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PRESSURE INJURY IN HOSPITALIZED ELDERLY

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ABSTRACT
The study aims to analyze cases of pressure injury in elderly patients admitted to a reference hospital in Recife from 2021 to 2023, describe the number of cases of pressure injury in hospitalized elderly people, and analyze which regions of the body have the highest prevalence of pressure injury. This is a descriptive and retrospective cross-sectional research, with a quantitative approach, where data analysis of elderly people in hospitalization from January 2021 to September 2023 was carried out. Age, gender, region of the body with pressure injury, hospitalization sector, and degree of pressure injury were observed. The study had a sample of 175 participants, of which women constituted the majority, of which 204 pressure lesions were analyzed, which was predominantly located in the sacral region in all sectors analyzed. It is concluded that the sacral region was the place most exposed to continuous and intense pressure, demonstrating failures in patient management recurrently by professionals or a limitation of the team in performing effective decompression due to lack of appropriate strategies for the patient.

Keywords: Pressure Ulcer. Assistance to the Elderly. Hospitalization.

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INTRODUCTION

The increase in the life expectancy rate and decrease in the mortality rate that occurs in the country causes a significant increase in the number of elderly people (Oliveira, 2019). Population aging should be carefully observed by the health sectors, as the aging process provides morphological and physiological changes in the epidermis and dermis, causing skin fragility, increasing the chances of developing chronic and degenerative diseases, and restricting movement. These characteristics common to aging are considered factors that weaken skin functions and favor the appearance of lesions (Levine, 2020; Martins *et al.*, 2021; Souza *et al.,* 2017).

Among the injuries common to the public are pressure injuries (LP), which are iatrogenic and likely to occur. LP are caused by intense and prolonged pressure on the skin, which usually appear over a bony prominence or related to the use of a medical device (NPUAP, 2016). It is noteworthy that, when analyzing the development of LP during hospitalization, it is observed that the elderly are more likely to develop this iatrogenic disease (Jesus *et al.*, 2020).

It should be emphasized that PF has multifactorial causes, and is also associated with preexisting diseases, medication use, smoking, alcoholism, diaper use, movement restriction, surgical procedures, impaired tissue integrity, obesity, decreased level of consciousness, patient hygiene status, length of hospital stay, among other factors, which are commonly associated with the elderly (Frazão, Moraes, Reis, Silva, 2019; Souza *et al.*, 2017).

Therefore, in response to the need for actions to reduce the incidences of LP and other iatrogenesis, the Ministry of Health in 2013 instituted, through Ordinance No. 529/2013, the National Patient Safety Program, which advocates risk management through the promotion of quality and safety for the patient in all health spaces (Brasil, 2013).

In addition, based on Resolution No. 36, of July 25, 2013, of the Collegiate Board of the National Health Surveillance Agency (ANVISA), the six goals of the World Health Organization (WHO) are adopted as the scope of action for events associated with health care, which aim to ensure the dissemination of the patient safety culture. Prevention of LP is one of these actions, being one of the concerns of the national patient safety program (PNSP) (ANVISA, 2013; Brazil, 2014).

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Given the different risks associated with health care, each health service must have its own patient safety plan, which must contain the characteristics of the service and the possible risks that the patient may be exposed to (Brasil, 2013).

Therefore, in order to prevent the emergence of pressure injuries in a health institution, it is necessary to know the risk factors that patients are subjected to within the service. The study was carried out in a hospital that offers care in the specialties of neurology, neurosurgery and cardiology, has 180 beds, of which 30 are in the intensive care unit (ICU).

Therefore, the study aimed to analyze the cases of pressure injuries in hospitalized elderly, describing the frequency of pressure injuries in this population in different sectors of the hospital and analyzing the characteristics of these injuries (regions of the body with the highest prevalence of PF and staging).

METHODOLOGY

This is a cross-sectional, descriptive and retrospective study, with a quantitative approach. The research was carried out through the analysis of the database of the skin care sector of a reference hospital in neurology, neurosurgery and cardiology located in Recife, Pernambuco. The hospital has 180 beds, of which 30 are in Intensive Care Units (ICU).

Data from older adults who were hospitalized at some point between January 2021 and September 2023 were analyzed. To enter the study, individuals needed to be 60 years ≥ age during hospitalization and be hospitalized at some point in the period from 2021 to 2023. Patients who already had pressure injuries before admission were excluded. At the end of the analysis, the study sample consisted of 175 patients.

Of these 175 patients, age, gender, region of the body with pressure injury, hospitalization sector, and degree of pressure injury were observed.

The age variable was categorized every ten years, i.e., individuals aged 60 to 69 years were classified in the same category, as well as those aged 70 to 79 and 80 to 89. Patients aged ≥ 90 years were the only exception, as there is a smaller number of individuals who fit into the age group of 90 to 100 and this number decreases when observed in individuals over 100 years old.

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Regarding gender, the participants were categorized as male or female. Pressure injury regions were classified into 12 regions: sacral, gluteal, intragluteal, calcaneal, trochanteric, malleolus, scapula, pinna, thigh, knee, olecranon, palm.

Regarding the hospitalization sector, they were separated into: cardiology, neurology, neurosurgery, neurological intensive care unit (ICU), cardiology ICU, red, yellow 1 and yellow 2 rooms, that is, in total the participants were allocated to 8 sectors.

The cardiology, neurology, and neurosurgery sectors are wards, while the red, yellow 1, and yellow 2 sectors are subdivisions of the emergency room.

Finally, the staging of pressure lesions was observed, for staging, categorization was performed as grade 1, grade 2, grade 3, grade 4, unclassifiable, deep tissue and not informed.

Data analysis was performed using the *google spreadsheets tool,* where the data was placed in the spreadsheet to describe the data and organize it in tables and charts.

The study was approved by the Research Ethics Committee of the Academic Center of Vitória - Federal University of Pernambuco (CAAE: 76991323.8.0000.9430 and opinion number: 6.775.679).

RESULTS

Among the 175 elderly people evaluated, 88 (50.3%) were female and 87 (49.7%) were male, regarding age, most participants were in the age group of 70 to 79 years (71) and the age group of 90 years or older had the lowest number of participants (8). When analyzing the gender and age of the patients, the number of female patients predominated as they advanced (Table 1).

Table 1. Population characteristics, Recife/Pernambuco, 2024

Age	Middle Ages	Men (N= 87)		Women (N= 88)		Total
		n	n (%)	n	n (%)	
60-69	64,8	32	52,5	28	47,5	61
70-79	74,9	36	50,7	35	49,3	71
80-89	83,8	17	47,2	19	52,8	36
≥ 90	95,4	2	25	6	75	8

Source: Authors, 2024.

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In all, 204 pressure injuries were analyzed in 12 regions, of which the sacral (51.9%) and gluteal (16.7%) regions represent the sites most frequently committed by pressure injuries, and the classification of injuries as grade 2 (63.7%) is the most prevalent (Chart 1).

It is noteworthy that 3 pressure injuries do not have the identification of the site, and the staging of 8 lesions has not yet been reported.

Table 1. Number of pressure injuries in relation to body region and their respective degree, Recife, Pernambuco, 2024.

Regions of the body with LP (n)	Degree of injury	Quantity (N= 204)
Sacral Region (106)	Grade 1	6
	Grade 2	63
	Grade 3	16
	Grade 4	5
	Unsortable	12
	Deep Tissue	1
	Not informed*	3
Gluteal Region (34)	Grade 1	3
	Grade 2	24
	Grade 3	3
	Grade 4	2
	Not informed*	2
Intragluteal (19)	Grade 2	16
	Grade 3	1
	Grade 4	1
	Unsortable	1
Calcaneus (13)	Grade 1	3
	Grade 2	5
	Unsortable	4
	Deep Tissue	1
Thigh (1)	Grade 2	1
Scapula (4)	Grade 1	2
	Grade 2	2

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Knee (1)	Grade 2	1
Malleolus (9)	Grade 2	7
	Not informed*	2
Olecrano (1)	Not informed*	1
Palm (1)	Grade 1	1
Pinna (2)	Grade 2	2
Trochanteric (10)	Grade 1	1
	Grade 2	8
	Unsortable	1
Location not specified (3)	Grade 2	1
	Grade 4	1
	Unsortable	1

*There was no information on the degree of the lesion in the database.
Source: Authors, 2024.

When analyzing the sector and the number of elderly patients hospitalized with pressure ulcers, as shown in Table 2, it can be seen that the cardiology sector (83.5) has the most advanced patients, followed by yellow 2 (77.9) and yellow 1 (76.2).

Neurology has the highest number of patients with pressure injuries (60) and is the largest sector with PL (69), but it is yellow 2 that has the highest average number of pressure injuries per individual (1.5), followed by red room (1.3), yellow 1 (1.2) and neurology (1.2). The sacral region and grade 2 classification were the most prominent across all sectors.

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Table 2. Sector and number of patients hospitalized with pressure injuries, Recife, Pernambuco, 2024.

Sector	Middle Ages	Patients (N= 178)		Pressure injuries (N=204)			
		M	H	Number of injuries per sector[1]	Most common region (n)	Most common grade (n)	Number of average lesions per patient*
Yellow 1[2]	76,2	3	3	7	Sacred (4)	Grade 2 (5)	1,2
Yellow 2[2]	77,9	9	4	19	Sacred (8)	Grade 2 (13)	1,5
Neurosurgery[3]	72,9	12	10	22	Sacred (11)	Grade 2 (12)	1
Cardiology[3]	83,5	1	1	2	Glutes and sacral (1)	Grade 2 (2)	1
Neurology[3]	75,4	33	27	69	Sacred (33)	Grade 2 (44)	1,2
Red room[2]	74,4	14	24	49	Sacred (29)	Grade 2 (32)	1,3
Neurological ICU	71,1	12	9	23	Sacred (14)	Grade 2 (14)	1,1
Cardiology ICU	69,9	4	9	13	Sacred (6)	Grade 2 (7)	1

[1]Refers only to the number of pressure injuries. [2] Subdivision of the emergency sector. [3] Wards.
Source: Authors, 2024

DISCUSSION

Pressure ulcers affect individuals regardless of age, however, with advancing age there are a series of morphophysiological changes that lead to frailty and incidence of injuries, and it is still common for the elderly to have chronic diseases that cause greater health fragility in this age group (Alves *et al.*, 2022; Levine, 2020).

In the present study, it was observed that most of the population was made up of women. The predominance of females in advancing age in the study is also observed in similar studies that observe the incidence of pressure injuries in the elderly, the behavior may be associated with a greater demand by women for health services when compared to males (Barbosa and Faustino, 2022; Palmeira *et al.*, 2022; Thumé, Roland, Poll, 2021).

Furthermore, the occurrence of the predominance of women in the study may be related to the fact that the female gender is reported as a risk factor, as found in another study (Barbosa and Faustino, 2022).

In addition, the male public is associated with a lifestyle with health risk behaviors (Bibiano *et al.,* 2019). On the other hand, studies on the incidence of PL in adults and the

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elderly have shown that males are the majority (Alves *et al.*, 2022; Frederico, Mendonça, Carvalho, 2024).

It is analyzed that the highest rate of hospitalization of males occurred in the age group of 50 to 59 years and men aged 20 to 59 years have higher morbidity and mortality when compared to females, which may explain the higher incidence of PL in the male public in studies that analyze adults and the elderly (Brasil, 2018).

Regarding the site of appearance of pressure lesions, it was noted that it varies depending on the study analyzed, considering that PF is caused by continuous and intense pressure on a certain point of the skin (NPUAP, 2016).

Regarding the profile of the hospital analyzed, it was possible to verify that PF in the sacral region is predominant. Corroborating other studies that also present the sacral region as the most prevalent site, it is noteworthy that the gluteal and occipital regions are also reported with great frequency (Alves *et al.,* 2019; Jesus *et al.*,2020; Lima, Araújo, Simonetti, 2023).

Still on PL, the most commonly found staging was grade 2, the finding is also reported by other studies, which analyzed the incidence of PF (Alves *et al.,* 2019; Frederico, Mendonça, Carvalho, 2024; Lima, Araújo, Simonetti, 2023). Furthermore, the appearance of multiple pressure lesions in an individual is also described in another study, which noted that most patients developed only 1 or 2 PF (37.5%) while 12.5% had 4 or 7 lesions in the postoperative period of cardiac surgeries.

It should be noted that, in the present study, the sectors associated with cardiology had an average of 1 PL per individual and only the sectors linked to emergency (yellow 1, yellow 2 and red room), neurology and the neurological ICU had an average of more than 1 PL per individual (Lima, Araújo, Simonetti, 2023).

With regard to cardiology, having the number of older patients hospitalized when compared to the other sectors may be related to the fact that cardiac morbidities are one of the most common causes of hospitalization among the elderly public (Barbosa and Faustino, 2022). As for cardiology having the lowest prevalence of elderly hospitalized patients with PF, it may be associated with something observed in a study that analyzed that the incidence of PF in cardiac surgeries corresponds to less than 10% of the cases, with a greater association between the appearance of PF and plasma infusion than with the surgical procedure (Lima, Araújo, Simonetti, 2023).

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It should be noted that patients who developed pressure injuries have a higher risk of dying (Lima, Araújo, Simonetti, 2023; Song *et al.,* 2019). It is also observed that pressure injuries after cardiac surgical procedures have statistically significant associations with operative complications such as: arrhythmias, cardiorespiratory arrest, Sepsis, Delirium, assistance-related infection, hypotension, and anemia (Brazil, 2018).

In relation to the neurology sector, it is possible to note the high number of patients hospitalized in the sector affected by PL, the data corroborates what was described by Souza, who described cognitive deficit and neurological impairment as factors that influence the development of pressure injuries (Souza *et al.*, 2017). It is also observed that patients undergoing neurological surgeries had a higher prevalence in the development of PL (Alves *et al.,* 2019).

The emergency sector, which was analyzed in a subdivided manner into yellow 1, yellow 2 and red room, is configured in the place with most users at high risk for the development of pressure ulcers. Sensory perception, skin moisture, activity, mobility, nutrition, friction and shear were factors of greater limitation in the emergency sector when compared to the inpatient sectors. Silva *et al.,* (2020) noted that the sectors related to the emergency room have the highest number of average LPs per patient, which may be related to the fact that the risk of developing pressure injuries within the emergency room was linear with increasing age.

CONCLUSION

In this study, it was possible to analyze that women constituted the majority of the participants, that in three years 175 hospitalized elderly developed 204 pressure injuries during hospitalization, most of which were located in the sacral region and classified as grade 2. In addition, it was observed that, regardless of the hospitalization sector, the sacral region and grade 2 classification was predominant.

Thus, it can be concluded that the sacral region was the site most exposed to continuous and intense pressure, thus leading to the development of pressure ulcers. Therefore, it is interesting to reevaluate strategies used to decompress the region and think of new ways to prevent the presence of LP.

The present study has limitations, considering that it was based on data from a database, some incomplete information was found in relation to the site of the pressure

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injury, staging of the lesion and no information was found about the patient's length of hospital stay.

Finally, it is hoped that the study can contribute to the improvement of the hospital's patient safety plan and to the development of new strategies for the prevention and treatment of PL.

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