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Risk of pressure ulcers in bedridden individuals assisted by the family health strategy

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ABSTRACT

Objective: To assess the risk of pressure ulcers in bedridden individuals assisted by the Family Health Strategy. **Method:** A cross-sectional study employing a quantitative approach was conducted with 62 patients. Data collection was performed through a semi-structured questionnaire, encompassing sociodemographic and clinical data, as well as the assessment of pressure ulcer risk using the Braden Scale. Data were analyzed using the Statistical Package for the Social Sciences software, version 20.0. **Results:** Female patients (61.3%), Caucasians (43.5%), widows (35.5%), married individuals (66.1%), and those with no formal education (62.9%) predominated. The primary reason for being bedridden was sequelae from a stroke (35.5%). A prevalence of very high risk was observed in 59.7% of bedridden individuals. **Conclusion:** The risk of pressure ulcers was high, emphasizing the necessity of identifying risk factors to inform preventive or mitigating strategies for this condition.

DESCRIPTORS: Pressure ulcer. Risk factors. Bedridden patients. Enterostomal therapy.

Risco de lesão por pressão em pessoas acamadas assistidas pela estratégia saúde da família

RESUMO

Objetivo: Avaliar o risco de Lesão por Pressão em pessoas acamadas assistidas pela Estratégia Saúde da Família. **Método:** Estudo transversal, com abordagem quantitativa, realizado com 62 pacientes. A coleta de dados sucedeu-se por meio de questionário semiestruturado com dados sociodemográficos, clínicos e a avaliação do risco de Lesão por Pressão por meio da Escala de Braden. Os dados foram analisados pelo *software* estatístico *Statistical Package for Social Science*, versão 20.0. **Resultados:** Prevaleceram os pacientes do sexo feminino (61,3 %), cor branca (43,5%), viúvos (35,5%), aposentados (66,1%) e não alfabetizados (62,9%). O principal motivo de estar acamado foi devido a sequelas do Acidente Vascular Encefálico (35,5%). Evidenciou-se prevalência de risco muito alto em 59,7% das pessoas acamadas. **Conclusão:** O risco para Lesão por Pressão foi elevado, e a identificação dos fatores de risco é necessária e pode contribuir para estratégias preventivas ou redutoras deste agravo.

DESCRITORES: Lesão por pressão. Fatores de risco. Pacientes acamados. Estomaterapia.

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Riesgo de lesiones por presión en personas encamadas atendidas por la estrategia de salud de la familia

RESUMEN

Objetivo: Evaluar el riesgo de Úlceras por Presión en personas encamadas atendidas por la Estrategia Salud de la Familia. **Método:** Se realizó un estudio transversal con enfoque cuantitativo con 62 pacientes. La recolección de datos se realizó a través de un cuestionario semiestructurado con datos sociodemográficos y clínicos, así como la evaluación del riesgo de úlceras por presión utilizando la Escala de Braden. Los datos fueron analizados utilizando el *software Statistical Package for Social Science*, versión 20.0. **Resultados:** Predominaron pacientes de sexo femenino (61,3%), raza blanca (43,5%), viudas (35,5%), jubiladas (66,1%) y analfabetas (62,9%). El principal motivo de encamación fue por las secuelas de un accidente cerebrovascular (35,5%). Hubo una prevalencia de riesgo muy alta en el 59,7% de las personas encamadas. **Conclusión:** El riesgo de úlceras por presión fue alto, y la identificación de los factores de riesgo es necesaria y puede contribuir a estrategias preventivas o reductoras de esta condición.

DESCRIPTORES: Úlcera por presión. Factores de riesgo Pacientes encamados. Estomaterapia.

INTRODUCTION

Pressure ulcers (PUs) are characterized by compromised skin integrity due to its breakdown and pose a significant challenge to healthcare, given their impact on individuals' quality of life. They can lead to complications influencing patient morbidity and mortality rates, alongside increased healthcare costs, prolonged recovery times, and physical, mental, and emotional distress, particularly for bedridden patients who often lack mobility due to the severity of their clinical condition[1].

A national study revealed high incidence and prevalence rates of PUs, ranging from 20% to 60%, thus establishing it as a public health issue. Concerning the home environment, an investigation indicated that the risk of PU development in bedridden individuals ranged from 41.2% to 59%, with a prevalence of lesions ranging from 8% to 23%, underscoring its alarming prevalence in the home setting[2].

In this context, it is noteworthy that a considerable proportion of bedridden individuals receive home-based care, with the elderly being particularly susceptible to PU development due to age-related changes that affect skin and systemic functions. These changes include decreased skin density, thickening of elastic fibers resulting in reduced collagen, diminished subcutaneous adipose tissue in limbs, and dermal vascularization alterations, which can lead to reduced blood supply and subsequent skin breakdown[3].

Emphasis on factors associated with the risk of developing lesions highlights chronic conditions such as systemic arterial hypertension (SAH), diabetes mellitus, circulatory diseases, and peripheral arterial disease; clinical signs including unconsciousness, immobilization, loss of sensation, loss of motor function, urinary or fecal incontinence, and presence of muscle spasms; and nutritional deficiencies such as underweight, overweight, and obesity[4].

Given the increasing prevalence of the population confined to bed rest at home and the prevalence of PUs, it is evident that there is an importance and necessity for studies aimed at guiding public policies and healthcare assistance to improve the quality of life of this population. Thus, considering the risk of bedridden individuals developing PUs and the significance of the issue as a public health problem, there is a need to assess the occurrence risk and factors associated with these lesions. Therefore, this study aims to evaluate the risks of PUs in bedridden individuals assisted by the Family Health Strategy (FHS).

METHOD

This is a descriptive, analytical study with a quantitative approach and a cross-sectional design. The methodological criteria adopted were based on the initiative known as Strengthening the Reporting of Observational Studies in Epidemiology (STROBE), which consists of a checklist of items for constructing observational studies[5].

Research participants were selected provided they met the following inclusion criteria: aged 18 years or older, confined to bed rest, receiving care in the municipality's primary healthcare network services, having a health record or file available in the service, and being under the care of the FHS. Participants who were hospitalized or unable to respond to the questionnaire proposed by the study were excluded.

The study was conducted in all 11 Primary Healthcare Units (PHUs) located in the urban area of the municipality of Colinas, Maranhão, Brazil, intended for the care of bedridden patients. According to official data provided by the Municipal Health Secretariat, in 2021, the total number of bedridden patients was estimated at 181 individuals, distributed across the 11 urban PHUs. Non-probabilistic convenience sampling of 62 adult patients of both sexes, bedridden, registered, and followed up at the urban PHUs, was performed.

Data collection took place from July to September 2022, through a semi-structured questionnaire containing sociodemographic information (age, sex, race, marital status, education, religion, and previous work activity) related to the patient's clinical aspects (comorbidity, hypertension, diabetes, immobilization, unconsciousness, loss of motor function, urinary and/or fecal incontinence, presence of muscle spasms, nutritional deficiencies, anemia, circulatory diseases, alcohol consumption, and previous smoking history). These aspects are correlated with factors that may predispose to the risk of developing PUs.

The assessment of the risk for PUs was conducted using the Braden Scale, an instrument used to assess and quantify factors contributing to ulcer formation, enabling the evaluation of the patient's risk of developing PUs and outlining preventive measures[6]. The scale consists of six subscales: sensory perception (ability to respond to pressure-related discomfort), moisture (level of skin exposure to moisture), activity (degree of physical activity), mobility (ability to control body position), nutrition (usual dietary consumption pattern), friction (when two surfaces rub against each other), and shear (patient slides in bed, skeleton and closer tissues move, but the skin remains immobile). Each subscale presents four scoring levels, numbered from one to four, except for friction and shear, which have three levels. The total sum of these items numerically indicates the risk for ulcer development. The lower the score, the higher the risk for PUs; thus, validated cutoff values in Brazil are: very high risk (6 to 9 points), high risk (10 to 12 points), moderate risk (13 to 14 points), low risk (15 to 18 points), and no risk (19 to 23 points)[6].

The invitation to participate in the investigation occurred on days corresponding to home visits of the respective PHUs. At the time, it was clarified that it was a research on the risk of pressure ulcer development, and therefore, at that moment, some questions about their clinical condition and sociodemographic data would be asked. Upon meeting the inclusion criteria and the patient's acceptance to participate in the research, the Informed Consent Form (ICF) was provided. For patients unable to read, the ICF was read aloud, and for those unable to sign, a thumbprint was used.

At the end of data collection, the data were organized and double-entered into the Statistical Package for Social Science (SPSS) software, version 20.0. Descriptive statistics of the data were performed, using means and standard deviations for quantitative variables. The results were organized into graphs and tables, and those with $p<0.05$ were considered statistically significant. Additionally, the study data were compared, and associations between variables were assessed using Pearson's chi-squared test (for observed frequencies less than 5).

The research was approved by the Research Ethics Committee of the State University of Maranhão (UEMA), under protocol number 5.313.558.

RESULTS

Among the 62 study participants, the mean age was 71.2 years (±20), with a majority being female (61.3%), self-reported as white (43.5%), widowed (35.5%), retired (66.1%), and non-literate (62.9%) (Table 1).

The predominant reason for being bedridden was sequelae from a stroke, accounting for 35.5%. Besides, the most prevalent comorbidities were hypertension (25.8%) and hypertension associated with diabetes mellitus (21.0%). Additionally,

Table 1. Distribution of sociodemographic indicators of study participants. Colinas (MA), Brazil, 2022.

Variables	N	%	Average	SD
Age	-	-	71.2	±20.0
Sex				
Female	38	61.3		
Male	24	38.7		
Race				
White	27	43.5		
Black	16	25.8		
Mixed	19	30.6		
Marital status				
Married	14	22.6		
Single	17	27.4		
Widower	22	35.5		
Stable union	04	6.5		
Divorced	05	8.1		
Retiree				
Yes	41	66.1		
No	21	33.1		
Education				
No formal education	39	62.9		
Complete/incomplete elementar school	21	33.9		
Complete/incomplete high school	02	3.2		
Previous work activity				
Home employee	10	16.1		
Peasant	20	32.3		
Farmer	15	24.2		
Dressmaker	04	6.5		
Others	13	21		

Source: Authors own elaboration.

most participants exhibited immobilization, loss of motor function, urinary or fecal incontinence, spasms, nutritional deficiencies, had a history of smoking, and presented circulatory diseases (Table 2).

The risk of pressure ulcer development, as assessed by the Braden Scale, revealed that most patients had completely limited sensory perception (54.8%), were occasionally moist due to moisture (46.8%), were bedridden (72.6%), had total limitations in mobility (67.7%), likely had inadequate nutrition (58.1%), while friction and shear were identified as potential issues (82.2%) (Table 3).

Regarding the risk classification for PUs, there was a greater predominance of patients at very high risk (59.7%) (Figure 1). It was observed that there was no statistically significant association between the risk of PUs and clinical variables (Table 4).

Table 2. Distribution of clinical data of study participants. Colinas (MA), Brazil, 2022.

Variables	N	%
Reason for being bedridden		
Stroke	22	35.5
Heart failure	04	6.5
Atrophy	07	11.3
Traumatic brain injury	05	8.1
Others	24	38.7
Comorbidities		
SAH	16	25.8
Diabetes mellitus	07	11.3
Chronic kidney failure	02	3.2
SAH + Diabetes	13	21.0
Osteoporosis	05	8.1
Others	19	30.6
Immobilization		
Yes	59	95.2
No	03	4.8
Loss of motor function		
Yes	46	74.2
No	16	25.8
Urinary/fecal incontinence		
Yes	36	58.1
No	26	41.9
Muscle spasms		
Yes	52	83.9
No	10	16.1
Nutritional deficiency		
Yes	54	87.1
No	08	12.9
Circulatory disease		
Yes	52	83.9
No	10	16.1
Drinker		
Yes	30	48.4
No	32	51.6
Smoker		
Yes	44	71.0
No	18	29.0

SAH: Systemic Arterial Hypertension.
Source: Authors own elaboration.

Table 3. Risk of Pressure Injury in bedridden patients, according to the Braden Scale. Colinas (MA), Brazil, 2022.

Variables	N	%
Sensory perception		
Completely limited	34	54.8
Very limited	20	32.3
Slightly limited	08	12.9
Moisture		
Constantly moist	05	8.1
Very moist	18	29.0
Occasionally moist	29	46.8
Rarely moist	10	16.1
Activity		
Bedfast	45	72.6
Chairfast	13	6.5
Walks occasionally	04	21.0
Mobility		
Completely immobile	42	67.7
Very limited	20	32.3
Slightly limited	-	-
Nutrition		
Very poor	36	41.9
Probably inadequate	26	58.1
Friction and shear		
Potential problem	51	82.3
Problem	11	17.7

Source: Authors own elaboration.

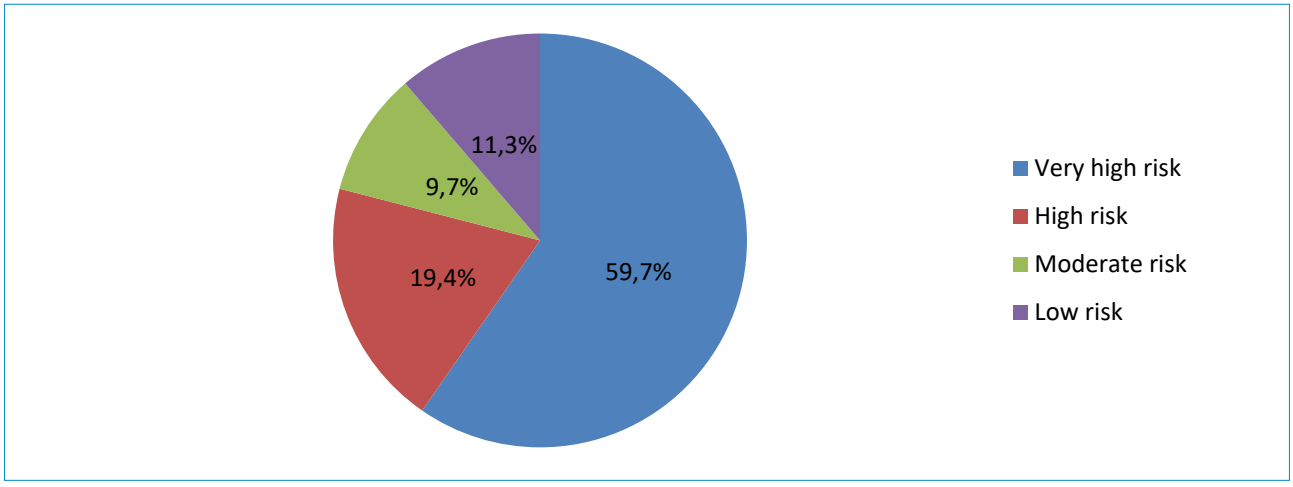

Figure 1. Risk classification of patients assisted by the Family Health Strategy. Colinas (MA), Brazil, 2022.

Table 4. Association between clinical variables and risk for pressure ulcer. Colinas (MA), Brazil, 2022.

Variables	Very high risk		High risk		Moderate risk		Low risk		p-value*
	N	%	N	%	N	%	N	%	
Sex									
Female	25	65.8,	7	18.4	4	10.5	2	5.3	0.274
Male	12	50.0	5	20.8	2	8.3	5	20.8	
Comorbidities									
SAH	11	68.8	3	18.8	-	-	2	12.5	0.208
Diabetes mellitus	4	57.1	-	-	1	14.3	2	28.6	
Chronic kidney failure	2	100.0	-	-	-	-	-	-	
SAH + Diabetes	9	69.2	2	15.4	-	-	2	15.4	
Osteoporosis	3	60.0	1	20.0	-	-	1	20.0	
Others	8	42.1	6	31.6	5	26.3	-	-	
Loss of motor function									
Yes	27	58.7	8	17.4	5	10.9	6	13.0	0.770
No	10	62.5	4	25.0	1	6.2	1	6.2	
Urinary/fecal incontinence									
Yes	23	63.9	7	19.4	3	8.3	3	8.3	0.782
No	14	53.8	5	19.2	3	11.5	4	15.4	
Muscle spasms									
Yes	32	61.5	10	19.2	5	9.6	5	9.6	0.803
No	5	50.0	2	20.0	1	10.0	2	20.0	
Nutritional deficiency									
Yes	31	57.4	11	20.4	6	11.1	6	11.1	0.686
No	6	75.0	1	12.5	-	-	1	12.5	
Circulatory disease									
Yes	30	57.7	12	23.1	6	11.5	4	7.7	0.061
No	7	70.0	-	-	-	-	3	30.0	
Drinker									
Yes	18	60.0	5	16.7	2	6.7	5	16.7	0.522
No	19	59.4	7	21.9	4	12.5	2	6.2	
Smoker									
Yes	27	61.4	8	18.2	2	4.5	7	15.9	0.067
No	10	55.6	4	22.2	4	22.2	-	-	

SAH: Systemic Arterial Hypertension. *Pearson's $\chi 2$ test.
Source: Authors own elaboration.

DISCUSSION

The findings of this research revealed a predominantly female sample, which aligns with the profile found in a previous study[7]. Regarding gender, there is no consensus in the literature regarding the risks of PUs. However, some studies mention the risk of pressure ulcer development predominantly among women, which may be related to the fact that women have a longer life expectancy and preserved functional capacity compared to men[8,9].

Regarding age group, a predominance of elderly individuals was observed. It is worth noting that the elderly population accounts for more than half of all PUs, as the risks for developing these wounds increase rapidly with advancing age due to functional changes in the body caused by aging[10]. Senescence induces alterations in the skin regarding composition,

vascularization, and properties such as pain perception and inflammatory response, thereby increasing the likelihood of chronic diseases and consequently contributing to susceptibility to pressure ulcer development[11].

Regarding education level, this study observed a predominance of low education levels and widowed individuals, which is considered a relevant aspect. Low education levels can interfere with the learning process of guidelines related to the prevention and treatment of PUs. Additionally, the absence of a partner may reflect a lack of emotional support for care and influence self-care practices[10].

Regarding the clinical findings of the patients, the results of this study are consistent with research that examined the most common clinical conditions of bedridden individuals, which showed a prevalence of neurological dysfunctions and the presence of metabolic alterations, evidenced by chronic diseases. The population with these conditions may experience delays in skin healing, as well as reduced resistance to injuries due to the fragility resulting from these alterations[12].

When analyzing the item of the Braden Scale subscale, sensory perception, it was observed that the majority of investigated patients were either totally or very limited. This increases the risk of PUs because patients with impaired sensory perception may not perceive discomfort and pain, which can lead to the development of PUs[13].

Regarding the final item of the Braden Scale, patients had scores indicating a very high risk for PUs. Additionally, it was evident that a significant portion of the study participants exhibited physical limitations related to activity and mobility. In this context, it is worth highlighting that individuals with this profile of severe risk are the most affected by PUs[14].

The above findings are consistent with a study that analyzed factors associated with the risk of developing PUs in elderly individuals at home, which showed that 54.6% were bedridden, and 20.6% had immobility syndrome. These two factors were statistically associated with the risk of developing PUs ($p<0.001$). Thus, it is emphasized that PUs are prone to occur in elderly individuals with frailties, such as impaired mobility[15].

When comparing the prevalence of PUs and the risks of developing these lesions in another setting, such as the hospital, one investigation found an incidence of the condition in 20% of patients admitted to the Intensive Care Unit (ICU), and the length of hospital stay was significantly related to the appearance of the lesions. Thus, the longer the patient's hospitalization period, the greater the chances of developing PUs, underscoring the importance of nursing strategies and care in preventing this event throughout the entire hospitalization and care period[16].

Regarding the association between clinical variables and the risk of PUs, no statistical significance was found between the clinical variables evaluated in the study, such as loss of motor function, urinary/fecal incontinence, presence of muscle spasms, nutritional deficiencies, alcohol consumption, and smoking.

It is known that impairments in motor function and mobility are important factors in the development of PUs, as bedridden patients have difficulty relieving pressure on bony prominences. This maintains pressure intensity and duration as the primary cause of such injuries[17].

The prolonged exposure of the skin to moisture due to urinary and fecal incontinence is common in the bedridden population and can contribute to skin maceration and weakening of the superficial layers. Consequently, this predisposes to the development of erythema and PUs[18]. Additionally, it is noted that nutrient deficiencies, such as vitamins and proteins, lead to tissue susceptibility and impair skin integrity, especially when exposed to pressure[19]. Furthermore, nutritional deficiency results in decreased muscle mass and compromises the immune system[20].

The results obtained in this research confirm the need to expand studies on the subject in order to elucidate risk factors for PUs and implement strategies to improve negative outcomes. Furthermore, it highlights the importance of using instruments to examine PUs. In this way, risk assessment scales, especially the Braden scale, are useful, feasible, and serve as an initial parameter to identify risks in these patients.

Regarding limitations in the development of the research, the methodological design with a time cut at only one point in time was observed, along with a small sample size, which may not fully expose the magnitude of the investigated problem. Additionally, the operationalization of access to patients' homes linked to the BHUs and the distance from some territories were observed as limitations.

CONCLUSION

The findings of this study revealed a prevalence of the female population, elderly individuals, retirees, widows, and those with low educational attainment. The risk of PUs among the investigated patients mostly ranged from very high to high risk.

Thus, it underscores PUs as a potential public health issue, with the risks involved in the development of this condition still prevalent. This poses a challenge for healthcare services, professionals, and society at large. Therefore, its assessment is of paramount importance for adequate control and maintenance of skin integrity.

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