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Markers of physical frailty and mortality in hospitalized elderly people and after discharge – systematic review

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ADMINISTRATIVE INFORMATION

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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 30 April 2024 and was last updated on 30 April 2024.

INTRODUCTION

Review question / Objective What is the impact of physical frailty components on intra- and post-hospital mortality among the elderly? The objective of this systematic review is to evaluate the quality of evidence on the impact of physical frailty components on mortality in hospitalized elderly people and after hospital discharge.

Rationale The hypothesis that phenotypic components, identified in a cycle of signs and symptoms, could determine Frailty Syndrome was brought into a study by conducted by Fried et al. (2001). The study assessed whether this phenotype would identify a subset of the population at high risk for adverse health outcomes clinically associated with frailty (Fried et al., 2001).
After the identification of physical frailty, this condition was defined as “a medical syndrome with multiple causes and contributors that is characterized by diminished strength, endurance, and reduced physiologic function that increases an individual’s vulnerability for developing increased dependency and/or death” (Morley et al., 2013).
It is important to highlight that frailty is not a mandatory element of the aging process and many adults reach advanced ages without developing it (Clegg et al., 2013). Its onset can begin before the age of 65, but its onset increases in elderly people aged 70 or over (Hoogendijk et al., 2018).
Age is one of the sociodemographic factors associated with pre-frailty and frailty, this is what a longitudinal study shows, based on a nationally representative sample of the population and which used data from the second wave (2019-2021) of the Brazilian Longitudinal Study of Aging (ELSI-Brazil) (Silva et al., 2024).
In current literature, there is discussion about frailty and physical frailty specifically in many areas of knowledge such as nursing, medicine, psychology, speech therapy and nutrition. However, when it comes to evaluating the relationship between the components of physical frailty and mortality during or after hospitalization, studies are scarce.
Therefore, we intend to conduct a systematic review with the objective of verifying the impact of

the components of physical frailty on hospital or post-discharge mortality in the elderly.

Condition being studied Impact of physical frailty components on mortality in hospitalized elderly people and after hospital discharge.

METHODS

Search strategy

PUBMED
#1 "Aged"[Mesh] OR (elderly) OR "Aged, 80 and over"[Mesh] OR (Oldest Old)
AND
#2 "Hospitalization"[Mesh] OR (Hospitalizations) OR "Inpatients"[Mesh] OR (Inpatient)
AND
#3 "Hand Strength"[Mesh] OR (Strength, Hand) OR (Grip Strength) OR (Strength, Grip) OR (Hand Grip Strength) OR (Grip Strength, Hand) OR (Strength, Hand Grip) OR (Grip) OR (Grips) OR (Grasp) OR (Grasps) OR "Walking Speed"[Mesh] OR (Speed, Walking) OR (Speeds, Walking) OR (Walking Speeds) OR (Gait Speed) OR (Gait Speeds) OR (Speed, Gait) OR (Speeds, Gait) OR (Walking Pace) OR (Pace, Walking) OR (Paces, Walking) OR (Walking Paces) OR "Fatigue"[Mesh] OR (Lassitude) OR "Muscle Weakness"[Mesh] OR (Muscle Weaknesses) OR (Weakness, Muscle) OR (Weaknesses, Muscle) OR (Muscular Weakness) OR (Muscular Weaknesses) OR (Weakness, Muscular) OR (Weaknesses, Muscular) OR "Energy Metabolism"[Mesh] OR (Energy Metabolisms) OR (Metabolism, Energy) OR (Metabolisms, Energy) OR (Energy Expenditure) OR (Energy Expenditures) OR (Expenditure, Energy) OR (Expenditures, Energy) OR (Bioenergetics) OR (Bioenergetic) OR "Weight Loss"[Mesh] OR (Loss, Weight) OR (Losses, Weight) OR (Weight Losses) OR (Weight Reduction) OR (Reduction, Weight) OR (Reductions, Weight) OR (Weight Reductions)
AND
#4 "Fatal Outcome"[Mesh] OR (Fatal Outcomes) OR (Outcome, Fatal) OR (Outcomes, Fatal) OR "Mortality"[Mesh] OR (Mortalities) OR (Case Fatality Rate) OR (Case Fatality Rates) OR (Rate, Case Fatality) OR (Rates, Case Fatality) OR (CFR Case Fatality Rate) OR (Crude Death Rate) OR (Crude Death Rates) OR (Death Rate, Crude) OR (Rate, Crude Death) OR (Crude Mortality Rate) OR (Crude Mortality Rates) OR (Mortality Rate, Crude) OR (Rate, Crude Mortality) OR (Death Rate) OR (Death Rates) OR (Rate, Death) OR (Mortality Rate) OR (Mortality Rates) OR (Rate, Mortality) OR (Mortality, Excess) OR (Excess Mortality) OR (Excess Mortalities) OR (Decline, Mortality) OR (Mortality Declines) OR (Mortality Decline) OR (Mortality Determinants) OR (Determinants, Mortality) OR (Determinant, Mortality) OR (Mortality Determinant) OR (Mortality, Differential) OR (Differential Mortality) OR (Differential Mortalities) OR (Age-Specific Death Rate) OR (Age-Specific Death Rates) OR (Death Rate, Age-Specific) OR (Rate, Age-Specific Death) OR (Age Specific Death Rate)
PORTAL REGIONAL DA BVS
#1 MH:"Aged" OR "Aged" OR "Anciano" OR "Idosos" OR "Pessoa Idosa" OR "Pessoa de Idade" OR "Pessoas Idosas" OR "Pessoas de Idade" OR "População Idosa" OR MH:"Aged, 80 and over" OR "Aged, 80 and over" OR "Idoso de 80 Anos ou mais" OR "Anciano de 80 o más Años" OR "Idoso de 80 ou mais Anos" OR "Idosos de 80 Anos ou mais" OR "Idosos de 80 ou mais Anos" OR "Velhíssimos"
AND
#2 MH:"Hospitalization" OR "Hospitalization" OR "Hospitalização" OR "Hospitalización" OR "Comunicação de Internação Hospitalar" OR "Internação Hospitalar" OR "Internação Voluntária" OR MH:"Inpatients" OR "Inpatients" OR "Pacientes Internados" OR "Pacientes Internos" OR "Paciente Internado"
AND
#3 MH:"Hand Strength" OR "Hand Strength" OR "Força da Mão" OR "Fuerza de la Mano" OR "Aperto de Mão" OR "Empunhadura" OR "Força de Preensão" OR "Força de Preensão da Mão" OR MH:"Walking Speed" OR "Walking Speed" OR "Velocidade de Caminhada" OR "Velocidad al Caminar" OR "Ritmo de Caminhada" OR "Velocidade de Marcha" OR MH:" Fatigue" OR "Fatigue" OR "Fadiga" OR "Fatiga" OR "Lassitude" OR MH:"Energy" OR "Metabolism Energy" OR "Metabolism" OR "Metabolismo Energético" OR "Metabolismo Energético" OR "Bioenergético" OR "Gasto Energético" OR MH:"Weight Loss" OR "Weight Loss" OR "Redução de Peso" OR "Pérdida de Peso" OR "Emagrecimento" OR "Perda de Massa Corporal" OR "Perda de Peso"
AND
#4 MH:"Fatal Outcome" OR "Fatal Outcome" OR "Evolução Fatal" OR "resultado mortal" OR "Resultado Fatal"
Embase

"Aged"[Mesh] OR "Aged, 80 and over"[Mesh] use Emtree terms:
#1 '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' OR 'aged' OR 'very elderly'/exp OR 'aged, 80 and over' OR 'centenarian' OR 'centenarians' OR 'nonagenarian' OR

'nonagenarians' OR 'octogenarian' OR 'octogenarians' OR 'very old' OR 'very elderly'

"Hospitalization"[Mesh] OR "Inpatients"[Mesh] use Emtree terms:
#2 'hospitalization'/exp OR 'hospital stay' OR 'short stay hospitalization' OR 'hospitalization' OR '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 'hospital patient'

"Hand Strength"[Mesh] use Emtree terms:
#3 'hand strength'/exp OR 'hand strength'

"Walking Speed"[Mesh] use Emtree terms:
#4 'walking speed'/exp OR 'gait speed' OR 'gait velocity' OR 'stride speed' OR 'stride velocity' OR 'walk speed' OR 'walk velocity' OR 'walking rate' OR 'walking velocity' OR 'walking speed'

"Fatigue"[Mesh] use Emtree terms:
#5 'fatigue'/exp OR 'tiredness' OR 'fatigue'

"Energy Metabolism"[Mesh] use Emtree terms:
#6 'energy metabolism'/exp OR 'metabolism, energy' OR 'energy metabolism'

"Weight Loss"[Mesh] use Emtree terms:
#7 'body weight loss'/exp OR 'body weight decrease' OR 'body weight reduction' OR 'weight decrease' OR 'weight losing' OR 'weight loss' OR 'weight reducing' OR 'weight reduction' OR 'weight watching' OR 'body weight loss'

"Fatal Outcome"[Mesh] use Emtree terms:
#8 'fatality'/exp OR 'fatal case' OR 'fatal outcome' OR 'fatality' OR 'mortality rate'/exp OR 'death rate' OR 'death rate model' OR 'fatal outcome rate' OR 'fatality rate' OR 'lethal outcome rate' OR 'rate, mortality' OR 'mortality rate'.

Participant or population People over 60 years old.

Intervention None.

Comparator Components of physical frailty.

Study designs to be included Quantitative research, both observational and experimental.

Eligibility criteria Presence of assessment of the components of physical frailty, hospitalized, age ≥ 60 years, presence of in-hospital or post-discharge mortality assessment.

Information sources A specific search strategy for the language of each database was developed using, initially, the Medical Subject Headings (MEsH) descriptor and later translated to specific descriptors (Descriptors in Health Sciences (DeCS) and Embase Subject Headings (Emtree)).
The search strategy will be applied by the researchers in the MEDLINE databases through the Pubmed Portal; Scielo Brasil; Banco de dados Lilacs (Literatura Latino-Americana e do Caribe de informação em ciências da saúde); BDENF (Base de dados em Enfermagem) through the Portal Regional da BVS, EMBASE, CINAHL, Scopus and Web of Science through the CAPES Journal Portal.

Main outcome(s) To verify the impact of physical frailty components on hospital or post-discharge mortality in the elderly. Once the data record is released, it will search the databases and, if possible, perform a meta-analysis.

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

Strategy of data synthesis Information including age, percentage of female, authors, years, country, participant type, sample size and data. Data will independent extracted by 2 authors.

Subgroup analysis We will conduct a subgroup based in frail hospitalized patients are in increased risk on hospital or post-discharge mortality in the elderly.

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.

Country(ies) involved Brazil.

Keywords Aged, Hospitalization, Hand Strength, Walking Speed, Fatigue, Muscle Weakness, Energy Metabolism, Weight Loss, Fatal Outcome.

Contributions of each author
Author 1 - João Alberto Martins Rodrigues - Database research, duplicates removing, article titles and abstracts evaluation and ineligible articles remotion, writing of an article and analyses.
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