

# Pressure injuries in older people in the context of community nursing: an integrative review

## Lesão por pressão em idosos no contexto da enfermagem comunitária: uma revisão integrativa

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### Resumo

**Objetivo:** Analisar as produções científicas sobre lesão por pressão em idosos nas publicações no contexto da enfermagem comunitária. **Método:** revisão integrativa, a busca ocorreu em três bases de dados. O processo de seleção dos artigos foi sistematizado segundo a metodologia Preferred Reporting Items for Systematic Reviews and Meta-Analysis e com auxílio de ferramenta digital, por dois revisores de modo independente. **Resultados:** treze estudos foram incluídos, sendo a maioria do ano 2019, brasileiros e quantitativos do tipo transversal. A maioria dos estudos foi sobre prevenção de lesão por pressão. **Conclusão:** o número de pesquisas sobre o tema é reduzido. Destaca-se o Brasil como produtor de conhecimento na área, a maioria dos estudos limitou-se a utilizar abordagens descritivos-exploratórias, o que evidencia a necessidade de investigações que busquem novas tecnologias para a prevenção e tratamento de lesões por pressão em idosos.

**Palavras-chave:** lesão por pressão, idosos, enfermagem, atenção primária à saúde

### Abstract

**Objective:** To analyze scientific production on pressure injuries in older people in the context of community nursing. **Method:** An integrative review was performed with searches conducted in three databases. The article selection process was performed by two independent reviewers following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses and with the aid of a digital tool. **Results:** Thirteen articles were included, the majority of which were Brazilian studies published in 2019 with a quantitative cross-sectional design. Most studies were on pressure injury prevention. **Conclusion:** A small number of studies have addressed this issue. Brazil stands out as a producer of knowledge in the field. Most studies were limited to using descriptive, exploratory approaches, underscoring the need for investigations that seek new technologies for the prevention and treatment of pressure injuries in older people.

**Keywords:** pressure injury, aged, nursing, primary care

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## Introdução

The aging process is accompanied by changes in body composition and the impairment of functional systems, resulting in the loss of bone mass as well as muscle strength and function, which contributes to frailty in older people<sup>1</sup>. Moreover, the skin presents greater slowness in epidermal renewal, thinning of the dermoepidermal junction, a reduction in the production of collagen and elastin, reduction in sweat and sebaceous glands, the redistribution of the fat layer leading to greater exposure of bone prominences, a reduction in the capacity to distribute pressure and a reduction in vascularization. These changes contribute to the emergence of pressure injuries and the slowing of the healing process<sup>2</sup>.

According to studies conducted in Brazil, pressure sores are highly prevalent and incident in older people who reside in nursing homes/assisted living facilities and those who are hospitalized, varying according to the condition and etiology<sup>3,4,5</sup>. Such sores most often occur in the ischial, sacrococcygeal, trochanter and calcaneal regions, followed by the lateral malleoli, elbows, occipital region and scapula<sup>6</sup>.

The term pressure sore was recently changed to pressure injury, which regards the damage to the skin and/or underlying soft tissues over a bone prominence or due to a medical device or other object, presenting with either the skin intact or as an open ulcer capable of causing discomfort and pain<sup>7</sup>. Pressure is the main etiological agent for the formation of such injuries, which can develop in 24 hours or take up to five days to emerge. Pressure injuries can be caused by extrinsic or intrinsic factors. Extrinsic factors are associated with the injury mechanism, exerting an impact on tissue tolerance by the obstruction of circulation on the skin surface and reflecting in the degree of exposure on the skin. Such factors include pressure, friction, shear stress and moisture<sup>8</sup>.

Intrinsic factors are related to the vulnerability of the individual, such as physical state, constitution and integrity of the skin, support structures or vascular and lymphatic systems and healing time. Such factors include an advanced age, blood hypotension/perfusion, immobility/surgical procedures, weight, medications, nutrition and a high temperature<sup>2,8</sup>. Other conditions can also predispose individuals to the emergence of pressure injuries, such as heart failure, peripheral vascular disease, diabetes, dementia, neoplasms, depression, a terminal illness, contractures, thyroid disease, kidney failure, chronic obstructive pulmonary disease, neurological problems, pain and smoking<sup>2</sup>.

The diagnosis of pressure injuries is based on a visual inspection, which is also used for the classification of the stage of the injury and assists in the establishment of care strategies<sup>9</sup>. One of the most widely used instruments for the assessment of pressure injuries is the Braden Scale developed by Barbara Braden and Nancy Bergstrom, which was published in 1987 and subsequently validated for the Portuguese language. This scale is easy to use and has greater sensitivity and specificity compared to other scales. The Braden scale is composed of six subscales: (1) sensory perceptions, (2) moisture, (3) activity, (4) mobility, (5) nutrition and (6) friction and shear. Each subscale is scored from 1 to 4, except friction, which is scored from 1 to 3. The total score ranges from six to 23 points, with lower scores denoting a greater risk of developing pressure injuries<sup>2</sup>.

Pressure injuries are the most prevalent among chronic, complex lesions and older people are the most affected individuals<sup>10</sup>. However, studies on pressure injuries among community-dwelling older people are scarce<sup>11</sup>. Despite advances in medicine and health care, pressure injuries remain an important factor of morbidity and mortality, exerting a negative impact on the quality of life of affected individuals and



their families and constituting a social and economic problem<sup>12</sup>.

Nurses who work in primary care play a fundamental role in the identification of the risk of pressure injuries in older people as well as the implementation of prevention and treatment measures through educational strategies for the training of the nursing team, patients and families. Such actions should be structured in a way that ensures effective implementation with measurable results<sup>13</sup>.

Considering the increase in the population of older people, the prevalence of chronic diseases, health problems and respective consequences as well as the gap in knowledge on pressure injuries, what has been discussed in the literature on pressure injuries in older people in the context of community nursing?

The aim of the present study was to analyze scientific production on pressure injuries in older people in publications in the context of community nursing.

## Materiais e Métodos

An integrative review was conducted to summarize and analyze scientific evidence through a systematized, organized search of the literature. Articles were selected based on their relevance to the understanding of the topic of interest and subsequently presented and discussed narratively<sup>14</sup>.

The search strategy was based on the research question formulated by an adaptation of the PICO strategy (P: patient, I: intervention, C: comparison, O: outcome) to PIC: population (P: older people), interest (I: pressure injuries) and context (C: community nursing)<sup>15</sup>.

Searches for relevant articles were performed in the CINAHL, Medline and Scopus databases through federated community access. The search strategy was adapted to each database using terms extracted from the structured vocabulary of the virtual library *Descritores em Ciências da Saúde* (DeCS [Health Science

Descriptors]) and Medical Subject Headings (MeSH) metadata: ("Pressure Ulcer" OR "Pressure Ulcers" OR "Ulcer, Pressure" OR "Ulcers, Pressure" OR "Bedsore" OR "Bedsore" OR "Pressure Sore" OR "Pressure Sores" OR "Sore, Pressure" OR "Sores, Pressure" OR "Bed Sores" OR "Bed Sore" OR "Sore, Bed" OR "Sores, Bed" OR "Decubitus Ulcer" OR "Decubitus Ulcers" OR "Ulcer, Decubitus" OR "Ulcers, Decubitus") AND ("aged" OR "Health Services for the Aged" OR "Homes for the Aged" OR "Pensions" OR "Retirement" OR "Housing for the Elderly") AND ("Nurse" OR "Personnel, Nursing" OR "Nursing Personnel" OR "Registered Nurses" OR "Nurse, Registered" OR "Nurses, Registered" OR "Registered Nurse" and synonyms with the Boolean operators OR and Mesh.

Searches were conducted in December 2021 and restricted to articles published in Portuguese, English and Spanish between 2011 and 2021 with the full text available. Review articles, opinions, editorials, dissertations and theses were excluded.

Studies that included community dwelling older people were considered eligible, but part was excluded due to data analysis in conjunction with samples from other contexts. Those with separate data analyses were maintained. Studies with older people and other age groups included in the analysis were also excluded.

The article selection process was systematized in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)<sup>15</sup> and conducted with the aid of the free-access online Rayyan QCRI tool. Therefore, the results of the searches were exported in formats compatible with this program<sup>16</sup>. Two independent reviews performed the reading of the titles and abstracts, each blinded to the other's results. Duplicates were removed, divergences of opinion between the reviewers were



resolved and potentially eligible articles were selected for full-text analysis.

Two researchers extracted and reviewed the following data for the characterization of the studies: year of publication, country, methodological

approach, study design and population. The results, conclusions and recommendations of the studies were summarized in detail. The articles were analyzed and reported following thematic analysis categories.

This review was designed and conducted with methodological rigor in all steps, with the faithful description of the data and proper citation and reference of the authors.

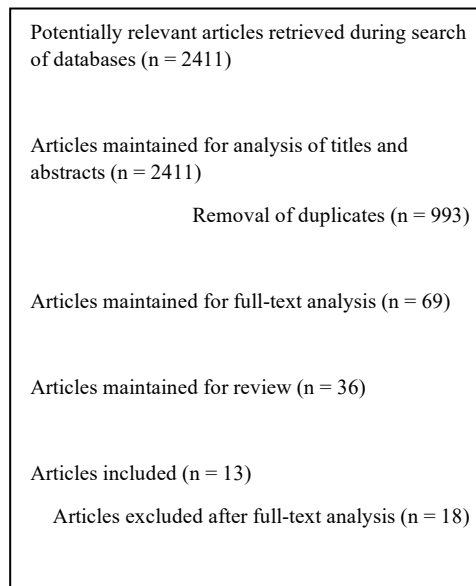


Figure 1 – Flowchart of article selection process.  
Source: The authors, 2022.

## Resultados

The search strategy led to the retrieval of 2411 records, among which 993 duplicates were detected and removed. After the reading of the titles and abstracts, 36 articles were submitted to full-text analysis, 13 of which specifically addressed pressure injuries in older people in the context of community nursing. Figure 1 displays the flowchart of the article selection process.

Year of publication ranged from 2012 to 2021. The year 2019 had the largest number of articles published ( $n = 5$ ; 38.5%), followed by 2012 ( $n = 3$ ; 23%) and 2020 ( $n = 2$ ; 15.4%). Only one article (7.7%) was

published in each of the years 2013, 2018 and 2021 and no articles were identified in the years 2014, 2015, 2016 or 2017 (Table 1). Considering the countries of origin, nine studies (69.2%) were conducted in Brazil, one (7.7%) in Ireland, one (7.7%) in Spain, one (7.7%) in China and one (7.7%) in Indonesia (Table 1).

In terms of the methodological approach, 11 (85.6%) were quantitative studies and two (15.4%) were qualitative studies. Eight studies (61.5%) had a descriptive or exploratory descriptive cross-sectional design, two (15.4%) had a longitudinal design and one (7.7%) had a prospective cohort design. Additionally, one (7.7%) was a psychometric study.

**Table 1. Characterization of studies included in review.**

Author/Year/Country	Objective	Journal
VIEIRA; ARAÚJO, 2018 <sup>17</sup> ; Brazil	Analyze the prevalence of pressure injuries, diabetic and vasculogenic ulcers and associated factors in older people in the primary care setting.	Rev Esc Enferm USP
CAI; ZHA, YUAN; XIE, 2019 <sup>18</sup> ; China	Investigate the distribution of pressure injuries and associated risk factors among older people in China.	J Adv Nurs
GIRONDI; SOLDERA; EVARISTO; LOCKS, 2019 <sup>19</sup> ; Brazil	Identify knowledge on injury debridement among nurses.	Enferm. Foco
SHANLEY et al. 2019 <sup>20</sup> ; Ireland	Validate an instrument for assessing the knowledge, attitudes and behaviors of older people regarding the prevention of pressure injuries.	Int Wound J
SARI et al., 2018 <sup>21</sup> ; Indonesia	Investigate the prevalence and characteristics of pressure injuries in community-dwelling older people in Indonesia, including specific characteristics of patients with pressure injuries and the use of formal and informal care.	Int Wound J.
AGUIAR; SOARES; CALIRI; COSTA, 2012 <sup>22</sup> ; Brazil	Characterize older people with physical limitations, assess functional capacity based on physical mobility, cognitive status and level of functional independence for activities of daily living and relate functional capacity to the risk of pressure injuries.	Acta Paul Enferm
FREITAS; ALBERTI, 2013 <sup>23</sup> ; Brazil	Estimate the capacity of the Braden Scale for predicting the emergence of pressure sores in the home setting, determine the incidence of pressure injuries and associated factors in this group.	Acta Paul Enferm
MORAES; ARAÚJO; CAETANO; LOPES, 2012 <sup>24</sup> ; Brazil	Assess the risk of pressure injuries among older people in the home setting after a period of hospitalization	Acta Paul Enferm
SANTOS et al., 2020 <sup>25</sup> ; Brazil	Measure the risk of the development of pressure injuries among older people with immobility and determine possible prevention measures.	Braz. J. of Develop
GIRONDI; SEBOLD; GOMES; SOLDERA et al., 2021 <sup>26</sup> ; Brazil	Identify actions and skin care for older people developed by their caregivers.	Rev Enferm Atual In Derme
MEIRELES; BALDISSERA, 2019 <sup>27</sup> ; Brazil	Analyze the quality of care provided in the primary care setting for frail older adults at risk of pressure injuries.	Rev Rene
TRISTÃO et al., 2020 <sup>28</sup> ; Brazil	Identify care practices employed by nurses of the Family Health	Cogitare enferm



Author/Year/Country	Objective	Journal
	Strategy for the prevention, diagnosis and treatment of friction lesions and pressure injuries in community-dwelling older people.	
SANCHO; ALBIOLA; MACHA,2012 <sup>29</sup> ; Spain	Assess the association between nutritional status and the risk of pressure injuries in patients under home care.	Aten Primaria

Source: The authors, 2022.

## Discussão

The articles were analyzed based on three thematic categories: Epidemiology, Prevention and Treatment. Some articles were included in more than one category.

### EPIDEMIOLOGY

Complex wounds mainly affect older people and the most prevalent are pressure injuries<sup>17</sup>. Among the studies analyzed, the female sex was more affected by pressure injuries<sup>18,21</sup> and the prevalence among community dwelling older people ranged from 0.8% in China to 22.5% in Brazil; the prevalence in Indonesia was 10.8%<sup>17,18,21,22,23,24</sup>.

The most affected regions of the body were the sacrum, shoulders, hips, knees and feet<sup>17,21</sup>. Regarding conditions for healing, the most frequent classification of pressure injuries was Stage 3. The score of the Pressure Ulcer Scale for Healing was ranged from 9 to 17, the area ranged from 8.1 to 24.0 cm<sup>2</sup> and time since emergence was up to 12 months<sup>17</sup>.

Among older people in China (65 years of age or older), pressure injuries were associated with age, disability, incontinence, cancer and dementia<sup>18</sup>. Among those in Indonesia, pressure injuries associated with physical activity level, sensory perception problems and a history of stroke<sup>21</sup>. In the Brazilian study included in this category, no separate analysis was performed on the occurrence of pressure injuries according to other variables. However, associations were found between

the prevalence of chronic wounds and not performing any labor activity as well as not performing regular physical activity, whereas moving actively and not having dietary restrictions were protection factors against the development of pressure injuries<sup>17</sup>.

### PREVENTION

Regarding the prevention of pressure injuries in the primary care context, one of the studies identified care practices employed by nurses of the Family Health Strategy in a municipality in the state of Santa Catarina, Brazil. The application of validated scales for this purpose was infrequent. However, prevention procedures are well known, the most cited of which were changing the patient's position every two hours, changing the position on the bed, nutrition (vitamins and protein), skin care (observation of changes in the skin, maintaining the skin dry and moisturized, adequate hygiene), diet and hydration, the use of an adequate mattress (pyramidal, pneumatic), pillows and cushions to support the feet when the patient is sitting and the upper part of the bed inclined a maximum of 30°; for bedridden individuals, the use of a cushions, heel protection, maintaining the upper and lower limbs protected, reduction in friction and removal of fringe and irregularities from sheets and mattresses were mentioned. These actions are in agreement with recommendations found in the literature. However, we identified a lack of



standardization in the tools and the need for institutional investments in permanent education of the nursing staff so that good care practices could be used in the prevention of pressure injuries<sup>28</sup>.

In another study that addressed actions for prevention and the treatment of skin in older people, the following actions were listed: repositioning and changes in decubitus, skin moisturizing and oral hydration, hygiene, the use of prevention devices and the maintenance of sheets without folds. One respondent reported the use of a hydrocolloid patch for prevention. Although some of the actions are in agreement with recommendations found in the literature, some actions, such as the use of a hydrocolloid patch as preventive care, are not indicated for this purpose. Moreover, caregivers reported an unawareness of aspects related to skin care for older people and some delegated the responsibility to the older people themselves (self-care)<sup>26</sup>.

The aim of one study was to validate an instrument for assessing knowledge, attitudes and behavior on the part of older people with regards to the prevention of pressure injuries. The psychometric test of the tool was conducted in a sample of community-dwelling older people and revealed moderate internal consistency as well as high test-retest stability. The tool can be administered for the determination of knowledge, attitudes and behaviors separately or together. The authors consider the tool useful for health education actions by professionals<sup>20</sup>.

Prevention and adequate treatment are directly associated with the quality of care. One of the studies included in the present review specifically addressed this issue. The occurrence of pressure injuries in older people was considered a marker of the quality of care provided. The authors pointed out failures in providing care to frail older adults at risk of developing pressure injuries, such as a lack of screening to determine the degree of frailty, lack of a multidimensional assessment, the scarcity

of material and human resources, a lack of support to family members, delayed use of mobilization devices and insufficient knowledge on the part of nursing staff and caregivers<sup>27</sup>.

In an investigation involving nurses of the Family Health Strategy (primary care modality) in a municipality in the state of Santa Catarina, Brazil, the team did not use any standard tool for the prevention or classification of the risk of pressure injuries because, according to the interviewees, there are not curative protocols or sufficient time for the assessment of all older people through visits to the home<sup>28</sup>.

The Braden Scale was used as the data collection instrument in five investigations<sup>22,23,24,25,29</sup>. According to this scale, the risk of the development of pressure injuries is related to cognitive impairment, dependence with regards to the performance of activities of daily living, impaired functioning, classification in the Home Follow-up Program, Alzheimer's disease, poor nutrition, blood test findings (albumin and cholesterol) and recent discharge from hospital (less than three weeks). The authors considered the use of the Braden Scale essential for the identification of the risk of pressure injuries as well as the establishment of preventive actions<sup>22,23,24,25,29</sup>.

One of the studies estimated the capacity of the Braden Scale and found that it was effective at predicting the emergence of bed sores in the home environment<sup>23</sup>, which underscores the importance of the scale in the assessment of pressure injuries. One of the studies using this scale found that most older adults were classified as being at high risk of developing pressure injuries and did not receive orientations on the prevention by the staff of the Family Health Strategy. However, the authors pointed out that, even in the absence of orientations, protection measures were adopted. The researchers also pointed out the need for the monitoring of care in the home setting by health professionals from primary care units<sup>25</sup>.

## TREATMENT

Debridement is one of the tools for the treatment of pressure injuries involving devitalized tissues but requires knowledge and skill. A study conducted in a municipality in southern Brazil found that nurses of the Family Health Strategy were aware of the importance of the procedure and pressure injuries constituted the most common condition for which they performed the procedure. However, the majority had only partial knowledge or no knowledge at all of the techniques and did not feel adequately confident to perform the procedure<sup>19</sup>.

A study conducted in the primary care setting found that nursing staff had only partial knowledge on the treatment of pressure injuries and their actions were not based on established protocols. The researchers emphasized the importance of the use of tools for the assessment, risk and stratification of pressure injuries as well as the implantation of protocols in the practice of community nursing. The authors also pointed out the need for greater institutional investment in the permanent education of nursing staff as well as the importance of discussions on the number of primary care nurses<sup>28</sup>.

In the home setting, prevention actions and the treatment of pressure injuries on the skin of older people are performed by paid or unpaid caregivers. It is therefore important to understand how such care is provided for the determination of the need for training in this environment. In a qualitative study involving caregivers

of older people in a community in the city of Florianópolis (state of Santa Catarina, Brazil), the following products and actions were cited for the treatment of pressure injuries: essential fatty acids, cleaning with saline solution, the use of a hydrocolloid patch, changes of position, care during mobilization, the use of collagenase ointment and massage in the area of the injury. The authors reported that some of the actions were in agreement with recommendations found in the literature, but others were inappropriate, pointing out that the products cited should be used with the proper indication and technique, which underscores the need for support and technical training for caregivers so that their actions are performed properly<sup>26</sup>.

## Conclusão

A small number of studies have addressed the issue of pressure injuries among older people. Brazil stands out as a producer of knowledge in the field. Most studies were limited to using descriptive, exploratory approaches, but are nonetheless useful for guiding future studies that test solutions to the problem based on these results. The greater number of studies addressing prevention demonstrates the advance in research. The studies analyzed revealed that the occurrence and risk of pressure injuries were mainly associated with the degree of dependence regarding activities of daily living and cognition. Studies such as the present integrative review contribute to enriching investigations on this topic and point out the gaps in knowledge that need to be filled.

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