POSTER PRESENTATION

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Exploring the Relationship between Muscle Strength and Physical Frailty Among Community-Dwelling Older Adults: A Cross-Sectional Study

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ABSTRACT

Background and Objectives: Muscle strength decrease and physical frailty in older persons can cause functional deficits, increased fall risk, and lower quality of life. This study explored the relationships between muscle strength and physical frailty in community-dwelling older adults aged 60 and above in Selangor, Malaysia. **Methods:** Utilizing a cross-sectional design, 100 community-dwelling older adults aged 60 and above were recruited. Muscle strength was assessed using handgrip dynamometry and the Five Times Sit-to-Stand Test (FTSST). The Fried Frailty Phenotype classified participants as non-frail, pre-frail, or frail. Comprehensive assessments facilitated data collection, and statistical analyses revealed associations between muscle strength and physical frailty. **Results:** Findings revealed a significant association between handgrip strength and frailty status, χ^2 (2) = 64.446, $p < 0.001$, while no significant relationship was observed between FTSST and physical frailty classification, χ^2 (2) = 2.258, $p = 0.323$. Frail participants exhibited markedly lower muscle strength (mean FTSST score = 17.90 seconds, mean handgrip strength = 13.75 kg) compared to pre-frail (mean FTSST score = 17.07 seconds, mean handgrip strength = 17.63 kg) and non-frail (mean FTSST score = 17.01 seconds, mean handgrip strength = 28.27 kg) counterparts. Handgrip strength emerged as a stronger predictor of physical frailty status ($\beta = -0.57$, $p < 0.001$) compared to FTSST ($\beta = 0.21$, $p = 0.189$). **Conclusion:** This study highlights the critical role of muscle strength in frailty among community-dwelling older adults, particularly the association with reduced lower-limb muscle strength in frail individuals. These findings provide insights for healthcare professionals and policymakers to develop targeted exercise and rehabilitation programs aimed at building muscle strength and minimizing frailty in this population.

Keywords: Frailty; Muscle strengths; Physical; Community-dwelling older

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