INPLASY

Nutritional and lifestyle determinants of Sarcopenia in Adult Asian Patients with Chronic Kidney Disease: A Protocol for Systematic Narrative Review

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

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 14 March 2026 and was last updated on 14 March 2026.

INTRODUCTION

Review question / Objective What are the nutritional and lifestyle determinants of Sarcopenia in Adult Asian Patients with Chronic Kidney Disease?
The aim of the systematic review is to identify the nutritional and lifestyle determinants associated with Sarcopenia in Adult Asian Patients with chronic kidney disease.

Rationale Muscle loss is a common manifestation in patients with chronic kidney disease (CKD). CKD is often associated with increased protein losses, protein degradation, and reduced protein synthesis, leading to a negative protein energy balance. Sarcopenia is defined as the loss of muscle mass and strength and is often seen in patients with chronic kidney disease. Duarte et al (2024) reported that the global prevalence of sarcopenia in CKD patients was from 11-30%, which varied according to the consensus definition. An Indian study conducted by Dubey et al. (2021) reported that 69.1% participants belonging to CKD stage 3 and stage 4 were sarcopenic. The rationale for undertaking a review on sarcopenia among adult Asian patients with chronic kidney disease (CKD) is complex and encompasses various factors. The presence of Sarcopenia is mainly linked to old age, but it is particularly prevalent in the case of metabolic diseases such as CKD. Patients with CKD are at a high risk of sarcopenia, which is often associated with adverse clinical outcomes. Presence of low protein intake, metabolic acidosis, increased pro-inflammatory cytokines, decreased growth hormone levels, protein energy wasting (PEW), presence of uremic toxins, and lack of physical activity, decreased insulin and insulin-like growth factor levels, gut dysbiosis are observed as CKD progresses further, leading to sarcopenic changes in the muscles. Literature addressing sarcopenia among Asian CKD patients is fragmented and requires an integrative review using the region-specific Asian Working Group of Sarcopenia (AWGS) diagnostic criteria. The present systematic review will provide more insights into the nutritional and lifestyle determinants of sarcopenia among

Asian adults diagnosed with CKD. This review will help clinicians understand the role of nutritional and lifestyle factors in Sarcopenic CKD patients and to enable them to identify preventive and therapeutic strategies that enhance patient-centric outcomes.

Condition being studied Chronic kidney disease - According to KDIGO (Kidney Disease Improving Global Outcomes) Guidelines, chronic kidney disease (CKD) is defined as abnormalities of kidney structure or function that have been present for at least 3 months and have health implications.

METHODS

Search strategy The databases included in the comprehensive review are PubMed, Scopus, Web of Science, and ScienceDirect. The database screening will involve publications from inception to March 2026. The search terms used in the database are as follows:
((("sarcopenia"[MeSH Terms] OR "sarcopenia"[All Fields]) AND ("renal insufficiency, chronic"[MeSH Terms] OR ("renal"[All Fields] AND "insufficiency"[All Fields] AND "chronic"[All Fields]) OR "chronic renal insufficiency"[All Fields] OR ("chronic"[All Fields] AND "kidney"[All Fields] AND "disease"[All Fields]) OR "chronic kidney disease"[All Fields]) AND "asian*"[All Fields] AND ("aging"[MeSH Terms] OR "aging"[All Fields] OR "ageing"[All Fields])) OR "proteinous"[All Fields] OR "proteins"[Supplementary Concept] OR "proteins"[All Fields] OR "protein"[All Fields] OR "proteins"[MeSH Terms]) AND ("energie"[All Fields] OR "energies"[All Fields] OR "energy"[All Fields]) AND ("cachexia"[MeSH Terms] OR "cachexia"[All Fields] OR "wasting"[All Fields]))) OR ("vitamin d"[Supplementary Concept] OR "vitamin d"[All Fields] OR "ergocalciferols"[Supplementary Concept] OR "ergocalciferols"[All Fields] OR "vitamin d"[MeSH Terms] OR "ergocalciferols"[MeSH Terms])) OR ("exercise"[MeSH Terms] OR "exercise"[All Fields] OR ("physical"[All Fields] AND "activity"[All Fields]) OR "physical activity"[All Fields])) OR ("uraemic toxins"[All Fields] OR "uremic toxins"[Supplementary Concept] OR "uremic toxins"[All Fields] OR "uremic toxins"[MeSH Terms] OR ("uremic"[All Fields] AND "toxins"[All Fields]))) OR "nutrition*"[All Fields]) OR "sarcopenia"[All Fields]) AND ("obeses"[All Fields] OR "obesity"[MeSH Terms] OR "obesity"[All Fields] OR "obese"[All Fields] OR "obesities"[All Fields] OR "obesity s"[All Fields])).

Participant or population Asian adult patients (18-60 years) with chronic kidney disease (stages 1-5) on medical management will be included. Patients below the age of 18 years, or those on dialysis, or not having mobility issues, or terminal illness – cancer, cirrhosis, tuberculosis, HIV/AIDS will be excluded.

Intervention Not applicable.
Exposure - Nutritional and Lifestyle factors - Physiological (aging); Nutritional (Protein Energy Wasting, role of processed and ultra processed foods, vitamin D, sarcopenia obesity); Lifestyle (sedentary behavior); Uremic Toxins (Indoxyl Sulfate (IS)). Exposure to Physiological Factors (ageing - age-related decline in muscle mass, muscle strength, and muscle functionality); Nutritional Factors (Protein Energy Wasting (PEW) - as per the International Society of Renal Nutrition and Metabolism, role of processed and ultra-processed foods ready-to-eat, containing high sugar, saturated fat, salt, phosphorus, energy, additives and low levels of protein, fiber and micronutrients, sarcopenia obesity - co-existence of sarcopenia and excess body fat, Vitamin D deficiency - Vitamin D levels of Less than 10 IU); Lifestyle Factors (Sedentary Behavior) and Uremic toxins - Indoxyl sulfate (IS) affects sarcopenia in chronic kidney disease.

Comparator Compared to normal adults without chronic kidney disease.

Study designs to be included Observational (Cross-Sectional, Cohort, Case-Control).

Eligibility criteria Inclusion - Studies on Asian Adult Patients (18-60 years) with chronic kidney disease (stages 1-5) on medical management will be included. Data from Asian countries (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar (Burma), Philippines, Singapore, Thailand, Timor-Leste (East Timor), Vietnam, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka, Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine (State of Palestine), Qatar, Saudi Arabia, Syria, Turkey (Türkiye), United Arab Emirates (UAE), Yemen, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Hongkong and Macau) will be included. Observational studies will be considered (cross-sectional, cohort, case-control). The timeframe for study inclusion would be from inception to March 2026.Exclusion - The exclusion criteria consist of studies including patients below the age of 18 years, or those on dialysis, or not having mobility issues, or terminal illness – cancer, cirrhosis, tuberculosis, HIV/AIDS. Study design other than

observational such as RCT, review articles, letters to the editor, opinion articles will be excluded.

Information sources Electronic Database - PubMed, Web of Science, Scopus, Science Direct will be used to search articles.

Main outcome(s) Sarcopenia - Sarcopenia is defined as the age-related loss of skeletal muscle, characterized by a progressive and generalized decline in skeletal muscle mass and strength, leading to a poor quality of life. According to the Asian Working Group of Sarcopenia (AWGS) 2014 consensus, Sarcopenia was defined as "age-related loss of muscle mass, plus low muscle strength, and/or low physical performance."

Additional outcome(s) None.

Data management The present systematic review will follow PRISMA 2020 reporting guidelines. All articles will be uploaded to Rayyan in RIS and PubMed format. Duplicates will be removed. Two reviewers will independently identify the relevant studies for title and abstract screening. The selected studies will then undergo full-text screening to further refine the selection. In case of disagreements, the arbitrator will resolve them. The following data will be extracted independently into the Microsoft Excel data form: study design including the country and period during which the study was conducted, sample size, type of comparison used (e.g., control group or normative data), inclusion and exclusion criteria, subject characteristics, data on the outcomes defined hereinafter, details on the method used to measure PA, and unit of measurement.

Quality assessment / Risk of bias analysis The STROBE checklist will be used to assess the methodological quality of the included studies. The studies will be classified to low, medium and good quality based on the scores.

Strategy of data synthesis The present work will be a systematic narrative review – Will use Excel Metrices for collecting information on baseline chanractristics, nutritional, physiological, and lifestyle factors that may contribute to the sarcopenia of chronic kidney disease.

Subgroup analysis Nutritional and Lifestyle Factors as covariates of Sarcopenia of chronic kidney disease.

Sensitivity analysis None.

Language restriction English.

Country(ies) involved India.

Other relevant information Asian country specific review. Review will be a narrative one to develop insights into the potential determinants of sarcopenia of CKD.

Keywords Chronic Kidney Disease, CKD, Sarcopenia, Muscle loss, Determinants.

Dissemination plans Publications, Conference Presentations, information sharing with clinicians and patients.

Contributions of each author

Author 1 - Disha Mogre - Will be involved in the search, selection, and finalization of the articles. Developing the first draft of the protocol manuscript.
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