

## Etiologic and risk factors of pressure ulcer/injury in elderly: a systematic review

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## REVIEW TITLE AND BASIC DETAILS

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### Review title

Etiologic and risk factors of pressure ulcer/injury in elderly: a systematic review

### Original language title

Etiologia e fatores de risco de úlcera/lesão por pressão em idosos - revisão sistemática

### Review objectives

What are the causes (E) of the diagnosis of pressure ulcer/injury (O) in the elderly (P). What are the risk factors (E) of the diagnosis of pressure ulcer/injury (O) in the elderly (P)?

### Keywords

Etiology, Pressure Injury, Pressure Ulcer, Risk

## SEARCHING AND SCREENING

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### Searches

The research strategy aims to find published and unpublished studies. The search for published studies will be through the databases: MEDLINE via PubMed, CINAHL and Nursing & Allied Health Database via EBSCOhost, Scopus, Cochrane Central Register of Controlled Trials, SciELO and Web of Science. The search for unpublished studies will include: Google Scholar, RCAAP - Scientific Repository of Open Access in Portugal; ProQuest - Theses and Dissertations; OpenGrey; CAPES thesis bank; Online Dissertation Abstracts (e-Thos) and associations such as European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel, Pan Pacific Pressure Injury Alliance, National Group for the Estudio y Asesoramiento en Úlceras por Presión y Heridas Crónicas,

Sociedade Ibero-latino-American company Ulceras y Heridas and European Wound Management Association. All results obtained through the search strategy will be transferred to EndNote Web software®, where the duplicates will be removed. To read the titles and abstracts independently by the two reviewers, we will use the Rayyan QCRI® tool. The research will initially be in any language without time limitation. For complete reading of the articles, those written in English, Portuguese, Spanish and French and the complete ones are selected. Articles not available in full in the databases can be located by the university library or contacted the authors. All studies published at any time will be included. For the selection of relevant studies in relation to the review question, will be represented through the flowchart following the indications of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis), showing the process from the initial research to the final selection of studies for extraction and synthesis, mentioning how many articles were included or excluded at each stage.

### **Study design**

Etiology reviews are predominantly derived from observational studies in people, so we will include retrospective and prospective, cross-sectional, case-control cohort studies, as well as randomized controlled studies.

## **ELIGIBILITY CRITERIA**

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### **Condition or domain being studied**

The term pressure ulcer/injury (PU/PI) (also formerly called bedsore, decubitus ulcer) has undergone several updates over time. Currently limited as an ulcer/injury located on the skin, underlying tissue and/or mucous membrane, on a bony prominence or related to a medical device (or other). The knowledge of possible causes, risk categories and associated conditions for the development of PU/PI facilitate the understanding of the phenomenon and the removal of the underlying cause of the nursing diagnosis.

### **Population**

Elderly, people aged 60 and over.

### **Intervention(s) or exposure(s)**

This review will consider studies that include background, circumstances, risk factors, events, situations, phenomena, etiology, gender, ethnicity, age, medical diagnoses, procedures, medical devices, agents-medicines contributes, stimulators or causes of development PU/PI.

### **Comparator(s) or control(s)**

Not applicable

### **Context**

Any context, including the primary health care network, hospitals, medium and long term care units, residential structures for the elderly or day care centres.

## **OUTCOMES TO BE ANALYSED**

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## Main outcomes

Risk and etiology of pressure ulcer/injury in the elderly.

### *Measures of effect*

The outcomes will be measure through meta-analysis with random effects using the Cochran and I<sup>2</sup> Higgins test.

## Additional outcomes

Not applicable

## DATA COLLECTION PROCESS

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### Data extraction (selection and coding)

The extracted data should include specific details about the participants, cause, risk factors and associated conditions for the development of PU/PI. The data will be organized by details of the studies (author/s, year of publication and scientific journal), method and characteristics of the study (type of study, context, participants, procedures for data collection, period and exposure of interest), variable dependent (results and applied tools) and methods of data analysis (statistical technique). In the absence of any relevant information, we intend to contact the authors of the primary studies to provide us with additional information. The data will be extracted and synthesized considering the specificity of each review by two reviewers, whenever there is disagreement, the third reviewer will contribute.

### Risk of bias (quality) assessment

To assess the quality of the studies, the instruments provided by Joanna Briggs Institute will be used. The application of these instruments depends on the type of study being analysed. Critical evaluation will be carried out by two reviewers who work independently, any disagreements that arise will be resolved through discussion until a consensus is reached, if necessary, there will be support from a third reviewer.

## PLANNED DATA SYNTHESIS

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### Strategy for data synthesis

The method used to synthesise studies will depend on the quality, design, and degree of heterogeneity of the studies. Due to the diversity of preliminarily studies found, we believe that the meta-analysis is appropriate, using for the random-effects model. The random-effects model is more adjusted because it compensates for the apparent heterogeneity in observation studies, managing to estimate the inexplicable variation in the analysis and generalization of the data. For continuous data it will be calculated using mean difference or standardized mean difference and 95% confidence intervals. The results will be subject to double entry to avoid inconsistencies in the records. Confidence intervals 95% will be calculated for the estimates of the individual studies and summary measures. The results will be synthesized through meta-analysis with random effects using the Cochran and I<sup>2</sup> Higgins test by the statistical software R (R-project.org ©). The I<sup>2</sup> test can identify the extent of heterogeneity. When the I<sup>2</sup> value is less than 50%, the fixed effects model will be used, and if the I<sup>2</sup> value is higher than 50%, the random-effects model will be used, for we assume each

trial varies markedly. We will also use the Cochran test to assess heterogeneity: 0% to 40%: may not be important; 30% to 60%: may represent moderate heterogeneity; 50% to 90%: can represent substantial heterogeneity; 75% to 100%: heterogeneity characteristics. We will use both methods and we will consider the data heterogeneous when the two statistics converge to this conclusion. Due to the complexity of the meta-analysis, the participation of the fourth reviewer is essential to collaborate with the statistical analysis. When statistical grouping is not possible, the results obtained in narrative and descriptive form including tables and figures to assist in the presentation of data.

### **Analysis of subgroups or subsets**

There will be no analysis of subgroups since the research is already in a specific population.

## **REVIEW AFFILIATION, FUNDING AND PEER REVIEW**

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### **Review team members**

- Mrs Raquel Silva, Universidade Católica Portuguesa
- Assistant\Associate Professor Silvia Caldeira, Universidade Católica Portuguesa
- Assistant\Associate Professor Paulo Alves, Universidade Católica Portuguesa
- Assistant\Associate Professor Marcos Lopes, Universidade Federal do Ceará

### **Review affiliation**

Universidade Católica Portuguesa

### **Funding source**

None

### **Named contact**

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## **TIMELINE OF THE REVIEW**

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### **Review timeline**

Start date: 01 January 2022. End date: 31 July 2022

### **Date of first submission to PROSPERO**

31 March 2021

### **Date of registration in PROSPERO**

10 May 2021

## **CURRENT REVIEW STAGE**

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### **Publication of review results**

The intention is to publish the review once completed. The review will be published in English

### **Stage of the review at this submission**

| <b>Review stage</b>                                 | <b>Started</b> | <b>Completed</b> |
|---|----------------|------------------|
| Pilot work  |                |                  |
| Formal searching/study identification               | ✓              |                  |
| Screening search results against inclusion criteria |                |                  |
| Data extraction or receipt of IP                    |                |                  |
| Risk of bias/quality assessment                     |                |                  |
| Data synthesis                                      |                |                  |

### **Review status**

The review is currently planned or ongoing.

## **ADDITIONAL INFORMATION**

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### **Additional information**

#1 Title changed: Etiologic and risk factors of pressure ulcer/injury in elderly: a systematic review

#28 Information was completed. At this stage, it will not be possible to state precisely the criteria under which the data will be synthesized since it will depend on the homogeneity and quality of the studies found.

### **PROSPERO version history**

- Version 1.0 published on 10 May 2021

### **Review conflict of interest**

None known

### **Country**

Portugal

### **Medical Subject Headings**

Causality; Crush Injuries; Humans; Pressure Ulcer; Risk Factors

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