory Panel (NPUAP) changed the terminology Pressure Ulcer for Pressure Injury (PI)[1-2]. Although this terminology is not yet widely used in Portugal, it will be adopted throughout this work.

PI can be defined as any area of the skin or underlying tissue that has been damaged by a pressure force or pressure associated with shear, which occurs when the soft tissue is compressed between a bony prominence and the external surface, for a prolonged time, causing cellular necrosis[1-3].

There are several factors that contribute to the development of PI, which are classified as intrinsic and extrinsic. Intrinsic factors include immobility, decreased tissue tolerance, skin changes, hypotension, pathologies such as diabetes mellitus and obesity, vasopressor medication, pain, age, incontinence, nutritional status and altered sensory perception. However, the most frequent factors are extrinsic factors such as pressure, shear, twisting, friction, humidity, poor hygiene, inadequate mattresses and seats. Among these, pressure is the most aggressive[2,4-6].

According to the European Pressure Ulcer Advisory Panel[7], PI are classified in the following categories: Grade I (Non-Whitening Erythema), Grade II (Partial Loss of Skin Thickness), Category/Grade III (Total Loss of Skin Thickness), Category/Grade IV (Total Loss of Tissue Thickness), Unclassifiable/Non-Classifiable PI and Suspected Deep Tissue Injury (Indeterminate Depth).

Regarding the location, in adult population, the sites most affected by PI are the sciatic, sacrococcygeal region, followed by trochanteric, calcaneus, lateral malleolus, elbows, occipital and scapular regions[1].

The development of PI, regardless of its category or location, is an indicator of the quality of the service provided. Currently, the concept of quality and safety of health services has emerged as very important in health institutions. These have implemented strategies for continuous quality improvement, undergoing accreditation processes and evaluation of quality indicators[2,8-9].

PI is an indicator of the quality of care and safety of the patient and, specifically, of nursing care, being indicated as one of the strategic objectives formulated by the Ministry of Health, in the National Plan for the Safety of Patients 2015-2020[10]. The document recommends that the Plan should be taken over by health care facilities and adapted to each organization. One of the strategic objectives is to prevent the occurrence of PI. These were established as targets for the end of 2020, that 95% of the institutions providing health care had implemented practices to evaluate, prevent and treat PI, and reduced by 50%, compared to 2014, the number of PI acquired in or agreed with the National Health Service institutions.

PI, in addition to representing an indicator of the quality of care, are also a harmful advent in health services and a public health problem, which causes suffering and decreased quality of life of people and their caregivers, and may even cause death[2,11-12]. To get an idea of the magnitude of this phenomenon, studies that have been conducted internationally in the community context report prevalence of PI of 19.1% in the United States of America, between 8% and 23% in Brazil, 14.8% in England and 2.9% to 8.34% in Spain[12]. A study developed in the state of Piauí (Brazil)[13], in primary care in the city of Teresina, revealed a prevalence of 5% of PI. In Portugal, the same prevalence at home, according to a study conducted in the Northeast of the country, can reach 17%[14]. A study conducted in the Azores, Madeira and Canary Islands[15] found a prevalence of 14.8%, and another study developed in the Northern Region[16] reported a prevalence of 11.2% in adults admitted to a hospital institution, that is, coming from home. These percentages give this phenomenon the character of public health problem.

This public health problem also increases the hospital stay of the patients affected[3] and the costs of each treatment of an PI, which can reach between 400 and 56 thousand euros[2]. In turn, in the United Kingdom, the average cost of treatment of PI from category I to IV can range between 1064 and 10571 Pounds (£), corresponding to 4.1% of the total expenditure on health in that country[3].

However, it is estimated that about 95% of PI are preventable through early risk assessment, which is fundamental in the planning and implementation of appropriate preventive and treatment measures[9,17]. The use of scales is essential in assessing the risk of developing PI, allowing the identification of patients at risk of being affected by this problem and who need preventive measures. The Portuguese responsible for guidance in the health sector[18] established that this evaluation should be carried out using the Braden scale, in all care contexts.

This scale consists of six subscales that assess the following risk factors: sensory perception, humidity, activity, mobility, nutrition, friction and sliding forces. The sum of the score varies between 6 and 23 points. The lower the score, the higher the risk of PI[2,12]. The risk factors that may be related to the prevalence of PI are those included in the subscales of the Braden Scale.

There are several intrinsic and extrinsic factors that contribute to the emergence of PI. Intrinsic factors include immobility, decreased tissue tolerance, skin changes, hypotension, decreased tissue perfusion, vasopressor medication, reduced sensitivity, pain, age, incontinence, and altered sensory perception. However, most PI are caused by extrinsic factors, such as pressure, shear/torsion, friction/friction and microclimate, especially pressure[2].

At the national level, there are few studies that have investigated PI in the community context and are even more scarce or nonexistent those that relate the prevalence of this phenomenon and the degree of risk of users, as well as in the regional sphere.

It is within this problem that this study emerges, which aims to identify factors related to the prevalence of PI.

Method

This is a descriptive-correlational, cross-sectional and quantitative study[19], conducted with primary health care users from a Grouping of Health Centers (GHCs) in northern Portugal. This GHCs is composed of eight Health Centers (HC), having participated in the study users enrolled in all of them. The population covered by GHCs was 119,532 users in 2012. In the population enrolled in the HC, the most representative age group (67.7%) was adults (15-64 years), followed by the elderly (≥ 65 years;19.6%) and young people (0-14 years; 12.7%). The decrease in birth rate is contributing to the aging of the population[20].

Inclusion criteria were: being a user of the GHCs of the Northern Region of Portugal,

context of this study; be associated with the "dependent" health program; 18 years of age or older, as it was intended to use the Braden scale (adult version) in the data collection instrument. Taking into account these inclusion criteria, the population size was composed of 2,679 users.

Exclusion criteria were: not having active the focus of nursing care and diagnosis "risk of PI" in the *Sistema de Informação SClínico (Clinical S)*; have a sporadic inscription in the GHCs context of the study; date of death in December 2017. After applying the exclusion criteria, 1,908 users were removed, and the sample consisted of 771 users, about 28.8% of the population. This is a convenience sample.

The form consisting of three parts was selected as a data collection instrument: the first part included the sociodemographic characterization of the users (gender, age and HC to which the user belonged); the second part referred to the documentation in the Clinical S of the degree of risk of PI and the prevalence of PI; the third, composed of the Braden Scale. The Braden Scale was validated for the Portuguese population and instituted by the Directorate-General for Health[18] to assess the risk of developing PI in all care contexts. This scale consists of six subscales, and the value attributed to each of them can vary between 1 and 4 points. The value obtained from the sum of values of each subscale varies between 6 and 23 points. The cutoff point is 16 points, and patients are categorized into two risk levels: High Risk, when the final value ≤16 points; and Low Risk, when final value ≥17 points.

Data collection was performed by the researchers, through consultation of the documentation in the *Sistema de Informação SClínico*, in the processes of the users who were part of the sample, and only the data related to the variables under study were searched. The data consulted were recorded in the form constructed for this purpose. The collection occurred in April and May 2018. There was no contact with the user or family during the entire collection process.

The ethical principles inherent in this type of study, provided for in the Helsinki and Vancouver Declaration, including privacy, anonymity, confidentiality and conflict of interest, were respected, and obtained the assent of the Ethics Committee of the Northern Regional Health Administration (Opinion N. 38/2018, of 11.04.2018).

For the data processing, a database was developed in the statistical software Statistical Package for the Social Science (SPSS) version 22.0. Data were included using descriptive and inferential statistics. In the case of descriptive statistics, the absolute and relative frequencies and fashion were calculated for all variables under study and the measures of central tendency and dispersion for the variables scaling. In the inferential statistics, for the analysis of the research hypotheses, the Chi-square[2], t-Student and ANOVA tests were used. Alternatively, the corresponding nonparametric tests were used. It was considered that there were significant statistical differences when the probability $p<0.05$[21].

Results

Of the total sample (n=771 users), the majority were female (68.2%) and fit the age group of users ≥85 years, the elderly (45.1%), and there are only 10.9% of users aged between 18 and 64 years. As for the HC to which the users belonged, the majority were HC H (24.4%), and HC B had the least users (4.7%) (Table 1). The average age of users was 80.57±12,820 years, the fashion at 90 years, the minimum age 21 and the maximum 105 years.

Table 1 – Sociodemographic characterization of the sample and of the Health Center. Vila Real, Portugal – 2019. (N =771)

(continued)

Variables	Frequency	
	n	**%**
Sex		
Male	245	31.8
Female	526	68.2

Table 1 – Sociodemographic characterization of the sample and of the Health Center. Vila Real, Portugal – 2019. (N =771)   (conclusion)

Variables	Frequency	
	n	%
Age		
Adult (18-64 years)	84	10.9
Young adult (65-74 years)	84	10.9
Mid young (75-84 years)	255	33.1
Elderly (≥85 years)	348	45.1
Health Center		
A	56	7.3
B	36	4.7
C	175	22.7
D	77	10.0
E	47	6.1
F	94	12.2
G	98	12.7
H	188	24.4

Source: Created by the authors.

Regarding the variable "PI risk", obtained by applying the Braden scale, it was observed that the majority of the sample presented high risk of developing PI (52.1%). When analyzing the different dimensions of the scale, it was verified, in the dimension "Friction and sliding forces", that the largest group presented a potential problem (49.3%); in the "Activity" dimension, the largest group walked frequently (28.3%), there is a large balance in the percentages of the other categories of the variable; in the dimension "Humidity", the largest group had rarely moist skin (48.2%); in "Sensory perception", he had a slightly limited perception (36.3%); mobility, was very limited (41.8%); and in the dimension "Nutrition", in most of the sample, it was adequate (73.9%). (Table 2).

Table 2 – Pressure Injury in terms of the degree of risk and dimensions of the Braden scale. Vila Real, Portugal – 2019. (N=771)   (continued)

Variables	Frequency	
	n	%
Risk degree		
High Risk (≤16 values)	402	52.1
Low Risk (≥17 values)	369	47.9
Braden scale dimensions		
Friction and Sliding Forces		
Problem	173	22.4
Potential problem	380	49.3
No problem	218	28.3
Activity		
Bedridden	177	23.0
Seated	188	24.4
Walks occasionally	188	24.4
Walks frequently	218	28.3
Humidity		
Constantly wet skin	19	2.5
Very wet skin	53	6.9
Occasionally moist skin	327	42.4
Rarely moist skin	372	48.2

Table 2 – Pressure Injury in terms of the degree of risk and dimensions of the Braden scale. Vila Real, Portugal – 2019. (N=771)   (conclusion)

Variables	Frequency	
	n	%
Sensory perception		
Completely limited	59	7.7
Very limited	201	26.1
Slightly limited	280	36.3
No limitation	231	30.0
Mobility		
Completely immobilized	70	9.1
Very limited	322	41.8
Slightly limited	302	39.2
No limitation	77	10.0
Nutrition		
Very poor	9	1.2
Probably inappropriate	154	20.0
Proper	570	73.9
Great	38	4.9

Source: Created by the authors.

The prevalence of PI in this sample was 11.2%; the majority had between 1 and 2 PI (84.9%); had not associated in the documentation any classification (65.1%); and the most frequent anatomical location was in the sacred region (37.2%). Of those with documentation with classification (n=30), the largest group (40%) had grade III PI and the smallest group, grade II and suspected deep injury, both with the same percentage (6.7%). (Table 3).

Table 3 – Characterization of Pressure Injuries in terms of number, category and anatomical location. Vila Real, Portugal – 2019. (N=86)

Variables	Frequency	
	n	%
Number		
1 - 2	73	84.9
3 or more	13	15.1
Classification		
No classification	56	65.1
Classified	30	34.9
Pressure Injury Category (n=30)		
Grade I	6	20.0
Grade II	2	6.7
Grade III	12	40.0
Grade IV	5	16.0
Not sortable	3	10.0
Suspected deep injury	2	6.7
Anatomical location		
Sacrum	32	37.2
trochanter	14	16.3
calcaneus	17	19.8
malleolus	2	2.3
Other	21	24.4

Source: Created by the authors.

The prevalence of PI in the sample differs significantly between the categories of risk degree (χ^2: p<0.00). Users in the High Risk category obtained an adjusted residue (AR) of +6.4 cases of PI than expected (Table 4), with prevalence in this category being 84.9% (73 PI) versus 15.1% (13 PI) in the Low Risk category.

Table 4 – Relationship between the prevalence of Pressure Injuries and the risk grade categories obtained of the Brade scale. Vila Real, Portugal – 2019. (N=771)

Prevalence of Pressure Injuries	No		Yes		Test Value	Degrees of Freedom	p value
	n	AR	n	AR			
Risk Degree							
High risk	329	-6.4	73	+6.4	χ^2=41.588	1	0.000
Low risk	356	+6.4	13	-6.4			

Source: Created by the authors.

Note: AR – Adjusted residue; p - probability of significance; χ^2 - chi-square test.

There were significant statistical differences between the prevalence of PI and the dimension "Friction and Sliding Forces" (χ^2: p<0.00). Users who presented problems in this dimension had an AR of +6.0 cases of PI than expected and those who did not present any problem -5.2 cases than expected PI, having obtained, respectively, a prevalence of PI of 23.7% versus 1.8%.

In the dimension "Activity" there were also significant statistical differences (χ: p<0.00). Bedridden users obtained an RA of +8.0 cases of PI than expected; those who walked occasionally - 2.9 cases of PI than expected; and those who walked frequently, -4.9 cases than expected of PI, had a prevalence of PI of 27.7%, 5.3% and 2.3%, respectively.

Regarding the dimension "Humidity" (χ^2: p<0.00), significant statistical differences were also observed: users who had constantly moist skin had an RA of +2.1 cases of PI than expected; users with very moist skin, +3.2 cases of PI than expected; and users with rarely moist skin -4.0 cases of PI than expected, presenting, respectively, prevalence of PI of 26.3%, 24.5% and 6.5%.

Significant statistical differences were observed between the prevalence of PI and the dimension "Sensory Perception" (χ^2: p<0.00), in which users with completely limited sensory perception obtained an RA of +5.3 cases of PI than expected; with very limited sensory perception +2.2 cases of PI than expected; when slightly limited -2.2 cases of PI than expected; and with no limitation in sensory perception -2.9 cases of PI than expected, having obtained, respectively, a prevalence of PI of 32.2%, 15.4%, 7.9% and 6.1%.

In the dimension "Mobility" there were also significant statistical differences (χ^2: p<0.00), completely immobilized users obtained an RA of +6.8 cases of PI than expected; those with very limited mobility +2.1 cases of PI than expected; slightly limited mobility users -4.6 cases of PI than expected; and those without any limitation in the dimension -2.5 cases of PI than expected, presenting a prevalence of PI of 35.7%, 14.0%, 4.6% and 2.6%, respectively.

Only there were no statistically significant differences between the prevalence of PI and the dimension "Nutrition" (χ^2: p≥0.825).

Discussion

When analyzing the sociodemographic characteristics of the sample of dependent users with a focus on attention and diagnosis of risk of PI, enrolled in the GHCs, context of this study, it was found that, mostly, they were female (68.2%), which is in line with the one identified in the Regional Health Profile of the North 2017[22], in which the population living in the geographical area covered by the GHCs belonged, mostly, to the female sex (52.6%), although the percentage obtained in the present study is higher than this percentage.

In the present study, the age group with the highest proportion of users was 85 and over years (45.1%), with an average of 80.57±12,820 years. In a study conducted in the Central Region of Portugal[23], with 224 primary health care users, the most frequent age group was 80 and over years (41.07%), proportion very similar to that of this study, and the mean age was 73.5±14.1 years. This population is much younger than that of the sample in this study.

However, it should be made that the age groups do not coincide.

Regarding the HC to which those who took part of the sample belonged, the majority were users of HC H (24.4%), and HC B was the one with the lowest percentage of study participants (4.7%). These results can be justified, since the municipality in which HC B is inserted has the lowest resident population of GHCs, presenting only 5,105 registered users, while the municipality of HC H, which had the highest number of registered users (59,296), was the one with the largest resident population[22].

The majority of users in the present study (52.1%) had a high risk of developing PI, a percentage lower than other studies conducted in Portugal, one in the Northern Region[16], in the context of Hospital Intermediate Care, and another in the Southern Region[24], also in a hospital context, and also in a study developed in the state of Espírito Santo, in the city of Vitória, Brazil[25], in the context of a hospital Intensive Care Unit, in which the percentages of patients with high risk of PI were 60.4%, 97.1% and 87.01%, respectively. This difference can be explained by the different contexts in which the studies were conducted.

The dimensions/factors of the Braden Scale most affected in this study were Very Limited Mobility and the existence of A Potential Problem of Friction and Sliding Forces, in 41.8% and 49.3%, respectively, in the users of the sample, being the first percentage similar to that obtained in the study developed in the Southern Region of Portugal[24], but in the second, was much lower than that obtained in that study, respectively, 44.1% and 76.5%. This non-convergence can also be explained by the hospital context where the study took place in comparison and by the need for patients to be positioned.

The prevalence of PI obtained by the researchers was 11.2%, a percentage lower than that found in the study developed in the Central Region of Portugal[23], in the context of Primary Care, which was 22.77% and within the range of prevalence found by studies conducted in Brazil, in the same context, as is the case with studies developed in the city of Teresina, state of Piauí[4,26], and in different regions of Brazil[13], whose findings were 23.52%, 5.0% and 5%, respectively. The higher percentage of the other study conducted in Portugal may be due to the existence of other risk factors in the study of the Central Region of Portugal.

Regarding the location and degree of classification of PI, in the present study, the most frequent anatomical location was the sacred region (37.2%) and the Grade III classification (40.0%), findings that corroborate those observed in the study conducted in the state of Piauí, Brazil[4], in which the most frequent location was the same (79.16%). Regarding the classification of PI, whose finding of the study developed in the Central Region of Portugal[23] and in the other research in the state of Piauí[26], the classification also coincided with the classification of Grade III (60.0% and 42.9%, respectively).

The users of the sample falling under the High Risk category obtained through the Braden Scale had a higher prevalence of PI, with highly significant statistical differences, which was not verified in the study conducted in the Southern Region of Portugal[24], but coincided with the finding in the study developed in Brazil, in the state of Piauí[25]. Divergence and convergence can be explained by the contexts in which the studies were conducted, which coincide with that of this research in the second study.

As the authors of the study conducted in the Southern Region of Portugal[24] state, obtaining good results for this indicator of the prevalence of PI by health services implies an improvement in the care provided and, specifically, of nursing care. Prevention is essential to achieve this goal, and all professionals should be awakened to this problem and receive training to this end, in order to develop good practices.

Some limitations to this study are recognized, especially with the use of a non-probabilistic sample of convenience, which limits the generalization of the results for this population.

This study contributes to a situation diagnosis and is expected to allow the improvement of nursing care provided to these users.

Conclusion

The sociodemographic profile of the users in the sample of this research is characteristic of a female patient, aged 85 and over, with a mean age of 80.57 years.

The research allowed to identify the factors related to the prevalence of PI: categories of the Degree of Risk to develop PI, Friction and Sliding Forces, Activity, Skin Moisture, Sensory Perception and User Mobility.

When analyzing these risk factors for the development of PI, it was found that some of them may be difficult to modify, but others, such as Friction and Sliding Forces and Skin Moisture, can be minimized with quality nursing care.

Knowing that 95% of PI are preventable through early assessment of the degree of risk, it is concluded that greater investment is needed in this task by primary health care nurses in this region, both in the assessment of the degree of risk and in the education of the indirect caregivers of these dependent users. This role will be crucial in preventing this public health problem, since positions are the main prevention measure.

The finding found in this sample that the classification of PI most frequent is Category/Grade III, means that it is PI already in a very serious state, and a large investment in nursing care, materials and equipment is necessary for its treatment, which will result in an increase in public expenditure, much higher than all preventive measures.

The results of the study have already been presented to the managers of the Grouping of Health Centers, context of this study and made available to the different units that integrated it. For this reason, the research has already had implications for nursing care provided, the research allowed to identify the factors related to the prevalence of PI: categories of the Degree of Risk to develop PI, Friction and Sliding Forces, Activity, Skin Moisture, Sensory Perception and User Mobility.

The performance of new studies, with this problem as the object of study, may prove important to analyze whether the prevalence of PI decreased in the geographical area of influence of these units with the generalized implementation of preventive measures, and this study may serve as a starting point for future investigations, of the longitudinal type, random, which allow to confirm or instate this hypothesis.

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Collaborations:

1 – conception and planning of the project: Andreia Isabel de Carvalho Cigre and Amâncio António de Sousa Carvalho;

2 – analysis and interpretation of data: Andreia Isabel de Carvalho Cigre and Amâncio António de Sousa Carvalho;

3 – writing and/or critical review: Andreia Isabel de Carvalho Cigre and Amâncio António de Sousa Carvalho;

4 – approval of the final version: Andreia Isabel de Carvalho Cigre and Amâncio António de Sousa Carvalho.

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