# Need for Development and Validation of Sarcopenia Screening Tools in Pakistan

Sir,

We read "Need for Development and Validation of Sarcopenia Screening Tools in Pakistan" by Zehra, et *al*.[1] with interest. We appreciate the authors for highlighting the need to validate screening tools of sarcopenia in the local population. Sarcopenia is an emerging public health issue in the aging population in Pakistan, which has not received much attention from the medical community so far. We have two comments on this letter.

First on the importance of understanding the term 'sarcopenia', and second on the use and/or validity of available biomarkers.

Rosenberg was the first one to describe sarcopenia in 1987. It was described as an age-related decline in lean body mass which can affect mobility, nutritional status, and independence.[2] The term 'sarcopenia' is used specifically for age-related loss of muscle mass and muscle function. This can occur as early as 50 years and mainly results from the progressive loss of motor neurons. It is an age-related physiological phenomenon. It has been documented as a precursor of physical frailty, limitations in mobility, and risk of early death. It is a progressive condition, which at present cannot be halted or reversed. However, the progression of sarcopenia can be slowed down by early identification of the problem, supplementation with vitamin D, and ensuring an adequate protein intake and doing regular exercises.[3,4]

International Classification of Diseases-10 code in 2016 recognised "age-related sarcopenia (M62.84)" as an independent condition *i.e.,* different from "muscle wasting and atrophy, not elsewhere classified (M62.5)".[3] This is considered an important milestone towards understanding this condition. In contrast, 'muscle wasting' or 'atrophy' may result from a variety of communicable or non-communicable diseases. These include a number of conditions like infection, disuse, immobilisation, malnutrition, cachexia, cognitive impairment, depression, pain, neuropathies, and neurodegenerative disorders. In these cases, identification and treatment of the treatable cause may reverse the muscle atrophy to a variable extent.[4,5]

Second, the new focus on testing several molecular biomarkers in screening sarcopenia requires validation by longitudinal studies; however, the evidence is still scarce.[6] The expensive screening biomarkers can be used for research purposes to understand the pathogenesis and further guide us to recommend treatment options but might not be practical to apply to the vast ageing population in Pakistan. The mainstay of treatment for sarcopenia remains health education, strengthening exercises, protein-rich diet, and vitamin D supplementation. We recommend using the recently published algorithm by experts in the special interest group on sarcopenia (ISarcoPRM) to screen and diagnose sarcopenia. This algorithm is based on regional measurements and functional evaluations of the most commonly and initially affected muscles.[4]

Finally, we want to emphasise the significance of early detection and prompt implementation of preventive measures in sarcopenia patients. The time has come to educate medical professionals about sarcopenia and its consequences. There is a need for all stakeholders in Pakistan caring for the aged population to collaborate and prepare comprehensive and contextual guidelines providing clarity for screening, diagnosis, and treatment of this condition.

**COMPETING INTEREST:**
The authors declared no competing interest.

**AUTHORS' CONTRIBUTION:**
SR: Conception of idea, wrote the initial draft, gave the final approval of the version to be published, and agreed to be accountable for all aspects.
FAR: Conception of idea, revisiting it critically, gave the final approval of the version to be published, and agreed to be accountable for all aspects.

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## AUTHOR'S REPLY

Sir,

We appreciate the insightful comments made regarding our article, "Need for Sarcopenia Screening Tools Development and Validation in Pakistan" and take this opportunity to respond to the comments made.

In response to the remarks about the necessity of understanding the term "sarcopenia," we completely agree and have stated the same. Sarcopenia has been defined as the cumulative effect of age-related losses in muscle mass, strength, and function, rather than just muscle atrophy or muscle wasting.[1,2] It is correct that an ICD-10-CM code has been assigned for sarcopenia and it is recognised as a distinctly reportable condition.[3] In many ways, its acknowledgement eliminates the obstacles to care and research. It will facilitate diagnosis and increase disease awareness among other healthcare professionals. While reduced muscle mass is most usually associated with the elderly, several causes (neurohormonal derangements, poor nutrition and malabsorption, impaired calorie and protein balance, anabolic hormone resistance, prolonged immobilisation, and physical deconditioning) other than advancing age can contribute to it.[4] Individuals are susceptible to muscle loss because of prolonged bed rest. Prolonged bed rest in the elderly, on the other hand, can result in a rapid acceleration of muscle loss and a decline in strength. Muscle loss or 'cachexia' in bedridden elders can be so severe that, while young adults lose roughly 1% of their muscle mass every day, the elderly may lose up to 5% per day due to age-related declines in growth hormones.

Several biochemical markers have been examined by researchers worldwide in addition to the physical techniques for sarcopenia screening. As we mentioned earlier, serum calcium, 25-hydroxy vitamin D, interleukin-6, secreted protein acidic rich in cysteine, macrophage migratory inhibitory factors and interleukin growth factor-1 have been recommended globally as biomarkers for sarcopenia.[5] The ISarcoPRM special interest group on sarcopenia, proposed by European Working Group on sarcopenia, recently published an algorithm to screen and diagnose sarcopenia. It takes into account the loss of anterior thigh muscle mass.[6] However, to clarify our objective, we require a validated instrument that is tailored to the needs of the Pakistani population, as we are phenotypically and genotypically different from the European population. Our population may have distinct health needs and assessment methods than other populations. To use any tool/algorithm for screening and diagnosing of sarcopenia, it should be validated and certified in the Pakistani population. To start with, physical tools to assess sarcopenia and biomarkers are crucial to evaluate the burden of the disease and to develop local guidelines. It is challenging to develop appropriate local guidelines and preventive approaches without baseline surveillance data.

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