INPLASY

ASSOCIATION OF FRAILTY AND DIABETES MELLITUS IN OLDER HOSPITALIZED ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Corresponding author:
Rossana Spoladore

dra.rossanadermatologista@gmail.com

Author Affiliation:
Universidade Federal do Parana.

Spoladore, R; Cechinel, C; Rodrigues, JAM.

ADMINISTRATIVE INFORMATION

Support - Not applicable (NA).

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 January 2025 and was last updated on 6 January 2025.

INTRODUCTION

Review question / Objective What is the relationship between frailty and diabetes mellitus in elderly people? The objective of this research is to analyze the association between diabetes mellitus and frailty in older hospitalized adults, through a systematic literature review. We aimed to quantify the prevalence of frailty and in older hospitalized adults with diabetes, and to summarise the association between frailty and generic outcomes (eg, mortality) and diabetes-specific outcomes (eg, hypoglycaemia).

To construct the guiding question and search for studies, the PEO strategy was used (P – Population or Patients; E – Exposure; O – Results) (Aromataris, 2020), with P (hospitalized elderly), E (diabetes mellitus) and O (physical frailty). After applying the PEO strategy and to guide the terms of the search strategy, the following question was formulated: What is the relationship between diabetes mellitus and frailty in hospitalized elderly people?

Rationale Clinicians and health-care systems worldwide are facing the challenges associated with ageing populations. Diabetes (type 1 and type 2) is prevalent in up to 30% of people older than 65 years. Frailty is a key concept for health care, particularly as people age.2 Frailty describes a dynamic state of increased vulnerability to adverse health outcomes resulting from loss of physiological reserve.

There is, therefore, uncertainty as to how frailty should be identified, measured, and managed, including in the context of diabetes in older hospitalized adults. Because of the complex and multifaceted nature of frailty, understanding its relationship with a broad range of outcomes is important to inform clinical decision making around care and treatment.

Condition being studied FRAILTY AND DIABETES MELLITUS IN OLDER HOSPITALIZED ADULTS. We aimed to quantify the prevalence of frailty and in older hospitalized adults with diabetes, and to summarise the association between frailty and

generic outcomes (eg, mortality) and diabetes-specific outcomes (eg, hypoglycaemia).

METHODS

Search strategy PUbMed/Medline: "Aged"[Mesh] OR (Elderly) AND "Frailty"[Mesh] OR (Frailties) OR (Frailness) OR (Frailty Syndrome) OR (Debility) OR (Debilities) OR "Frail Elderly"[Mesh] OR (Elderly, Frail) OR (Frail Elders) OR (Elder, Frail) OR (Elders, Frail) OR (Frail Elder) OR (Functionally-Impaired Elderly) OR (Elderly, Functionally-Impaired) OR (Functionally Impaired Elderly) OR (Frail Older Adults) OR (Adult, Frail Older) OR (Adults, Frail Older) OR (Frail Older Adult) OR (Older Adult, Frail) OR (Older Adults, Frail) AND "Inpatients"[Mesh] OR (Inpatient) OR "Hospitalization"[Mesh] OR (Hospitalizations) AND "Diabetes Mellitus"[Mesh] OR (Diabetes Mellitus)

BVS: MH:"Idoso" OR (Aged) OR (Anciano) OR (Idoso) OR (Idosos) OR (Pessoa Idosa) OR (Pessoa de Idade) OR (Pessoas Idosas) OR (Pessoas de Idade) OR (População Idosa) OR MH:M01.060.116.100$ AND MH:"Fragilidade" OR (Frailty) OR (Fragilidad) OR (Debilidade) OR (Fragilidade) OR (Síndrome da Fragilidade) OR MH:C23.550.359$ OR MH:"Idoso Fragilizado" OR (Frail Elderly) OR (Anciano Frágil) OR (Idoso Fragilizado) OR (Adult, Frail Older) OR (Adults, Frail Older) OR (Elder, Frail) OR (Elderly, Frail) OR (Elderly, Functionally-Impaired) OR (Elders, Frail) OR (Frail Elder) OR (Frail Elders) OR (Frail Older Adult) OR (Frail Older Adults) OR (Functionally Impaired Elderly) OR (Functionally-Impaired Elderly) OR (Older Adult, Frail) OR (Older Adults, Frail) OR MH:M01.060.116.100.540$ AND MH:"Pacientes Internados" OR (Inpatients) OR (Pacientes Internos) OR (Pacientes Internados) OR MH:M01.643.470$ OR MH:"Hospitalização" OR (Hospitalization) OR (Hospitalización) OR (Comunicação de Internação Hospitalar) OR (Internação Hospitalar) OR (Internação Voluntária) OR MH:E02.760.400$ OR MH:N02.421.585.400$ OR MH:VS3.003.001.002$ AND MH:"Diabetes Mellitus" OR (Diabetes Mellitus) OR (Diabete) OR (Diabete Melito) OR (Diabetes) OR (Diabetes Melito) OR (Diabetes Mellitus) OR (Diabetes Mellitus) OR MH:C18.452.394.750$ OR MH:C19.246$

Embase: 'aged'/exp OR (aged patient) OR (aged people) OR (aged person) OR (aged subject) OR (elderly) OR (elderly patient) OR (elderly people) OR (elderly person) OR (elderly subject) OR (senior citizen) OR (senium) AND 'frailty'/exp OR 'frail elderly'/exp AND 'hospital patient'/exp OR (hospitalised patient) OR (hospitalised patients) OR (hospitalized patient) OR (hospitalized patients) OR (in-hospital patient) OR (in-hospital patients) OR (in-patient) OR (in-patients) OR (inpatient) OR (inpatients) OR (patient, hospital) OR 'hospitalization'/exp OR (hospital stay) OR (short stay hospitalization) AND 'diabetes mellitus'/exp OR 'diabetes' OR 'diabetic' OR 'diabets' OR 'unspecified diabetes mellitus' OR 'diabetes mellitus'

SciELO; Scopus: (Aged) OR (Elderly) AND (Frailty) OR (Frailties) OR (Frailness) OR (Frailty Syndrome) OR (Debility) OR (Debilities) OR (Frail Elderly) OR (Elderly, Frail) OR (Frail Elders) OR (Elder, Frail) OR (Elders, Frail) OR (Frail Elder) OR (Functionally-Impaired Elderly) OR (Elderly, Functionally-Impaired) OR (Functionally Impaired Elderly) OR (Frail Older Adults) OR (Adult, Frail Older) OR (Adults, Frail Older) OR (Frail Older Adult) OR (Older Adult, Frail) OR (Older Adults, Frail) OR(Frailty) OR (Frailties) OR (Frailness) OR (Frailty Syndrome) OR (Debility) OR (Debilities) AND (Inpatients) OR (Inpatient) OR (Hospitalization) OR (Hospitalizations) AND (Diabetes Mellitus)

Web of Science: (Aged) OR (Elderly) AND (Frailty) OR (Frail Elderly) AND (Inpatients) OR (Inpatient) OR (Hospitalization) OR (Hospitalizations) AND (Diabetes Mellitus).

Participant or population People over 60 years old with diabetes mellitus.

Intervention Not applicable (NA).

Comparator Frailty or not, and generic outcomes (eg, mortality) and diabetes-specific outcomes (eg, hypoglycaemia).

Study designs to be included Observational studies.

Eligibility criteria Presence of frailty and diabetes mellitus, inpatient, age ≥ 60 years.

Information sources The search strategy was applied in January 2025, by the main researcher in the National Library of Medicine (PubMed) databases of the Medical Literature Analysis and Retrieval System Online (MEDLINE); Virtual Health Library (VHL); Scientific Electronic Library Online (SciELO), EMBASE, Scopus and Web of Science; Periodical Portal of the Coordination for the Improvement of Higher Education Persons (CAPES).

Main outcome(s) Frailty.

Additional outcome(s) Outcomes: mortality, rehospitalisation and Emergency Department Attendance, HbA1c, Diabetes complications, Cognitive impairment, Quality of Life, Depression

and hospital length of stay (LOS). Data will independent extracted by 2 authors.

Data management We will use Rayyan's advanced deduplication feature automatically identifies and removes duplicate references from your dataset, ensuring you don't waste time reviewing the same article twice. This tool is especially beneficial for systematic and literature reviews, enhancing the efficiency of your review process, improving accuracy, and helping maintain a clean and organized Review data, allowing you to focus on the most relevant and unique studies.

Quality assessment / Risk of bias analysis Newcastle-Ottawa scale.

Strategy of data synthesis Information including age, percentage of female, authors, years, country, participant type, frailty instruments, type of diabetes, sample size and data. Outcomes: mortality, rehospitalisation and Emergency Department Attendance, HbA1c, Diabetes complications, Cognitive impairment, Quality of Life, Depression and hospital length of stay (LOS). Data will independent extracted by 2 authors.

Subgroup analysis We will conduct a subgroup based in diabetes mellitus to show if this increased risk for frailty in older hospitalized adults.

Sensitivity analysis To assess if the study results were stable, we will conduct a sensitivity analyses and will find if the pooled effects size did not have a material change.

Language restriction Not applicable (NA).

Country(ies) involved Brazil.

Other relevant information None

Keywords diabetes mellitus, Frailty, Aged, Hospitalized patient, inpatient.

Dissemination plans Depending on the findings, a review will be developed with the aim of evaluating the association of diabetes mellitus and physical frailty in the elderly.

Contributions of each author
Author 1 - Clovis Cechinel - Study concept and design, data analysis and interpretation, Statistical analysis, Drafting the manuscript, Critical review of the manuscript as to its relevant intellectual content.
Email: cechinelc@hotmail.com

Author 2 - Rossana Spoladore - Study concept and design, data analysis and interpretation, Statistical analysis, Drafting the manuscript, Critical review of the manuscript as to its relevant intellectual content.
Email: dra.rossanadermatologista@gmail.com
Author 3 - Joao Alberto Martins Rodrigues - Study concept and design, data analysis and interpretation, Statistical analysis, Drafting the manuscript, Critical review of the manuscript as to its relevant intellectual content.
Email: morgadinho70@hotmail.com