




# Prevalence of frailty in hospitalized older adults with diabetes mellitus: systematic review and meta-analysis

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## Abstract

**Objective:** To identify the prevalence of frailty in hospitalized older adults with diabetes mellitus based on a synthesis of evidence from the literature. **Method:** A systematic review was conducted, with searches performed in the MEDLINE, EMBASE, Virtual Health Library (VHL), Scopus, SciELO, and Web of Science databases, as well as in the reference lists of the selected studies. The inclusion criteria were hospitalized older adults diagnosed with diabetes mellitus and physical frailty, with no temporal restrictions. Searches were carried out in January 2025. The guidelines established by the Joanna Briggs Institute for evidence synthesis were followed. A meta-analysis model was used to estimate the prevalence of frailty, and a random-effects model was applied for data synthesis. **Results:** A total of 2,261 articles were identified, and 12 studies were included in the meta-analysis. Despite the variability observed in the instruments used to assess frailty, a high prevalence of frail individuals (40.4%; 95% CI: 23.0% to 60.5%;  $I^2 = 97.7\%$ ,  $\tau^2 = 2.2149$ ,  $p < 0.0001$ ) and pre-frail individuals (34.8%; 95% CI: 22.3% to 49.8%;  $I^2 = 97.7\%$ ,  $\tau^2 = 0.6700$ ,  $p < 0.0001$ ) was identified among hospitalized older adults diagnosed with diabetes. **Conclusion:** The findings reinforce the importance of systematic frailty assessment in hospitalized older adults diagnosed with diabetes mellitus as a basis for therapeutic planning and for improving care centered on functional status.

**Keywords:** Aged. Frailty. Diabetes Mellitus. Meta-analysis. Inpatients.

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## INTRODUCTION

Physical frailty is one of the main contributors to functional decline and premature mortality in older adults, as it is characterized as a clinical state marked by increased individual vulnerability when exposed to internal and external stressors<sup>1,2</sup>. It has become increasingly evident that the risk of frailty in older adults may increase in the presence of chronic diseases, and this association has been demonstrated for diabetes mellitus (DM)<sup>3</sup>.

Older adults living with DM present high rates of mortality, functional disability, and comorbidities, in addition to a higher risk of falls, cognitive impairment, and polypharmacy<sup>4</sup>. Global estimates report that DM affects nearly 589 million people aged 20 to 79 years, and if this trajectory persists, it is estimated to affect 853 million individuals by 2050<sup>5</sup>. The Diabetes Statistics Report linked to the United States Centers for Disease Control and Prevention (CDC) indicates that the prevalence of DM increases with age, reaching 29.2% (26.4% to 32.1%) among those aged 65 years or older<sup>6</sup>.

The high prevalence of DM among older adults, together with the substantial rates of physical frailty, significantly compromises the health of hospitalized older adults, resulting in complex clinical interactions and challenging therapeutic management. DM is a risk factor for frailty<sup>7</sup>, as both conditions share pathophysiological mechanisms, such as insulin resistance and the progressive loss of muscle mass and strength (sarcopenia)<sup>8</sup>. Insulin resistance, associated with hyperglycemia, diabetic complications, inflammatory cytokines, and endocrine alterations, may contribute to reductions in musculoskeletal mass and muscle weakness, thereby increasing the risk of frailty<sup>9</sup>. Using genetic data from large European cohorts, a study employing Mendelian randomization investigated the bidirectional causal relationship between DM and frailty. The findings showed that frailty significantly increases the risk of developing type 2 diabetes mellitus, while type 2 diabetes mellitus also increases the risk of frailty<sup>10</sup>.

Although the literature includes studies addressing the relationship between frailty and DM, an important gap remains regarding the lack of consistent estimates

of the prevalence of physical frailty in hospitalized older adults with DM, particularly in contexts of greater clinical vulnerability. The relevance of the present study is grounded in progressive population aging and the high global burden of diabetes mellitus, conditions that together intensify clinical complexity and the risk of adverse outcomes. Thus, estimating the prevalence of frailty in this group is essential to improve therapeutic planning, guide early interventions, and support clinical decision-making, contributing to enhanced hospital care, reduced complications, and the advancement of future research in this field.

In light of the above, this systematic review aimed to identify the prevalence of physical frailty in hospitalized older adults with diabetes mellitus based on a synthesis of evidence from the literature.

## METHOD

This study was conducted in accordance with the recommendations of the Joanna Briggs Institute (JBI) Evidence Synthesis Groups<sup>11</sup>. The study protocol is published on the International Platform of Registered Systematic Review and Meta-analysis Protocols (INPLASY 202510016), doi: 10.37766/inplasy2025.1.0016.

To formulate the research question and guide the literature search, the CoCoPop strategy was used (Co – Condition: frailty; Co – Context: hospital setting; Pop – Population: older adults diagnosed with diabetes mellitus). After applying this strategy, the following research question was defined: What is the prevalence of frailty in hospitalized older adults diagnosed with diabetes mellitus?

The inclusion criteria for study selection were observational studies, including prospective and retrospective cohort studies, case-control studies, cross-sectional studies, and clinical trials; application of validated instruments to assess the variable of interest frailty; inclusion of hospitalized older adults aged 60 years or older of any nationality; publication in any language, with no restriction on publication date; and diagnosis of diabetes mellitus in accordance with the World Health Organization (WHO) diagnostic criteria published in 2018<sup>12</sup>.

The exclusion criteria were lack of categorization regarding frailty status, duplicate studies indexed in more than one database, case reports, letters to the editor, conference abstracts, dissertations, theses, and monographs. The authors chose not to include gray literature due to the potential risk of compromising the validity and reproducibility of the results, as such materials do not undergo peer review.

The search strategy was tailored to each database and applied in January 2025 in the following sources: the National Library of Medicine (PubMed) via the Medical Literature Analysis and Retrieval System Online (MEDLINE); the Virtual Health Library (VHL); Scientific Electronic Library Online (SciELO); EMBASE; Scopus; and Web of Science. The following Medical Subject Headings (MeSH) terms were used: *Aged*, *Frailty*, *Frail Elderly*, *Inpatients*, *Hospitalization*, and *Diabetes Mellitus*. Boolean operators OR and AND were applied to structure the search strategy based on PubMed MeSH descriptors, as recommended to ensure efficient and accurate retrieval of scientific evidence from biomedical databases.

The search strategy was systematically developed with the support of a specialized librarian, who assisted in the selection of descriptors and the standardization of search combinations, thereby ensuring greater methodological rigor and reproducibility.

Accordingly, the search strategy was as follows: “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). This strategy was translated into the specific controlled vocabularies of the other search sources and is described in the INPLASY registration (INPLASY 202510016).

Searches were conducted independently by two researchers, who applied the predefined eligibility criteria to the titles and abstracts retrieved. The search results were imported into the Rayyan® reference management software, in which the references were stored, organized, and classified<sup>13</sup>. After duplicate removal using the reference manager, ineligible studies were excluded.

The number of articles identified, including their distribution by database and aggregated totals, was systematized using the PRISMA flow diagram<sup>14</sup>. The flow diagram comprehensively details the screening stages, eligibility criteria, and reasons for study exclusion.

To minimize potential selection bias, after the initial refinement performed by the two reviewers, a meeting was held to discuss the selected articles. Disagreements were referred to a third reviewer, and consensus was reached regarding study inclusion or exclusion.

Following full-text reading of the eligible studies, data extraction was performed independently and in duplicate. Extracted data were compiled into a Microsoft Excel® table designed to cover the eligibility criteria. The table was based on JBI instruments<sup>11</sup> and included the following variables: author name, year of publication, country, sex, sample size, study design, frailty assessment instrument, and prevalence of frailty. The reference lists of the included primary studies were also manually reviewed in an attempt to identify potentially relevant articles not indexed in the searched databases.

To describe the level of agreement between reviewers, the Kappa statistic was used, which is based on the number of concordant responses, that is, the frequency with which reviewers reached the same decision<sup>15</sup>. In this study, the kappa agreement index was 0.98, indicating strong or almost perfect agreement between the researchers.

Eligible studies were fully appraised using the Joanna Briggs Institute critical appraisal tools. For cross-sectional studies, the JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies was applied, whereas for cohort studies, the JBI Critical Appraisal Checklist for Cohort Studies was used<sup>11</sup>.

For the meta-analysis, heterogeneity among studies was assessed using Cochran's Q test and the I<sup>2</sup> statistic, which enabled the selection of the most appropriate statistical model for estimating the pooled effect. Due to significant variability in study populations and methodologies, a random-effects model was applied, yielding the overall estimates of the prevalence of frailty and pre-frailty.

The results were graphically presented using forest plots, illustrating individual and pooled effects, and funnel plots to assess publication bias using Egger's test. The robustness of the estimates was evaluated through sensitivity analyses, in which individual studies were sequentially removed to assess their impact on the overall results.

The logit transformation was used to stabilize variance and to transform proportions onto a symmetric and unbounded scale [0,1]. In addition, the inverse-variance method was applied to combine study-specific estimates, assigning greater weight to studies with smaller standard errors. Hypothesis tests were conducted with a significance level of 5%.

As this study used articles retrieved from databases and did not involve human participants, approval by a Research Ethics Committee was not required. The study complies with current ethical standards. In addition, artificial intelligence was not used for writing, data analysis, or the preparation of this study.

## DATA AVAILABILITY

The complete dataset supporting the results of this study has been made available in the Figshare repository and can be accessed via the doi: 10.6084/m9.figshare.30907523<sup>16</sup>.

## RESULTS

The database searches yielded 2,261 studies; 653 were excluded as duplicates, and 1,608 were selected for title and abstract screening. Of these, 1,589 articles were excluded based on title and

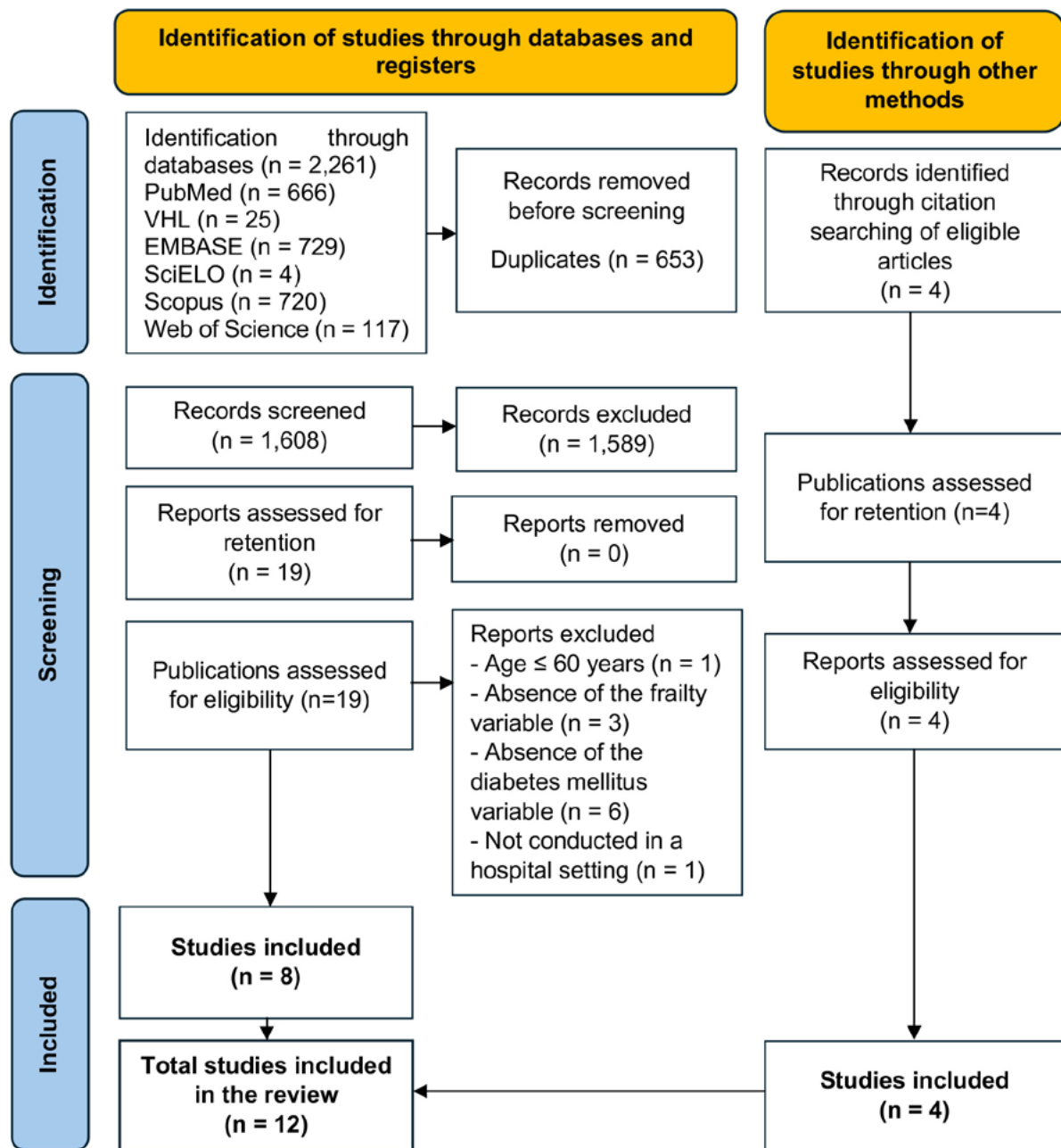
abstract review, resulting in 19 studies selected for full-text reading. After completion of this stage, 11 articles were excluded and four new studies were added through other methods, namely reference checking of primary studies, resulting in a total of 12 articles included in the review. Figure 2 presents the Preferred Reporting Items for Systematic Reviews and Meta-Analyses PRISMA flow diagram used to illustrate the study selection process for this systematic review<sup>14</sup>.

The reviewers included all studies that met the inclusion criteria and discussed the methodological limitations identified. A total of 3,542 participants were included in the meta-analysis, with sample sizes ranging from 101 to 1,652 participants. A predominance of males was observed in 50% of the studies, followed by females in 33.3%, while sex was not reported in 16.6% of the studies.

Methodological quality assessment scores indicated that most articles were of moderate to high quality. All articles, regardless of their methodological quality ratings (Chart 1), were subjected to data extraction and synthesis.

Among the countries in which the studies were conducted, China predominated (33.3%), followed by Vietnam (16.6%). The most frequently used instrument to assess frailty was the Frail Scale (53.8%), followed by the Clinical Frailty Scale (15.3%), the Frailty Index (7.7%), the Frailty Risk Score (FRS) (7.7%), the combined use of the Frail Scale and the Clinical Frailty Scale (7.7%), and the Fried Phenotype combined with the Reported Edmonton Frail Scale (REFS) (7.7%). Regarding study design, 58.3% were cross-sectional studies, 8.3% were multicenter cross-sectional studies, 8.3% were retrospective cohort studies, 8.3% were prospective cohort studies, and 16.6% were multicenter prospective cohort studies.

Table 1 presents the distribution of the characteristics of the studies that comprised the corpus of the systematic review, including the following variables: author and year, country of origin, sample size, sex, study design, frailty assessment instrument, and prevalence of frailty and pre-frailty.



**Figure 1.** PRISMA flow diagram of study selection. Curitiba, PR, Brazil, 2025.

Source: Adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses<sup>14</sup>.

**Chart 1.** Distribution of the results of the methodological quality assessment of the articles included in the study. Curitiba, PR, Brazil, 2025.

CROSS-SECTIONAL STUDIES*												
Author, year	1. Were the two groups similar and recruited from the same population?	2. Were exposures measured similarly to assign individuals to exposed and unexposed groups?	3. Was the exposure measured in a valid and reliable way?	4. Were objective and standardized criteria used to measure the condition?	5. Were strategies to address confounding factors described?	6. Were strategies implemented to deal with confounding factors?	7. Was the condition measured in a standardized and reliable manner?	8. Was appropriate statistical analysis used?	Total			
Li <i>et al.</i> , 2015 <sup>17</sup>	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	8			
Vu <i>et al.</i> , 2017 <sup>18</sup>	(+)	(+)	(-)	(+)	(+)	(+)	(+)	(+)	7			
Wenxiu <i>et al.</i> , 2019 <sup>19</sup>	(+)	(-)	(-)	(+)	(+)	(-)	(-)	(+)	4			
Mackenzie <i>et al.</i> , 2015 <sup>20</sup>	(I)	(+)	(-)	(+)	(+)	(-)	(-)	(+)	4			
O'neil <i>et al.</i> , 2022 <sup>21</sup>	(+)	(+)	(-)	(-)	(+)	(-)	(-)	(-)	3			
Khuc <i>et al.</i> , 2021 <sup>22</sup>	(I)	(+)	(-)	(+)	(+)	(+)	(-)	(+)	6			
Wang <i>et al.</i> , 2023 <sup>23</sup>	(+)	(+)	(-)	(+)	(+)	(-)	(-)	(+)	5			
Zhang <i>et al.</i> , 2024 <sup>24</sup>	(+)	(-)	(-)	(-)	(+)	(+)	(-)	(+)	4			
COHORT STUDIES **												
Author, year	1. Were the two groups similar and recruited from the same population?	2. Were exposures measured similarly to assign individuals to exposed and unexposed groups?	3. Was the exposure measured in a valid and reliable way?	4. Were confounding factors identified?	5. Were strategies to address confounding factors described?	6. Were the groups or participants free of the outcome at the start of the study or at the time of exposure?	7. Were outcomes measured in a valid and reliable way?	8. Was follow-up time reported and sufficient for outcomes to occur?	9. Was follow-up complete and, if not, were the reasons for loss to follow-up described and explored?	10. Were strategies used to address incomplete follow-up?	11. Was appropriate statistical analysis used?	Total
Lekan and McCoy, 2018 <sup>25</sup>	(I)	(+)	(-)	(-)	(+)	(+)	(+)	(+)	(-)	(-)	(+)	6
Yanagita <i>et al.</i> , 2018 <sup>26</sup>	(I)	(+)	(-)	(-)	(+)	(+)	(-)	(+)	(+)	(+)	(+)	5
Rodríguez-Queraltó <i>et al.</i> , 2010 <sup>27</sup>	(I)	(+)	(+)	(-)	(-)	(+)	(+)	(+)	(+)	(-)	(+)	7
Fung <i>et al.</i> , 2021 <sup>28</sup>	(I)	(+)	(-)	(-)	(-)	(+)	(-)	(+)	(+)	(+)	(+)	6

(-) did not meet this criterion; (+) met this criterion; (I) unclear or not clear. Scores range from 1 to 8 or from 1 to 11, and higher scores indicate better methodological quality. \*JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies<sup>10</sup>. \*\*JBI Critical Appraisal Checklist for Cohort Studies<sup>11</sup>.

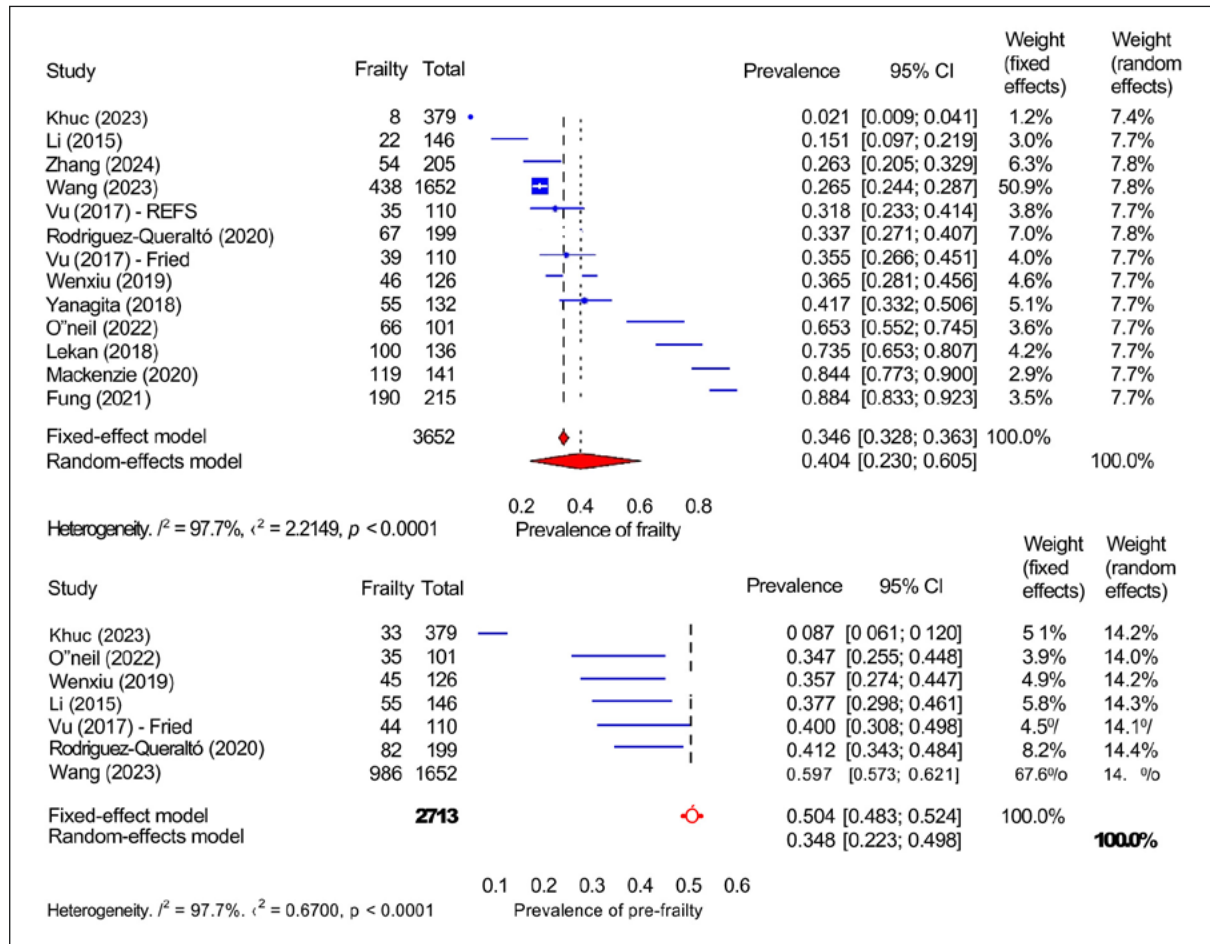
**Table 1.** Distribution of the characteristics of the studies included in the corpus of the systematic review. Curitiba, PR, Brazil, 2025.

Author, year	Country of origin	Sample size	Female sex	Study design	Frailty assessment instruments	Prevalence of pre-frailty	Prevalence of frailty
Rodríguez-Queraltó <i>et al.</i> , 2010 <sup>27</sup>	Spain	199	38%	Multicenter prospective cohort study	FRAIL Scale	41.2%	33.6%
Mackenzie <i>et al.</i> , 2015 <sup>20</sup>	Canada	141	52.5%	Cross-sectional study	FRAIL Scale	NI	84.4%
Li <i>et al.</i> , 2015 <sup>17</sup>	China	146	21.9%	Cross-sectional study	FRAIL Scale	37.7%	15.1%
Vu <i>et al.</i> , 2017 <sup>18</sup>	Vietnam	110	NI	Cross-sectional study	Fried Phenotype Reported Edmonton Frail Scale	40.1% NI	35.4% 31.9%
Lekan and McCoy, 2018 <sup>25</sup>	United States	136	57.2%	Retrospective cohort study	Frailty Risk Score $\geq 9$	NI	73.5%
Yanagita <i>et al.</i> , 2018 <sup>26</sup>	Japan	132	48%	Prospective cohort study	Clinical Frailty Scale	NI	41.6%
Wenxiu <i>et al.</i> , 2019 <sup>19</sup>	China	126	NI	Cross-sectional study	FRAIL Scale	35.4%	36.5%
Fung <i>et al.</i> , 2021 <sup>28</sup>	Hong Kong	215	NI	Multicenter prospective cohort study	Frailty index	NI	88.3%
O'neil <i>et al.</i> , 2022 <sup>21</sup>	United Kingdom	101	55.4%	Cross-sectional study	Clinical Frailty Scale	34.6%	65.3%
Khuc <i>et al.</i> , 2021 <sup>22</sup>	Vietnam	379	46.5%	Cross-sectional study	FRAIL Scale	8.7%	2.1%
Wang <i>et al.</i> , 2023 <sup>23</sup>	China	1652	36.4%	Multicenter cross-sectional study	FRAIL Scale	59.7%	26.5%
Zhang <i>et al.</i> , 2024 <sup>24</sup>	China	205	51.9%	Cross-sectional study	FRAIL Scale	NI	26.3%

NI – Not informed.

The pooled prevalence of frailty among hospitalized older adults with diabetes across all included studies was 40.4% (23.0% to 60.5%),  $I^2$

= 97.7%,  $\tau^2 = 2.2149$ ,  $p < 0.0001$ , and the pooled prevalence of pre-frailty was 34.8% (22.3% to 49.8%),  $I^2 = 97.7%$ ,  $\tau^2 = 0.6700$ ,  $p < 0.0001$  (Figure 2).

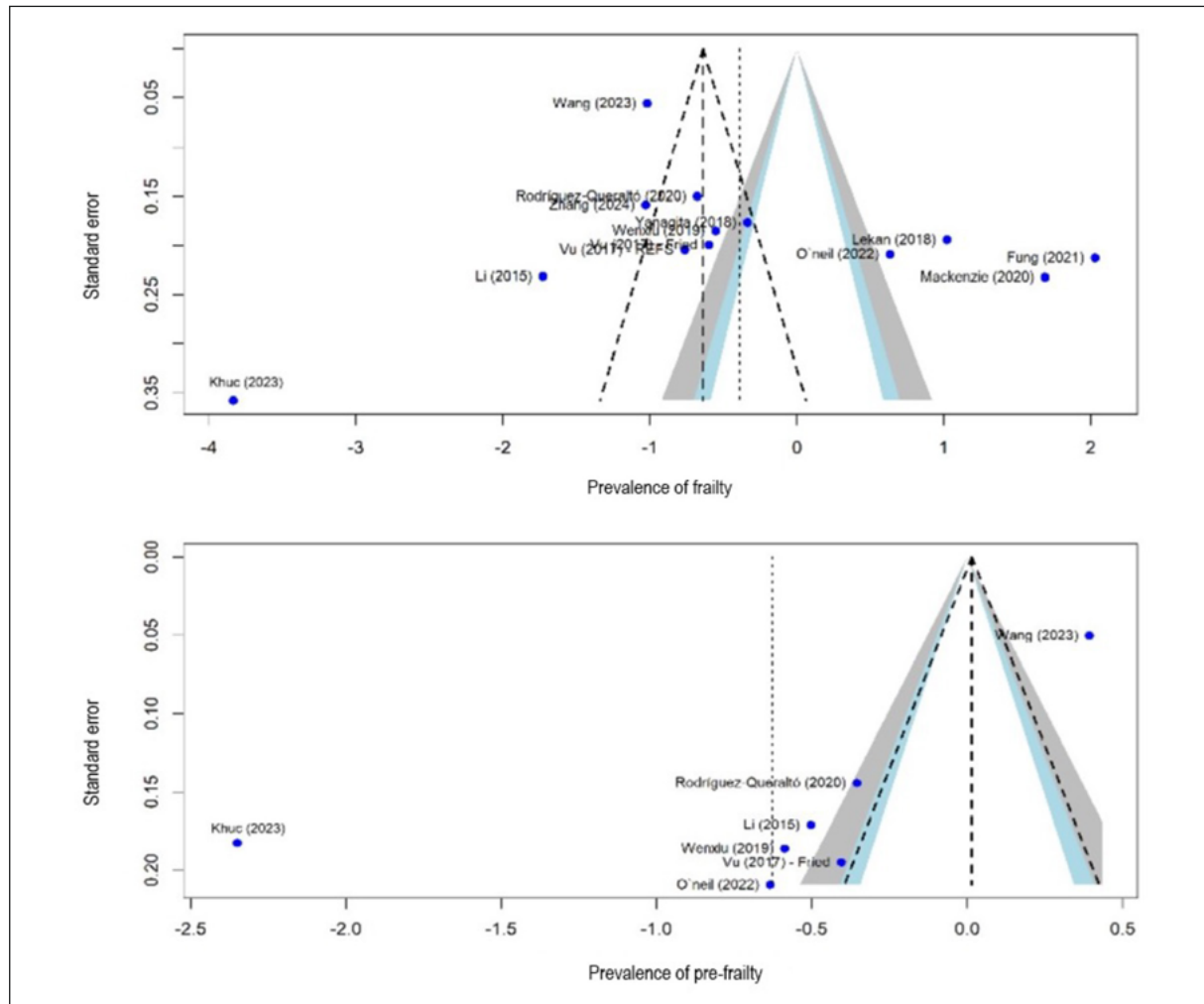


**Figure 2.** Estimated prevalence of frailty among hospitalized older adults with diabetes mellitus. Curitiba, PR, Brazil, 2025.

Source: Figshare, accessible via doi: 10.6084/m9.figshare.30907523<sup>16</sup>

The funnel plot for frailty prevalence shows asymmetry, with a greater concentration of studies on the right side representing higher prevalences and fewer studies on the left side representing lower prevalences,

with no statistically significant evidence of asymmetry ( $t = 1.33, p = 0.2113$ ). In the funnel plot for pre-frailty prevalence, there was statistically significant evidence of asymmetry ( $t = -3.22, p = 0.0234$ ) (Figure 3).



**Figure 3.** Funnel plot for the assessment of publication bias. Curitiba, PR, Brazil, 2025.

**Source:** Figshare, accessible via doi: 10.6084/m9.figshare.30907523<sup>16</sup>

## DISCUSSION

The present systematic review with meta-analysis demonstrated a high prevalence of frailty (40.4%) and pre-frailty (34.8%) among hospitalized older adults with diabetes mellitus, indicating that most individuals in this population exhibit some degree of physiological vulnerability during hospitalization. These findings exceed the prevalences observed in community-based settings<sup>29</sup>, supporting the hypothesis that the combination of diabetes and hospitalization increases frailty risk.

Other marked differences in frailty status are observed between community-dwelling and hospitalized older adults. Community-dwelling

older adults show a lower prevalence of physical frailty and a higher prevalence of pre-frailty<sup>30</sup>. It is evident that the coexistence of diabetes mellitus and frailty acts as a strong predictor of hospitalization, which explains the higher proportion of frail older adults with diabetes in the hospital setting. This profile reflects more severe health conditions among hospitalized individuals, as they already present reduced physiological reserves and lower resistance to stressors, with an increased risk of severe complications and recurrent hospitalizations<sup>31</sup>.

The substantial heterogeneity among the estimates of the included studies, with prevalences ranging from 2.1%<sup>22</sup> to 88.4%<sup>28</sup>, suggests a strong influence of methodological and conceptual factors.

Such discrepancies may stem from differences in assessment instruments, adopted cutoff points, classification strategies that are dichotomous or multilevel, as well as from the clinical and sociodemographic characteristics of the samples. This pattern is widely discussed in the literature, which recognizes the lack of standardization in frailty measurement as one of the main determinants of variability in prevalence estimates.

The heterogeneity observed across studies may reflect differences in frailty status, morbidity profiles, and nutritional and functional status, elements associated with the progression of frailty in the hospital setting. Although these characteristics were not the primary focus of the present investigation, they contribute to the interpretation of the observed discrepancies. Among older adults diagnosed with diabetes mellitus, an association was observed between pre-frailty or frailty and female sex<sup>22</sup>, older chronological age<sup>18,23,26,28</sup>, lower income<sup>22</sup>, and low educational attainment<sup>18,22</sup>.

In addition, frailty was associated with longer duration of diabetes diagnosis<sup>22</sup>, a higher number of morbidities<sup>22</sup>, poor nutritional status<sup>18,19</sup>, lower body weight and systolic blood pressure<sup>26</sup>, the presence of cardiovascular diseases<sup>18,23,27</sup>, cancer and gastrointestinal diseases<sup>23</sup>, cerebrovascular and renal diseases<sup>23,28</sup>, cognitive impairment<sup>19</sup>, lower scores for instrumental activities of daily living<sup>17,19</sup>, as well as impaired mobility and diabetic nephropathy<sup>17</sup>.

These results corroborate previous studies on the relationship between these conditions and frailty in older adults with diabetes<sup>29</sup> and in those with multimorbidity<sup>30</sup>. The presence of these factors may influence transitions in frailty status, particularly among hospitalized older adults, while also highlighting certain modifiable characteristics that can be incorporated into care management and treatment strategies for hospitalized older adults<sup>29</sup>.

Although the studies reported data on frailty in older adults with diabetes, their objectives were highly heterogeneous, including assessment of functional fitness in frail older adults<sup>24</sup>; evaluation of the association between diabetes mellitus and associated factors<sup>18,19,22</sup>, specifically multimorbidities<sup>26</sup>, acute coronary syndrome<sup>27</sup>, and hospital outcomes<sup>17,20,25</sup>;

assessment of the relationship between dysglycemia and frailty in older adults using insulin<sup>28</sup>; and evaluation of risk factors for frailty, including glycated hemoglobin<sup>26</sup>, as well as hypoglycemic treatment in relation to therapeutic targets and hospital outcomes<sup>21</sup>.

The funnel plot for frailty prevalence did not demonstrate publication bias. It was observed that two studies<sup>17,22</sup> were outside the expected funnel limits, indicating that their estimates may be under- or overestimated. Studies with more precise frailty estimates and smaller standard errors were located closer to the top of the plot<sup>23</sup> and or clustered around the central line of the funnel<sup>27</sup>.

The main strengths of this study include the adoption of a systematic and comprehensive search strategy, methodological quality assessment, a standardized data extraction process, as well as the quantitative synthesis of results, presented using forest plots, and the application of statistical tests to assess publication bias. Nevertheless, some limitations should be considered when interpreting the findings. These include heterogeneity among the analyzed populations, sample sizes that are not always representative of the target population, the diversity of instruments used to assess frailty, variability in the classification of frailty status—either dichotomous or tripartite—and the exclusion of gray literature.

## CONCLUSION

The prevalence of frailty among hospitalized older adults with diabetes mellitus was high, affecting 75.2% of the analyzed population, of whom 40.4% were classified as frail and 34.8% as pre-frail. The identification of both the prevalence and the coexistence of these two conditions highlights the clinical risks faced by hospitalized older adults.

This study provides an original contribution by consolidating prevalence estimates specifically for hospitalized older adults with diabetes, thereby addressing an important gap in the literature and support therapeutic planning. The findings also contribute to the improvement of care protocols and to the guidance of interdisciplinary strategies centered on functionality, in line with guidelines for older adult care in the hospital setting.

The results of this review indicate the need for future studies with longitudinal and multicenter designs capable of monitoring the progression of frailty among hospitalized older adults diagnosed with diabetes mellitus. The importance of standardizing frailty assessment instruments is emphasized, as well as conducting studies that investigate the association of frailty with clinical, functional, and economic outcomes. Furthermore, research evaluating multidimensional interventions and the systematic incorporation of frailty assessment into care protocols may contribute to improved clinical decision-making and to the qualification of care centered on functionality.

## AUTHORSHIP

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- Clovis Cechinel - writing or critical revision; final approval of the version; accountability for all aspects of the work; conceptualization; data curation; investigation; methodology; software; validation; visualization.
- João Alberto Martins Rodrigues - writing or critical revision; final approval of the version; accountability for all aspects of the work; formal analysis; conceptualization; data curation; investigation; methodology; software; validation; visualization.
- María del Carmen Rodríguez-Martínez - writing or critical revision; final approval of the version; accountability for all aspects of the work; investigation; supervision; validation; visualization.

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