

Prevalence and risk factors of sarcopenia among older adults in Asia: A systematic review and meta analysis

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ADMINISTRATIVE INFORMATION**Support** - University.**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202410061**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 January 2024 and was last updated on 15 January 2024.**INTRODUCTION**

Review question / Objective 1. What is the prevalence of sarcopenia in the Asian population? 2. What are the risk factors for sarcopenia in the Asian population?

Rationale The objective of this systematic review is to pinpoint relevant meta-analyses of published, peer-reviewed observational studies in English language that look at the prevalence and risk factors of sarcopenia in Asia. By systematically reviewing and synthesizing relevant studies, this research aims to contribute valuable insights into the understanding of sarcopenia in the Asian elderly population, ultimately informing strategies for prevention, early detection, and targeted interventions to mitigate the impact of sarcopenia on the health and well-being of ageing individuals in Asia.

Condition being studied Sarcopenia is a universally recognised geriatric syndrome characterized by a progressive loss of muscle

mass, strength and function. The concept of sarcopenia was firstly coined by Rosenberg and colleagues (1989) with the first diagnosis criteria was established by European Working Group on Sarcopenia in Older People (EWGSOP, 2010). The condition commonly affects the older adults and is thought to occur due to ageing. Sarcopenia can lead to reduced ability to perform daily tasks, loss of independence, poorer quality of life, higher risk of depression and greater mortality. Due to the differences in ethnicities, body size, lifestyles, and cultural backgrounds of Asians compared to Europeans, a group of researchers from Japan, Taiwan, Hong Kong and Korea developed a consensus statement on the Asian Working Group on Sarcopenia (AWGS) (Chin et al., 2014). Both AWGS and EWGSOP shared similar diagnostic criteria for sarcopenia which require low muscle mass, low muscle strength and or poor physical performance. The only difference lies in the specific cut-off value of muscle strength and muscle mass. Furthermore, there are surging in publication of research in this field in Asia. Hence, in this systematic review and meta-analysis, we

aimed to determine the prevalence of sarcopenia among older adults in Asia using different diagnostic criteria and the risk factors for sarcopenia in hopes to understand the nature of the disease.

METHODS

Search strategy We identified relevant published, peer-reviewed observational studies, by a systematic search of PubMed, Epistemonikos and Scopus from inception to Feb 2024. To identify studies not captured by database searches, we looked at the reference lists of published systematic reviews and articles retrieved after title and abstract exclusion manually. Only papers published in English are included. The search terms in the title or abstract included the following: “sarcopenia”, “sarcopenic”, “muscle mass” and “muscle strength” in combination with the terms “prevalence”, “epidemiology”, “elderly”, “older adults”, “older persons” and “Asian.”

Participant or population The study population comprises older adults with sarcopenia in Asia.

Intervention None.

Comparator None.

Study designs to be included Published, peer-reviewed observational studies in English language that investigated the prevalence and risk factors of sarcopenia in Asia.

Eligibility criteria Inclusion criteria: Older adults in Asia. Exclusion criteria: Intervention study, animal research, non-peer review study.

Information sources PubMed, Epistemonikos and Scopus.

Main outcome(s) Prevalence of sarcopenia among older adults in Asia.

Additional outcome(s) Risk factors for sarcopenia among older adults in Asia.

Data management Screening and data extraction will be a multi-step process. The initial search of articles will be based on an assessment of the titles and abstracts. The subsequent data will be extracted for each study identified as being eligible for inclusion in this review: surname of the first author, year of publication, country, diagnostic criteria, number of participants, demography, prevalence, and modifiable risk factors. Two reviewers will screen the studies based on their

titles and abstracts, followed by full text reading. If there is a disagreement a third reviewer will resolve the issue by reviewing the materials and via discussion. A standardised data extraction form will be generated and extracted data will be entered.

Quality assessment / Risk of bias analysis Two independent reviewers who were not blinded to the authors or journals assess the risk of bias in the studies using the Newcastle-Ottawa Scale (NOS). The two researchers independently assess the studies by discussion, comparison of findings and resolution of differences and come to an agreement. If no accord was reached, a third researcher is assigned to resolve the differences.

Strategy of data synthesis The meta-analysis will be carried out using forest plots to depict the prevalence estimated, and the risk factors for sarcopenia, with confidence intervals for each study. Frequency random effects modelling will be used to estimate the mean effect size with 95% confidence intervals using the DerSimonian-Lard estimation of the between-study variance. Heterogeneity will be assessed using I² statistics.

Subgroup analysis The main analysis will be conducted separately according to prevalence and risk factors. Several subgroup analyses are countries, gender, ethnic, body mass index and diagnostic criteria. The prevalence is reported based on proportions/percentages, and risk factor for sarcopenia is reported in odds ratios (95% CI) differences.

Sensitivity analysis We performed sensitivity analysis by using leave-one-out meta-analysis to examine how each particular study alters the overall performance of the rest of the studies especially the pooled prevalence estimates and heterogeneity.

Language restriction English.

Country(ies) involved Malaysia.

Other relevant information None.

Keywords sarcopenia; sarcopenic; muscle mass; muscle strength; prevalence; epidemiology; elderly; older adults; older persons; Asian.

Contributions of each author

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