

J. Apóstolo¹, E. Bobrowicz-Campos¹, C. Holland², R. Cooke², S. Santana³, M. Marcucci⁴⁻⁵, M. Vollenbroek-Hutten⁶, F. Germini⁵, A. Cano⁷

¹ ESEnFC Coimbra, Portugal; ² ARCHA Aston University, Birmingham, UK; ³ DEGEI, University of Aveiro, Portugal; ⁴ Geriatric Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; ⁵ Dept. of Clinical Science and Community Health, University of Milan, Italy; ⁶ University of Twente, Telemedicine group, Eschedede, The Netherlands and Ziekenhuisgroep Twente, Almelo, The Netherlands; ⁷ Dept. Of Paediatrics, Obstetrics, And Gynaecology, Universitat de València, Spain

INTRODUCTION

- Frailty is an **age-related state of high vulnerability to adverse health outcomes** after a stressor event.
- Frailty predisposes the individuals to progressive decline in different functional domains (Figure 1) and contributes to the onset of geriatric syndromes^{1,2}.
- Several screening tools for frailty have been developed, being their psychometric properties analyzed in different systematic reviews (SRs).

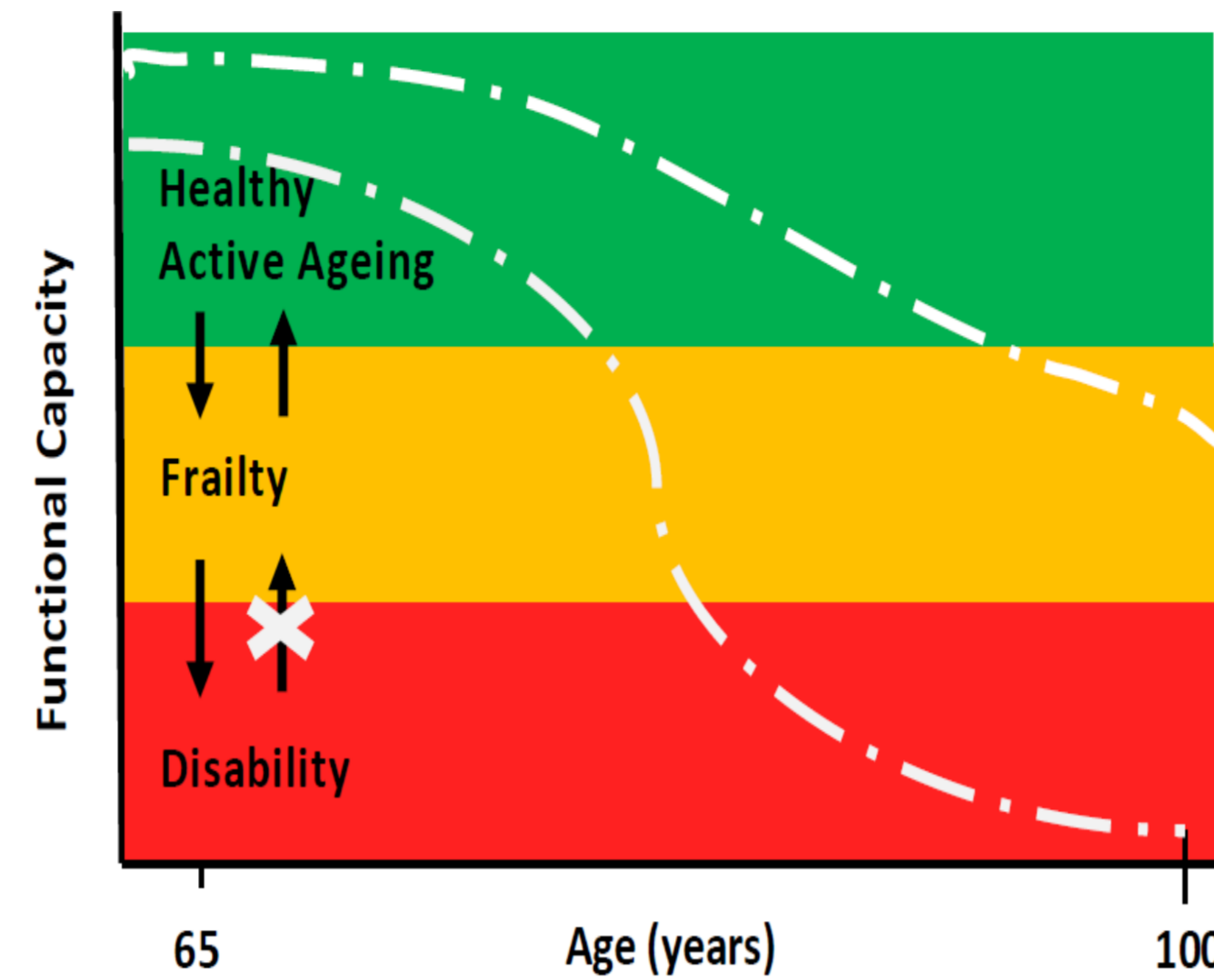


Figure 1. Trajectories of functional decline

- This study systematized, compared and synthesized the existing evidence about **diagnostic accuracy and predictive ability of available screening tools for frailty** through an overview of reviews³. The review process was based on **Joanna Briggs Institute (JBI) procedures**⁴.

INCLUSION CRITERIA

Population: Older adults aged 60 years or more recruited from community, primary care, long-term residential care, hospitals.

Index Test: Available frailty measures in older adults.

Reference Test: Cardiovascular Health Study phenotype model, the Canadian Study of Health and Aging cumulative deficit model, Comprehensive Geriatric Assessment, or other reference tests.

Diagnosis of interest: Frailty, being investigated according to one reference test, and defined as an age-related state of high vulnerability to adverse health outcomes after a stressor event.

Type of studies: Quantitative systematic reviews.

SEARCH STRATEGY

Publication date: from January 2001 to October 2015

Languages: English

Databases for published studies: CINAHL, MEDLINE, MedicLatina, Scielo, PROSPERO register, Cochrane Database of Systematic Reviews, Centre for Reviews and Dissemination Databases, Joanna Briggs Institute Library of Systematic Reviews and Implementation Reports

Databases for unpublished studies: Grey Literature Report, ProQuest – Nursing and Allied Health Source Dissertations

SELECTION PROCESS

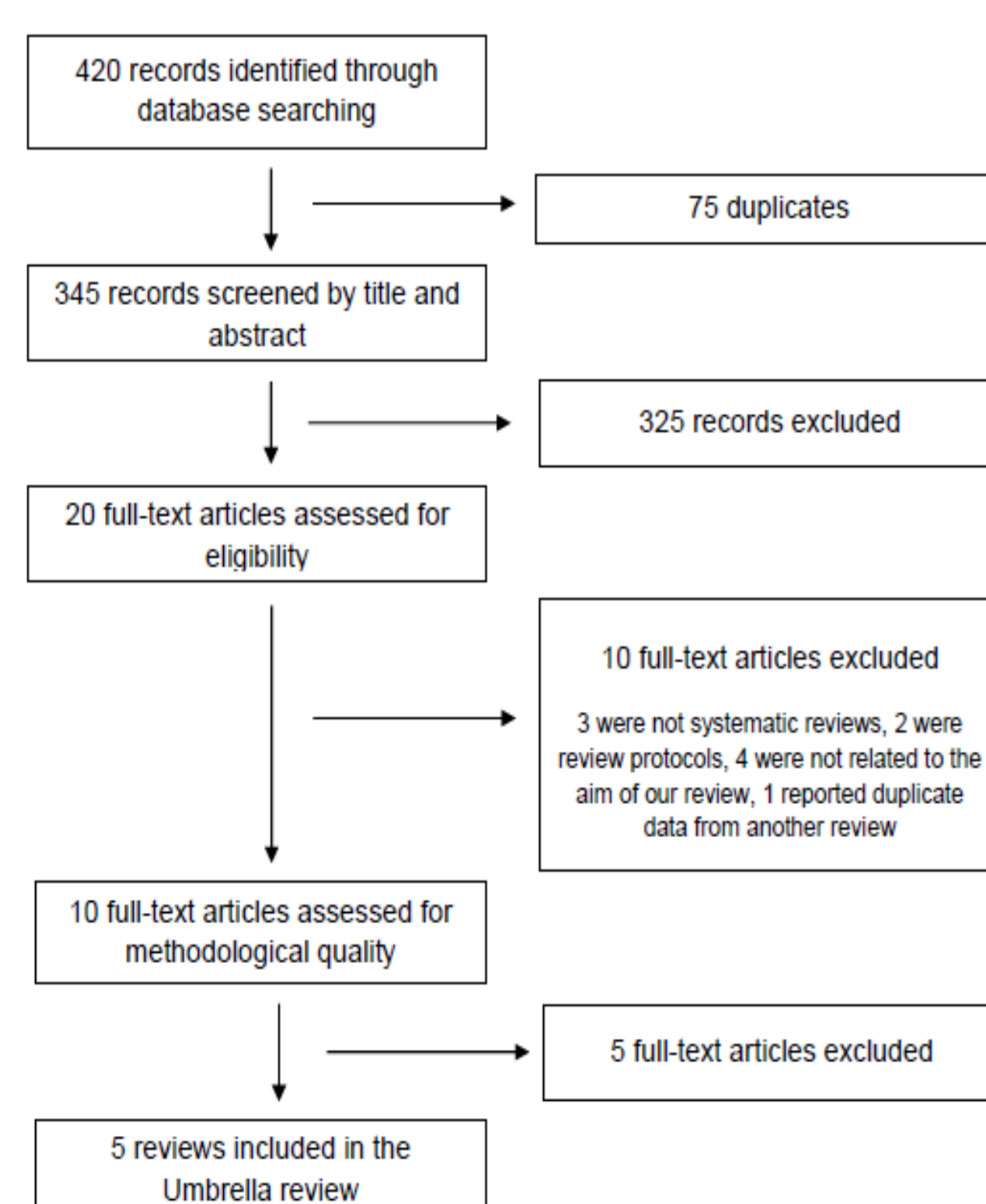


Figure 2. Flowchart for the search and selection process

ASSESSMENT OF METHODOLOGICAL QUALITY

Assessment tool: the JBI critical appraisal checklist for systematic reviews and research synthesis.

Process: Critical appraisal by two independent reviewers. Any disagreements were resolved through discussion or with a third reviewer.

Cut-off point for inclusion: "YES" answers for questions examining:

- appropriateness of inclusion criteria for the review question,
- appropriateness of criteria used for critical appraisal of the included studies,
- conduction of critical appraisal by two or more independent reviewers.

During appraisal of the methodological quality of the SRs eligible for inclusion various limitations were encountered.

OBJECTIVES

- To describe the potential bias of the SRs eligible for inclusion in one overview of SRs related to diagnostic accuracy and predictive validity of screening tools for frailty.

METHODS

- Is the review question clearly and explicitly stated?
- Were the inclusion criteria appropriate for the review question?
- Was the search strategy appropriate?
- Were the sources and resources used to search for studies adequate?
- Were the criteria for appraising studies appropriate?
- Was critical appraisal conducted by two or more reviewers independently?
- Were there methods to minimize errors in data extraction?
- Were the methods used to combine studies appropriate?
- Was the likelihood of publication bias assessed?
- Were recommendations for policy and/or practice supported by the reported data?
- Were the specific directives for new research appropriate?

Detailed analysis of the risk of bias:

- by applying the 11 items of the **JBI critical appraisal checklist** for systematic reviews and research syntheses to the SRs eligible for inclusion
- by data extraction based on **JBI data extraction form** for review for systematic reviews and research syntheses.

Figure 3. JBI critical appraisal checklist for systematic reviews and research syntheses

RESULTS

- From the 10 analyzed SRs one was a Cochrane SRs and nine were non-Cochrane and non-JBI SRs. In Cochrane review only the likelihood of publication bias was not controlled.
- In two SRs the inappropriate definition of inclusion criteria was identified; in five the reference standard using for comparison of the index tests was not considered; in two the critical appraisal of the included studies was missing and in one an inappropriate tool for this purpose was used.
- None of the analyzed SRs evaluated likelihood of publication bias.

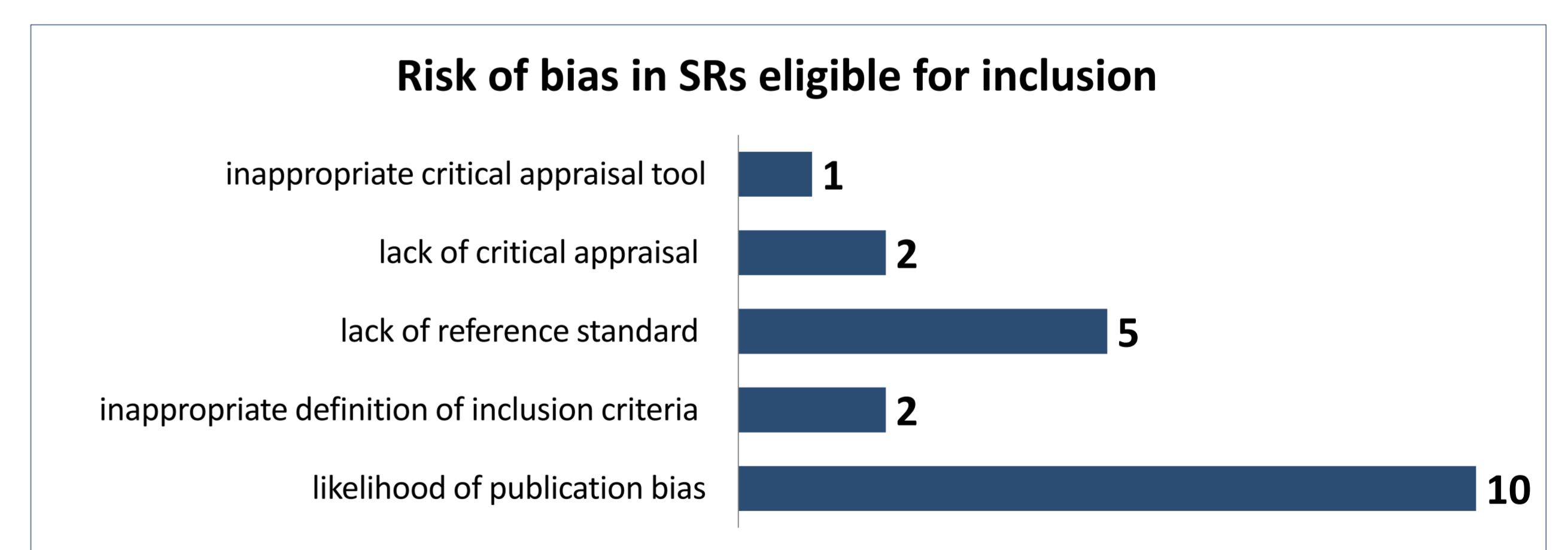


Figure 4. Methodological weaknesses most frequently encountered

- Related to data extraction, we identified cases of bias in the selection of the reported results, lack of uniformity of provided statistics, and inconsistency in conferring significance to the obtained results.

CONCLUSIONS

- The risk of bias was mainly identified in the SRs that did not follow standardized international collaboration procedures.
- There is a need for wider use in futures SRs of standardized procedures in order to improve the quality of the evidence synthesis.

REFERENCES

- Fried, L. P., Ferrucci, L., Darer, J., Williamson, J., & Anderson, G. (2004). Untangling the concepts of disability, frailty, and comorbidity: Implications for improved targeting and care. *The Journals of Gerontology*, 59(3), 255-263.
- Clegg, A., Young, J., Iliffe, S., Rikkert, M. O., & Rockwood, K. (2013). Frailty in elderly people. *Lancet* 381(9868), 752-762.
- Apóstolo, J., Cooke, R., Bobrowicz-Campos, E., Santana, S., Marcucci, M., Cano, A.,... Holland C. (2015). Predicting risk and outcomes for frail older adults: a protocol for na umbrella review of available frailty screening tools. *JBI Database System Rev Implement Rep* 13(12), 14-24.
- The Joanna Briggs Institute. (2014). *Joanna Briggs Institute reviewers' manual: Methodology for JBI umbrella reviews*. Adelaide, Australia: Author.