INCIDENTAL RELATIONSHIP BETWEEN GERIATRIC SYNDROMES AND THE BODY PROFILE OF ELDERLY PEOPLE

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ABSTRACT
Objective: to analyze the relationship between body profile and the development of geriatric syndromes in the elderly population. Method: This is an integrative review. The search for articles was conducted in the *National Library of Medicine and National Institutes of Health* (PubMed) database. Results: The body profile of elderly people, assessed using BMI, whether related to malnutrition or overweight/obesity, is intrinsically related to the occurrence of geriatric syndromes, creating a state of vulnerability and, sometimes, poly-morbidities and polypharmacy that facilitate the development, above all, of cognitive impairment, sphincter incontinence, and postural instability. Conclusion: although there is a possible incidental relationship between body profile and geriatric syndromes, further studies on this topic and greater vigilance regarding the nutrition of the elderly population are still needed in order to better control BMI and the risk of developing syndromes.
Keywords: Frailty; Elderly; Body Mass Index; Geriatric Syndromes.

INTRODUCTION

The World Health Organization considers individuals aged 65 years or older in developed countries and 60 years or older in emerging countries to be elderly (WHO, 2024). The definition of health for this population is intrinsically linked to functional capacity, which is established by four domains: communication, mobility, mood, and cognition (SOUZA, QUIRINO, 2021).

These domains govern independence—the ability to perform one's own activities without help and depends on the functioning of mobility and communication in older adults—and autonomy—the ability of older adults to make decisions, depending on mood and cognition (MORAES; MARINO; SANTOS, 2010). The loss

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of one or b r both factors would lead the elderly to a state of frailty, leaving them more susceptible to the occurrence of geriatric syndromes (cognitive impairment, communication impairment, iatrogenesis, family insufficiency, immobility, postural instability, and sphincter incontinence), which are clinical conditions with high prevalence and morbidity, associated with a higher incidence of disabilities and worse prognosis (SÉTLIK *et al.,* 2022).

Such syndromes are determined by habits such as diet and physical exercise and by other distinct factors: polypathologies, polypharmacy, poly-disabilities, dyslipidemia, osteopenia, diabetes mellitus, and body composition (PARANÁ, 2017). Thus, the present study aimed to analyze the relationship between body profile and the development of geriatric syndromes in the elderly population.

METHOD

This study is an integrative review of the literature, which should be carried out critically, with categorization, description, and analysis, in order to synthesize and conclude on the results of previous research (Pereira et al., 2018). To formulate the guiding question, the authors used the Pico strategy, which covers Problem (P), Intervention (I), Comparison (C), and Outcomes (O) – essential elements for bibliographic research (SANTOS; PIMENTA; NOBRE, 2007). The systematization of the question formulation can be found in flowchart 1, and the search for articles in flowcharts 2 and 3.

Flowchart 1: development of the guiding question

Source: authors (2024)

Flowchart 2: search for articles with inclusion and exclusion criteria

Source: authors (2024)

Flowchart 3: Numerical results obtained from the research and filtering process for selecting the final sample.

Source: authors (2024)

RESULTS

Table 1. Articles included in this integrative review.

AUTHORS	OBJECT	OUTCOME-CONCLUSION
Dong et al. 2023	To analyze the association between BMI and cognitive impairment.	Overweight or obese older women have a lower risk of cognitive impairment. Low BMI increases the risk, while BMI between 23.2-27.8 kg/m² decreases this risk and that of communication impairment.
Garcia et al., 2021	To investigate the relationship between obesity, postural balance, and fear of falling.	On an unstable surface, obese older adults exhibited body oscillations of 0.61 to 1.63° greater than those of normal weight in all three visual conditions. They had greater mediolateral oscillations with visual feedback and greater global oscillations without visual feedback and with progressive instability.
Iguchi et al, 2021	To examine stress urinary incontinence (SUI), physical function, and spinal alignment.	The SUI group had higher BMI, lower trunk muscle mass, and greater thoracic kyphosis angle; both were independent factors for SUI.
Li et al., 2023	Analyze the relationship between calf circumference and incontinence.	Calf circumference < 28.5 cm in men and < 26.5 cm in women is a risk factor for incontinence.
Pietrasze k et al., 2022	Define the most commonly used drug groups.	Increased body mass and BMI are associated with higher medication use in older adults, linked to poly-morbidities and risks of iatrogenesis, whether due to incorrect dosage, drug interactions, or lack of family support.
Voinier et al., 2020	Examine knee load related to BMI and walking.	Older adults with moderate or high step counts (6000-7900, >7900) and a BMI of> 31 kg/m² are at greater risk of compromising or worsening medial tibiofemoral cartilage damage. The same step count but a low BMI (<18) increases the risk of patellofemoral cartilage damage. Obesity and malnutrition can lead to damage and future immobility.
Yin et al., 2021	To determine postural control in type 2 diabetics and healthy controls, exploring the relationship between BMI and static postural performance.	Patients with DM2 had worse static postural control and greater instability at all BMI levels. High BMI, with or without DM2, was associated with static postural instability and lower results in total track length (TTL) tests and the speed of center of pressure shifts in the Y direction with eyes open.
Yuan et al., 2021	Investigate sex and age in the association between BMI and mild cognitive impairment (MCI).	Older adults with low BMI are at higher risk of MCI among women or older adults aged ≥75 years. Men with high BMI also have a higher risk of MCI than the group with normal BMI. Associated with MCI, a reduction in communication ability was noted in the groups observed.

Source: prepared by the authors.

CONCLUSION

The results of this study show that BMI influences the incidence of geriatric syndromes in older adults, affecting cognitive impairment, sphincter incontinence, and postural instability more significantly. Further studies on this topic are needed to clarify the role of body profile in causing these syndromes. However, existing data can be used as a basis for guiding future scientific research.

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REFERENCES

DONG, W. et al. Association between body mass index and cognitive impairment in Chinese older adults. **Frontiers in Public Health**, v. 11, n. 11, Oct. 18, 2023.
GARCIA, P. A. et al. Obesity is associated with postural balance on unstable surfaces but not with fear of falling in older adults. **Brazilian Journal of Physical Therapy**, v. 25, n. 3, Aug. 2020.
IGUCHI, S. et al. Relationships between stress urinary incontinence and trunk muscle mass or spinal alignment in older women. **LUTS: Lower Urinary Tract Symptoms**, v. 14, n. 1, Jul. 20, 2021.
LI, L. et al. Association between calf circumference and incontinence in Chinese elderly. **BMC Public Health**, v. 23, n. 1, Mar. 11, 2023.
MORAES, E.N.; MARINO, M. C. A.; SANTOS, R. R. Main geriatric syndromes. **Medical Journal of Minas Gerais**, v. 20, n. 1, p. 54-66, 2010.
PARANÁ. Paraná State Department of Health. Health Care Superintendence. P223a **Multidimensional assessment of the elderly / SAS**. - Curitiba: SESA, 2017.
PEREIRA, A.S., et al. Scientific research methodology. 2018.
PIETRASZEK, A. et al. Sociodemographic and Health-Related Factors Influencing Drug Intake among the Elderly Population. **International Journal of Environmental Research and Public Health**, v. 19, n. 14, p. 8766, July 19, 2022.
SANTOS, C. M. C.; PIMENTA, C. A. M.; NOBRE, M. R. C. "The PICO Strategy for Constructing Research Questions and Searching for Evidence." **Latin American Journal of Nursing,** v. 15, n. 3, p. 508-511, 2007.
SÉTLIK, C.M., *et al*. Relationship between physical frailty and geriatric syndromes in elderly people receiving outpatient care. **Acta Paulista de Enfermagem**, v. 35, Dec. 12, 2022.
SOUZA, D. B. G.; QUIRINO, L. M. Behavioral Influence of the Elderly on the Process of Senescence and Senility. **Revista Brasileira Interdisciplinar de Saúde**, v. 17, n.2, Nov. 20, 2021.

VOINIER, D. et al. Using Cumulative Load to Explain How Body Mass Index and Daily Walking Relate to Worsening Knee Cartilage Damage Over Two Years: The MOST Study. **Arthritis & Rheumatology**, v. 72, n. 6, p. 957–965, May 2, 2020.
World Health Organization. **Risk Reduction of Cognitive Decline and Dementia: WHO guidelines**.
YIN, L. et al. Impact of Body Mass Index on Static Postural Control in Adults With and Without Diabetes: A Cross-Sectional Study. **Frontiers in Endocrinology**, v. 12, Dec. 24, 2021.
YUAN, Y. et al. Body mass index and mild cognitive impairment among rural older adults in China: the moderating roles of gender and age. **BMC Psychiatry**, v. 21, n. 1, Jan. 23, 2021.