

## ANAIS DE EVENTO

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## DIGITAL HEALTH INNOVATION FOR ACTIVE AGEING: VALIDATION OF THE QUESTION BANK FROM LADY HEALTH EDUCATIONAL GAME ON TYPE 2 DIABETES

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### Abstract

**Background:** The rising prevalence of chronic diseases, such as type 2 diabetes mellitus (T2DM), among individuals aged 50 and older, presents significant public health challenges for promoting the rational use of medicines (RUM). Innovative health education strategies may enhance therapeutic adherence and reduce disease-related complications. In this context, it is essential to develop accessible, population-centered technologies that promote comprehensive care and stimulate autonomy. **Purpose:** To validate a Gamified Question Bank (GQB) for the educational game Lady Health, developed to promote RUM among individuals aged 50+ with T2DM. **Methods:** A total of 100 multiple-choice questions were developed, organized into 10 thematic categories related to T2DM and RUM, based on Bloom's Taxonomy (remembering, understanding, and applying) and the 2022 guidelines of the Brazilian Diabetes Society. Each item included a base text, question stem, four answer options, and explanatory justifications. The selection of 109 expert judges followed Teixeira et al.'s (2016) criteria, considering academic qualifications, professional experience, and involvement in education, research, or clinical practice related to T2DM/RUM. Experts came from Pharmacy (28.4%), Nursing (19.3%), Medicine (14.7%), Physiotherapy, and Physical Education. The validation was conducted through a one-round Delphi technique using an electronic form, with formal consent obtained via a Free and Informed Consent Form. Items were assessed using a 5-point Likert scale, evaluating clarity, relevance, scientific rigor, and ease of understanding. Internal consistency and inter-rater agreement were analyzed using median, Cronbach's alpha, and Intraclass Correlation Coefficient (ICC). **Results:** High agreement among experts was observed in seven of the ten evaluated categories (ICC > 0.75), especially "Treatment Receptivity" (ICC = 0.99; 95% CI: 0.994-0.999). Internal consistency was considered excellent in dimensions such as "Associated Stress", "Social Acceptance", and "Confidence in Treatment" ( $\alpha > 0.95$ ). The "DM2 Management" dimension showed lower consistency ( $\alpha = 0.41$ ), indicating the need for refinement. Medians indicated good acceptance across all categories, demonstrating conceptual robustness, clarity, and practical applicability of the items. **Conclusion:** The validated GQB proved to be a reliable, multidimensional tool tailored to the cognitive and educational needs of the 50+ population. The methodological rigor ensures the quality of the items for use in health education practices, interdisciplinary actions, and extension programs focused on active ageing. **Implications:** Lady Health represents an innovative educational technology with strong potential for integration into digital health promotion strategies, continuing education, and public policies aimed at longevity. It reinforces the role of education in person-centered care and supports the development of self-care and autonomy in older adults.

**Descriptors:** Active Ageing; Diabetes Mellitus, Type 2; Rational Use of Medicines; Educational Games; Digital Health.

## IMPLEMENTATION OF EDUCATIONAL POLICIES FOR OLDER ADULTS IN HIGHER EDUCATION

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### Abstract

**Background:** The aging population in Brazil has intensified the debate on the inclusion of older adults in higher education. The University of Brasília (UnB) took a pioneering role by implementing Vestibular 60mais, an affirmative action policy that allocates extraordinary admission slots specifically for candidates aged 60 and older. This initiative aims to combat ageism, ensure the right to lifelong education, and align institutional actions with recently proposed national guidelines for continuing education. **Purpose:** This study aims to analyze the impact of student admission and retention during the first two years (2024 and 2025) of the Vestibular 60mais implementation. Additionally, it seeks to identify opportunities for policy expansion, challenges faced, and contributions toward promoting inclusion and diversity in higher education. **Methods:** This descriptive quantitative research analyzed data from four admission processes conducted between 2024 and 2025. The study utilized official notices, information on available slots, offered courses, and applicant-to-slot ratios. Data were extracted and categorized using specific algorithms, analyzed in MS Excel 365 with Python integration, and presented through absolute and relative frequencies. **Results:** Between 2024 and 2025, Vestibular 60mais registered 6,383 applicants competing for 786 extraordinary slots distributed across 73 courses. The Darcy Ribeiro campus concentrated 87.78% of these slots, with the morning period offering the highest availability. Morning slots increased from 92 (2024.1) to 126 (2024.2), with slight reductions to 113 (2025.1) and 116 (2025.2). In the evening, slots increased from 24 (2024.1) to approximately 49 in subsequent semesters. Other campuses (FCTS, FGA, FUP) offered significantly fewer slots. Courses spanned all fields of knowledge, with a predominance of humanities and health sciences. Tourism led the slot offerings in 2024, while Natural Sciences stood out in 2025. In terms of competition, Psychology had the highest applicant-to-slot ratio (282) in 2024.1, followed by Veterinary Medicine (77) and Political Science (47). In 2024.2, Law led with 95 applicants per slot, while Nutrition (37). Occupational Therapy (38) was most competitive in 2025.2. Regarding retention, there were 15 withdrawals and 8 leaves of absence in 2024.1, 10 withdrawals and 21 dropouts in 2024.2, and 4 withdrawals and 33 dropouts in 2025.1. Data for 2025.2 will be analyzed after the academic term concludes. The absenteeism rate on exam days increased significantly over time: 34.31% (2024.1), 47.18% (2024.2), 51.86% (2025.1), and 58.07% (2025.2). **Conclusion:** Vestibular 60mais revealed a preference among older adults for health-related programs. While the affirmative action policy positively expanded access for older adults to higher education, significant challenges remain, including high absenteeism, withdrawal, and dropout rates. These issues highlight barriers related to accessibility, academic adaptation, and health conditions. Further analyses are necessary to better understand these obstacles and guide institutional strategies for more effective inclusion and retention. **Implications:** The Vestibular 60mais initiative at UnB represents a significant social innovation in addressing educational ageism and has the potential to inform national public policies for the inclusion of older adults. Findings indicate the need for policy updates to strengthen institutional actions that foster access, inclusion, and persistence in higher education for this demographic.

**Descriptors:** Continuing Education, Social Inclusion, Elderly, Public Policies.

## ASSOCIATION BETWEEN MATERNAL EDUCATION LEVEL AND APGAR SCORE IN NEWBORNS OF WOMEN WITH ADVANCED MATERNAL AGE: A CROSS-SECTIONAL STUDY

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### Abstract

**Background:** In recent decades, there has been an observed increase in maternal age among parturients. Evidence suggests that advanced maternal age may impact both maternal and neonatal outcomes. Maternal education is another factor that can influence a pregnant woman's understanding of prenatal care and its role in fetal and neonatal health. **Purpose:** To investigate the correlation between maternal education level and Apgar scores at birth among newborns of parturients aged 40 years or older, in a university hospital in Brasília. **Methods:** A retrospective cross-sectional study was conducted using secondary data analysis. Data were retrieved from medical records of women aged 40 or older who underwent vaginal delivery at a university hospital in Brasília in 2021. Records with missing data or errors were excluded. Statistical analyses were performed using IBM SPSS Statistics (version 25), with Spearman's correlation assessing the association between maternal education level and Apgar scores at birth. A significance level of 5% ( $p < 0.05$ ) was adopted. **Results:** Data from 54 eligible women were analyzed. The mean maternal age was 41.98 years (SD: 1.95), ranging from 40 to 47 years. Among these women, 79.63% identified as brown-skinned, 33.33% were married, 27.78% had completed high school, and 85.19% were multiparous. The mean gestational age was 38 weeks and 5 days (SD: 11.17). Despite most participants being multiparous, 62.9% required labor induction, with an average labor duration of 971.31 minutes (SD: 959.11). Additionally, 44.44% experienced no perineal lacerations, and 77.78% did not receive physical therapy during labor. Spearman's correlation analysis revealed a statistically significant association between maternal education level and Apgar scores at birth ( $p = 0.045$ ), suggesting that parturients with higher educational levels tend to have newborns with better Apgar scores at birth. **Conclusion:** Advanced maternal age can influence maternal and neonatal outcomes during labor. Additionally, maternal education level is significantly associated with a newborn's Apgar score in the first minute of life. Further high-quality studies are recommended to explore other maternal and neonatal factors. **Implications:** This study highlights the significant influence of maternal education level on neonatal outcomes. Health professionals and educators should prioritize health education programs, policies, and initiatives that support prenatal care and family planning, particularly for women of advanced maternal age. **Descriptors:** pregnancy; labour; education, Apgar Score.

## DIGITAL CLINICAL PHARMACY FOR THE PHARMACOTHERAPEUTIC FOLLOW-UP OF POLYMEDICATED OLDER ADULTS: A THEORETICAL-REFLECTIVE REVIEW

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### Abstract

**Background:** The aging of the population and the increase in chronic diseases have intensified the use of multiple medications among older adults, a phenomenon known as polypharmacy. According to the World Health Organization (2019), inappropriate medication use is one of the greatest challenges to patient safety, particularly for older people, who are more vulnerable to adverse events. In this scenario, clinical pharmacy emerges as a key strategy to ensure rational medication use, and digital health tools are becoming essential to support pharmacotherapeutic monitoring. **Purpose:** This study aims to reflect on the contributions of digital clinical pharmacy to the pharmacotherapeutic follow-up of older adults undergoing polypharmacy. The focus is on the main technologies used, their clinical benefits, ethical challenges, and the role of the pharmacist in promoting person-centered, safe, and innovative care. **Methods:** This is a narrative review with a reflective approach. A bibliographic search was conducted in the SciELO, PubMed, LILACS, and BVS databases using descriptors related to “digital health,” “clinical pharmacy,” and “older adults,” along with their respective translations in Portuguese and Spanish. The selection of texts followed the criteria of thematic relevance, recency (2014–2024), methodological consistency, and presence of DOI whenever possible. A total of 67 studies were identified, and after screening by title, abstract, and full reading, 22 articles were included. Data were analyzed qualitatively and organized into thematic axes. **Results:** The studies reviewed show that digital tools – such as electronic health records, e-prescription systems, telehealth platforms, and clinical decision support software – enhance pharmacotherapeutic monitoring by increasing safety, ensuring treatment continuity, and improving medication adherence. However, 14 of the 22 studies also point out significant barriers, such as insufficient digital infrastructure in primary care, professionals' resistance to technological change, and lack of standardized digital clinical protocols. Ethical challenges were also identified, including informed consent in digital environments, protection of sensitive data, and digital exclusion of older adults. Despite these barriers, the literature emphasizes the strategic role of pharmacists in ensuring that technological innovation does not undermine humanized care. Skills such as digital literacy, active listening, and adaptability are essential to make digital care more inclusive and personalized. **Conclusion:** Digital clinical pharmacy represents a promising path to qualify pharmaceutical care for older adults. When appropriately implemented, digital tools can strengthen therapeutic relationships, reduce risks associated with polypharmacy, and promote the autonomy of older people. **Implications:** The findings suggest the need for public policies that invest in digital training for pharmacists in primary health care, as well as the development of inclusive and context-sensitive clinical protocols. Future research should explore the real impact of these technologies on vulnerable populations and propose hybrid follow-up models that combine technological innovation with the human dimension of care. **Descriptors:** Digital health, Polypharmacy, Older adults

## CLINICAL AND GENETIC PROFILE OF THE IL10 -819C/T POLYMORPHISM IN ELDERLY INDIVIDUALS WITH OBESITY UNDERGOING BARIATRIC SURGERY

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### Abstract

**Background:** Obesity is a chronic, multifactorial condition often accompanied by a persistent low-grade inflammatory state, in which the anti-inflammatory cytokine interleukin-10 (IL-10) plays a central regulatory role. Polymorphisms in the promoter region of the IL-10 gene, particularly the -819C/T variant, can influence IL-10 expression levels and thus modulate inflammatory responses. In older individuals, age-related immunosenescence may intensify systemic inflammation, increasing susceptibility to metabolic and vascular complications. Bariatric surgery, a standard intervention for severe obesity, has been shown to reduce systemic inflammation, although individual outcomes remain poorly explained by clinical markers alone. **Purpose:** To evaluate the association between the IL10 -819C/T polymorphism and clinical comorbidities in older individuals with obesity and to explore its potential relevance for inflammatory risk stratification in the context of bariatric surgery. **Methods:** Twenty-one elderly individuals ( $\geq 60$  years) with obesity were genotyped for the IL10 -819C/T polymorphism and grouped by genotype: CC ( $n = 8$ ) and CT+TT ( $n = 13$ ). Clinical data were collected on metabolic, vascular, and inflammatory comorbidities. Statistical analysis was performed using Pearson's chi-square test, with significance set at  $p < 0.05$ . Results with low expected cell counts were interpreted cautiously due to potential limitations in statistical power. **Results:** A statistically significant association was observed between the IL10 -819C/T polymorphism and diabetic retinopathy ( $\chi^2 = 4.887$ ;  $p = 0.027$ ), with retinopathy present in 50.0% of individuals with the CC genotype versus 7.7% in the CT+TT group. No other comorbidities showed statistically significant differences between genotypic groups, including hypertension ( $p = 0.854$ ), fibromyalgia ( $p = 0.271$ ), dyslipidemia ( $p = 0.854$ ), and depression/anxiety ( $p = 0.965$ ). Although all participants were candidates for or had undergone bariatric surgery, no direct correlation between genotype and surgical outcomes was observed. Notably, several variables had small sample sizes and low expected frequencies, potentially limiting generalizability. **Conclusion:** The -819C/T IL10 polymorphism, particularly the CC genotype, was significantly associated with a higher prevalence of diabetic retinopathy in older individuals with obesity. No other clinical variables were significantly related to genotype. While bariatric surgery remains a key intervention to modulate systemic inflammation, its interaction with genetic inflammatory markers requires further investigation. **Implications:** These findings underscore the potential utility of IL10 -819C/T genotyping as a predictive tool for microvascular complications in elderly patients with obesity. Incorporating genetic profiling into preoperative bariatric assessments may enhance individualized risk stratification and optimize postoperative care. Further research with larger cohorts is necessary to validate these preliminary findings and explore genotype-related variability in inflammatory resolution after bariatric surgery.

**Descriptors:** Polymorphism, Interleukin-10, Obesity Management

## ETHNOGRAPHIC METHODS AND TRADITIONAL POPULATIONS: A SYSTEMATIC REVIEW OF METHODOLOGICAL VARIABLES (2015–2025)

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### Abstract

**Background:** Ethnographic methodologies are fundamental for accessing and understanding traditional populations such as quilombola and Indigenous communities. However, recent scientific literature lacks systematization regarding the methodological variables employed in such studies. **Purpose:** This study aimed to identify and analyze the methodological variables of ethnographic approaches used in the literature addressing traditional populations between 2015 and 2025. **Methods:** A qualitative systematic review was conducted following PRISMA guidelines and the PICOS strategy (Population: traditional peoples; Intervention: ethnographic methods). Boolean searches were performed in databases (BVS, SciELO, LILACS, and MEDLINE), using descriptors such as “quilombolas AND ethnography.” After screening 129 articles, 40 studies were included. Exclusion criteria and data collection periods were also considered during the process. Data were extracted on techniques such as participant observation, in-depth interviews, and field diaries. **Results:** The most frequent ethnographic techniques were participant observation (75%), in-depth interviews (60%), and field diaries (45%). Main challenges included cultural adaptation (30%), ethical concerns in research with Indigenous peoples (25%), and COVID-19-related fieldwork limitations (15%). Notable trends involved the growth of digital ethnography (20%) and collaborative approaches (35%). **Conclusion:** Participant observation emerged as the most common ethnographic technique among the studies reviewed. There is an evident need to adapt methodologies to the cultural contexts of traditional communities. Despite certain limitations, ethnographic methods continue to be fundamental for producing culturally sensitive knowledge.

**Implications:** The study provides insights to support the design of more inclusive research strategies, policies, and educational programs that respect the cultural specificities of traditional populations, especially in contexts of longevity, health, and innovation.

**Descriptors:** Ethnography, Traditional populations, Systematic review

## IL-4 GENE POLYMORPHISMS IN OLDER ADULTS WITH CHRONIC KIDNEY DISEASE AND FAMILY HISTORY OF DIABETES MELLITUS AND HYPERTENSION

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### Abstract

**Background:** Hypertension and diabetes mellitus (DM) are comorbidities frequently associated with the incidence and progression of chronic kidney disease (CKD), significantly accelerating its advancement. Evidence suggests that immunological mechanisms—particularly those mediated by cytokines like interleukin-4 (IL-4), known for its anti-inflammatory role in acute responses and tissue repair—may modulate this process. The IL-4 gene contains a variable number tandem repeat (VNTR) polymorphism in intron 3, consisting of 70-base pair repeats. The main alleles described are: RP1 (two repeats), RP2 (three repeats), and RP3 (four repeats), with the RP2 allele having been associated with a possible reduction in IL-4 expression. **Purpose:** Given IL-4's potential involvement in CKD pathophysiology, this study aimed to investigate the association between the IL-4 gene's VNTR polymorphism and chronic kidney disease in older adults undergoing hemodialysis with a family history of HTN and/or DM. **Methods:** This descriptive study was conducted with clinical data collection from 50 older adults (mean age  $67 \pm 10$  years) treated at a private clinic in the Federal District. Clinical data were collected, and venous blood samples were obtained for laboratory analysis. DNA was extracted using the PureLink® Genomic DNA Mini Kit (Invitrogen), and concentrations were measured via spectrophotometry (NanoDrop®, Thermo Fisher Scientific Inc.). Genotyping was performed using polymerase chain reaction (PCR) with IL-4 intron 3-specific primers, followed by 3% agarose gel electrophoresis. Amplified fragments were visualized under UV light (L-Pix Touch), with the RP1 allele appearing at 183 bp and RP2 at 253 bp. Genotypic frequencies were determined by direct counting. Associations between the RP2 allele and family history of Hypertension and/or DM were analyzed using the Chi-square test ( $\alpha = 0.05$ ). **Results:** The RP2 allele was detected in 38 participants, 14 of whom had a positive family history of Hypertension and/or DM. Statistical analysis did not indicate a significant association between the presence of the RP2 allele and a family history of these comorbidities ( $p = 0.292$ ). **Conclusion:** In this sample, the RP2 allele of the IL-4 gene was not significantly associated with a familial predisposition to arterial hypertension and/or diabetes mellitus. **Implications:** These findings suggest that, in isolation, the IL-4 VNTR polymorphism does not hold predictive value for familial predisposition to Hypertension or DM among individuals with CKD. Future studies with larger samples and multifactorial approaches are needed to clarify the influence of this polymorphism on susceptibility to chronic diseases.

**Descriptors:** Polymorphism, Interleukin-4, Inheritance Patterns.

## ASSOCIATION BETWEEN IL4 VNTR POLYMORPHISM, CHRONIC KIDNEY DISEASE, ALCOHOL USE DISORDER AND AGING: A DESCRIPTIVE STUDY IN HEMODIALYSIS PATIENTS

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### Abstract

**Background:** Alcohol use disorder (AUD) significantly disrupts immune regulation, particularly affecting the expression of cytokines such as interleukin-4 (IL-4), a key mediator in the Th2 immune response. IL-4 promotes B lymphocyte differentiation and inhibits Th1-mediated inflammation. IL-4 promotes B lymphocyte differentiation and inhibits Th1-mediated inflammation. Its gene expression is genetically influenced by a variable number of tandem repeats (VNTR) polymorphism in intron 3, with the RP1 (183 bp) and RP2 (253 bp) alleles linked to distinct inflammatory profiles. Chronic alcohol consumption is also associated with progressive kidney damage, including tubular dysfunction, electrolyte imbalances (e.g., hypomagnesemia and hypocalcemia), and structural injury due to ethanol's toxic metabolite, acetaldehyde. In older adults, these effects may be exacerbated by comorbidities and age-related physiological decline. However, the interplay between genetic predisposition, alcohol use, and renal dysfunction in senescent populations remains underexplored. **Purpose:** To investigate a potential association between the IL4 intron 3 VNTR polymorphism and the presence of AUD in older adults with chronic kidney disease (CKD) undergoing hemodialysis. **Methods:** This descriptive study included 51 older adults ( $\geq 50$  years) with CKD undergoing hemodialysis at a private clinic in the Federal District, Brazil. Venous blood samples were collected, and genomic DNA was extracted using the PureLink® Genomic DNA Mini Kit (Invitrogen). The IL4 VNTR polymorphism was genotyped via PCR with specific primers, followed by 3% agarose gel electrophoresis and UV detection. Alleles were identified based on amplicon size: RP1 (183 bp) and RP2 (253 bp). The association between the RP2 allele and AUD was analyzed using Fisher's exact test ( $p < 0.05$ ). **Results:** Of the 51 participants (mean age:  $67 \pm 10$  years), 38 had AUD and 13 did not. In the AUD group, 5 (13.2%) carried the RP2 allele and 33 (86.8%) had only RP1. In the non-AUD group, 2 (15.4%) carried the RP2 allele. No statistically significant association was found between the RP2 allele and AUD ( $p = 0.581$ ; two-tailed test). **Conclusion:** No significant association was observed between the IL4 VNTR polymorphism and AUD among older adults with CKD undergoing hemodialysis. **Implications:** Although no direct association was identified, these results underscore the complex interplay between genetic predisposition, aging, alcohol use, and CKD. Incorporating immunogenetic markers in future clinical studies may enhance risk stratification and support the development of personalized clinical strategies for vulnerable elderly populations.

**Descriptors:** Polymorphism, Interleukin-4, Alcoholism

## DEVELOPMENT OF A MOBILE APPLICATION FOR HOME PHYSICAL EXERCISES BASED ON THE OTAGO PROGRAM

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### Abstract

**Background:** Falls are a major public health concern among older adults, often leading to loss of autonomy and increased healthcare costs. The Otago Exercise Program (OEP) has proven effective in reducing fall risk. However, adherence to home-based exercise routines remains a challenge, especially without proper guidance and motivation. **Purpose:** This study aimed to develop a mobile application prototype to promote home-based physical exercises for older adults, featuring animated videos adapted from the OEP. The goal was to enhance accessibility, engagement, and adherence to the exercise protocol. **Methods:** This is a methodological study of technological development conducted in three phases. The first phase involved the design and prototyping of the mobile application “Mais Equilíbrio.” The app was developed using React Native, Axios, and Ignite for the frontend, and NestJS for the backend. The instructional content was created using 3D animations based on videos of the OEP exercises. Characters were developed using MetaHuman Creator and animated with Unreal Engine 5 to ensure realistic and accessible demonstrations. The design followed the Systematic Design of Instruction (SDI) model, including analysis and design/development stages. Interfaces were tailored for older users, including personalized profiles, exercise tracking, and reminders. **Results:** The app includes features such as user registration, personalized avatars (Luiz and Luci), daily exercise tracking, and animated instructional videos with audio guidance. Exercises are categorized into warm-up, strength, and balance, with progress monitored through a calendar interface. The app also allows users to postpone or skip exercises with justification and includes subjective effort evaluation using the OMNI-RES scale. The design ensures that users follow the correct sequence of the OEP protocol, with locked content to prevent skipping ahead. **Conclusion:** The prototype demonstrates the feasibility of integrating advanced technologies such as 3D animation and AI-generated avatars into health promotion tools for older adults. The app provides a structured, engaging, and user-friendly platform for implementing the OEP at home. **Implications:** This innovation has the potential to improve adherence to fall prevention programs among older adults, contributing to healthier aging and reduced healthcare burden. The use of digital avatars and interactive design may serve as a model for future health education technologies targeting older populations.

**Descriptors:** Aged, Educational Technology, Physical Exercise, Mobile Applications

## INCLUSION AND DIGITAL LITERACY FOR ELDERLY PEOPLE TO ACCESS CULTURAL AND SOCIAL ACTIVITIES

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### Abstract

**Background:** In Brazil, in 2023, 24.7% of elderly people used the internet and 87.6% of people aged 10 or over had a cell phone for personal use. Although such data seems favorable to digital inclusion, 51.6% of people who did not use the internet were elderly and “not knowing how to use it” was the main reason given. Factors such as low education and living in a rural area appear as barriers to using the internet. Despite the growing use of it to access banks, watch videos or other informational or entertainment media, the elderly population remains largely excluded from Digital Literacy and is more vulnerable to virtual scams. There is little data compiled on the total number of Brazilian establishments such as cultural centers, restaurants and other social spaces that use virtual ticket offices and menus, although this number is growing and there is a preference among companies for using virtual attendants over in-person service. There are places that require the installation of applications on the cell phone to access tickets or menus, a practice that, although combatted by the Brazilian Consumer Protection Code, has become common and becomes a barrier for the elderly.

**Purpose:** Considering the national scenario in which most of the elderly population has low income and education and is less familiar with the use of digital technologies, this work aims to promote debate and raise awareness in society in order to guarantee the constitutional rights reinforced in the Statute of the Elderly Person regarding autonomy as an individual and access to culture, leisure and social life.

**Methods:** Critical analysis of data on the sociodemographic profile of the Brazilian elderly population and technological advances in incorporating virtual care into social, cultural and leisure activities. It subsidizes a university project on Community-Institution Relations aimed at promoting inclusion and respect for diversity, as a form of expanded and comprehensive health care.

**Results:** Preliminary results point to a discrepancy between the profile of access and use of digital resources by the Brazilian elderly population, limited due to factors such as education and income, and the growing number of social, cultural and leisure activities that migrate to digital service without training their teams or maintaining effective systems for in-person service or with physical resources, such as printed menus, that guarantee the inclusion and autonomy of people who do not have reasonable skills in the digital world.

**Conclusion:** There is a need for investment in the digital literacy of the elderly population, including the production of software with Accessibility; and in professional training in the production chain of culture and leisure services so that it is sensitive to the specificities of the elderly population and guarantees full use in conditions of equity, autonomy and safety.

**Implications:** Recognize inclusion and digital literacy as indispensable resources to guarantee elderly people the right to culture and leisure, in line with social and comprehensive health policies, equity and autonomy for this population.

**Descriptors:** Diversity, Equity, Inclusion; Computer Literacy; Leisure Activities; Ageism

## A RETROSPECTIVE ANALYSIS OF WOMEN AGED 60+ UNDERGOING PROLAPSE SURGERY IN A BRAZILIAN PUBLIC HOSPITAL

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### Abstract

**Background:** Pelvic organ prolapse (POP) is a common condition among women, with its prevalence increasing with advancing age and postmenopausal status due to hormonal changes and the weakening of pelvic support structures. These factors are key risk markers for the development of pelvic floor dysfunctions. POP can significantly impact quality of life, leading to urinary symptoms, pelvic floor dysfunctions, and sexual disorders. In Brazil, the aging population and growing demand for specialized care underscore the need to understand the clinical and demographic profiles of women undergoing surgical treatment for POP in the public health system. Identifying these characteristics can help inform improved health planning and multidisciplinary care strategies. **Purpose:** To describe the clinical profile of women aged 60 or older who underwent prolapse surgery in a public hospital in Brasília, Brazil. **Methods:** This observational study retrospectively analyzed medical records of patients aged 60 or older who underwent prolapse surgery at a public hospital in Brasília, Brazil, between 2010 and 2023. Data on age, ethnicity, urinary incontinence, and comorbidities were collected and analyzed. **Results:** Of the 212 patients analyzed, 120 (56.60%) were aged 60 or older. The mean age of this group was 68.96 years (SD: 5.71). Most patients (60.83%) were between 60 and 69 years old, followed by 34.17% aged 70–79 years and 5% aged 80–89 years. Ethnicity distribution showed that 45% were brown-skinned, 34.17% were white-skinned, 3.33% were black-skinned, and ethnicity information was missing for 17.50%. Regarding urinary incontinence, 44.17% presented urge incontinence, while 51.67% had stress urinary incontinence. The most common comorbidities observed were hypertension (70%), diabetes (30%), and dyslipidemia (20%). **Conclusion:** The results indicate that the majority of women undergoing POP surgery in Brasília's public hospital are aged 60–69 years, predominantly brown-skinned, and exhibit a high prevalence of urinary incontinence and comorbidities, particularly hypertension. These findings emphasize the interplay between aging, pelvic floor dysfunction, and chronic diseases, highlighting the clinical complexity of this population. **Implications:** Understanding the clinical and demographic profiles of older women undergoing POP surgery is crucial for developing more efficient and comprehensive care strategies. These findings can inform health service organization, multidisciplinary team training, and the formulation of public policies tailored to the specific needs and vulnerabilities of older women, ultimately improving health outcomes in this population.

**Descriptors:** pelvic organ prolapse, aged, women health

## PREVALENCE OF OSTEOPOROSIS IN ELDERLY WOMEN

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### Abstract

**Background:** Population aging is a global trend with major public health implications. By 2050, the global elderly population is expected to reach 2 billion. Among the chronic conditions associated with aging, osteoporosis stands out due to its impact on morbidity and quality of life. Osteoporosis is characterized by reduced bone mineral density (BMD) and deterioration of bone structure, increasing the risk of fractures. It predominantly affects postmenopausal women due to decreased estrogen levels, with prevalence rising notably after age 50. Globally, an estimated 500 million people are affected, and one in three women over 50 will experience an osteoporotic fracture in their lifetime. **Purpose:** This study aimed to assess the prevalence of osteoporosis among elderly women receiving care in a primary healthcare setting. **Methods:** A cross-sectional, descriptive study was conducted at a Basic Health Unit in the Federal District, Brazil, involving 98 women aged 60 or older, registered and followed by the unit. Data were collected through structured questionnaires, anthropometric assessments, and laboratory tests, including fasting blood samples for glucose, HbA1c, lipid profile, calcium, vitamin B12, and hormones (progesterone, testosterone, and DHEA). Bone mineral density was measured using dual-energy X-ray absorptiometry (DEXA) at the lumbar spine (L1-L4). T-scores  $> -1$  were considered normal; between  $-1$  and  $-2.5$ , osteopenia; and  $< -2.5$ , osteoporosis. Statistical analysis was performed using SPSS 25.0, applying the Kolmogorov-Smirnov test for normality and descriptive statistics for interpretation. **Results:** Of the 98 participants, 55% had osteopenia and 16% had osteoporosis. Osteoporosis was most prevalent in women aged 66–70 years (23.5%), followed by those over 70 (16.1%) and those aged 60–65 (9.1%). Osteopenia was most common among women aged 60–65 (63.6%). Most women with osteoporosis were married (56.3%), had elementary education (81.3%), were not retired (62.5%), and all had hypertension (100%). In terms of body composition, women with osteopenia had higher median waist circumference (99 cm), body fat percentage (43.45%), and BMI (29.05 kg/m<sup>2</sup>) than those with osteoporosis. Regarding biochemical parameters, women with osteoporosis showed higher total cholesterol (210 mg/dL) and LDL (125.8 mg/dL), while triglycerides and HDL were higher in those with osteopenia. Additionally, total testosterone levels were lower in women with osteoporosis (28.84 ng/dL) compared to those with osteopenia (36.17 ng/dL). **Conclusion:** The study found a high prevalence of bone disorders among elderly women, with osteopenia being more common than osteoporosis. Osteopenia appeared at younger ages (60–65), while osteoporosis was more frequent from 66 years onward. The findings also suggest a link between bone disorders and low educational level, as well as altered lipid profiles and hormonal changes. These results point to the need for early screening and monitoring of bone health in elderly women. **Implications:** The study underscores the role of primary care in identifying and addressing risk factors for osteoporosis early. Nurses and healthcare teams should promote bone health through education, regular screening, and lifestyle interventions. Public health policies should ensure access to DEXA exams, nutritional guidance, and physical activity programs, particularly for women at higher risk due to socioeconomic vulnerability or comorbidities.

**Descriptors:** Osteoporosis, Women, Aged, Primary Health Care

## ACTIVELY AGING: A COGNITIVE-DRIVEN MOBILE HEALTH APP TO PROMOTE SELF-CARE AND QUALITY OF LIFE IN OLDER ADULTS

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### Abstract

**Background:** The aging population in Brazil, particularly in the Federal District, faces increasing challenges related to chronic non-communicable diseases (CNCDs) and cognitive decline. Existing digital health tools often lack integrated approaches that address both physical and cognitive health. The initial version of the VIVA BEM app, developed to support older adults with CNCDs, revealed the need for a more comprehensive and cognitively engaging solution. **Purpose:** This study aimed to enhance the VIVA BEM app into a new version—Ativa Mente—a mobile health application designed to promote autonomy, cognitive stimulation, and self-care among older adults with CNCDs. **Methods:** The project employed the Contextualized Instructional Design (DIC) methodology, involving iterative phases of analysis, design, and development. A multidisciplinary team conducted literature reviews, participatory workshops with older adults, and usability assessments. The app’s functionalities were co-designed with users and validated by experts using the System Usability Scale (SUS) and Technology Acceptance Model (TAM). Cognitive and quality-of-life impacts will be measured using validated tools such as SF-36 and cognitive screening tests. **Results:** The app, currently at TRL 6, includes features such as medication management, home-based physical exercises, relaxation techniques, cognitive games, and health monitoring with analytical reports. The renaming to “Ativa Mente” emerged from participatory workshops, emphasizing the dual focus on physical and mental activity. Preliminary results show high user engagement and positive feedback on usability and relevance. The app is expected to reach TRL 9 by the end of the project and be freely available on Android and iOS platforms. **Conclusion:** The Ativa Mente app represents a user-centered, evidence-based innovation in gerontechnology, addressing the dual burden of physical and cognitive health in aging. Its participatory development process ensures cultural relevance and usability for the target population. **Implications:** This initiative contributes to public health by offering a scalable, accessible tool for older adults, potentially reducing healthcare system burdens through improved self-management of CNCDs. It also fosters interdisciplinary collaboration and capacity-building in digital health innovation. The app aligns with national and international strategies for healthy aging and digital inclusion.

**Descriptors:** Aged; Mobile Applications; Cognitive Dysfunction; Chronic Disease; Self Care

## ETIOLOGY OF TEMPOROMANDIBULAR DISORDERS IN INDIVIDUALS AGED 60 YEARS OR OLDER: A SYSTEMATIC REVIEW

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### Abstract

**Background:** Aging leads to anatomical and functional changes that may predispose older adults to temporomandibular disorders (TMD), directly impacting their quality of life. Given the scarcity of consolidated evidence, a systematic analysis of the etiological factors of these disorders in this population is warranted. **Purpose:** To identify the etiological factors of temporomandibular disorders in elderly patients through a systematic review. **Methods:** The methodological guidelines of the Cochrane Library and the PRISMA statement were followed. Data selection, extraction, and analysis adhered to previously established and reproducible criteria, with four reviewers analyzing abstracts, titles, and Descriptors, applying selection criteria, followed by two additional reviewers resolving conflicts. **Results:** The search algorithms applied to the databases identified a total of 2,129 published studies, of which 381 were excluded as duplicates. After applying the selection criteria, 45 conflicts (2.11%) were identified. Thirty-four studies were considered eligible for full-text reading, with 23 subsequently excluded, resulting in 11 articles included in this review. The analysis showed that 7 studies associated female sex with a higher prevalence of TMD, while 6 studies highlighted tooth loss and deficient occlusal support as relevant factors. Degenerative joint changes, such as osteoarthritis, were mentioned in 5 studies. Muscular and parafunctional factors, such as bruxism and myofascial pain, were reported in 4 studies. Two studies addressed the influence of psychosocial factors and systemic comorbidities. **Conclusion:** The findings indicate a multifactorial etiology of TMD in the elderly, involving age-related changes in the stomatognathic system, parafunctional habits, and systemic conditions, directly reflecting on the functional decline of the temporomandibular joint. **Implications:** This work contributes to the advancement of geriatrics by integrating scientific findings on TMD, enabling the development of more accurate and personalized clinical protocols for the elderly population.

**Descriptors:** Temporomandibular Disorders; Elderly; Etiology; Geriatric Dentistry

## PULMONARY CAPACITY IN OLDER ADULTS BEFORE AND AFTER COVID-19 INFECTION

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### Abstract

**Background:** Aging leads to physiological changes that impact quality of life, including pulmonary function. Pulmonary capacity in older adults is affected by structural and functional changes in the respiratory system, which can be exacerbated by chronic conditions and COVID-19 infection. COVID-19 has demonstrated devastating effects on respiratory function, particularly among the elderly, resulting in complications such as pneumonia and acute respiratory distress syndrome (ARDS). **Purpose:** To assess and compare pulmonary capacity in older adults before and after COVID-19 infection. **Methods:** This retrospective cohort study analyzed ICU medical records from a hospital in the Federal District, focusing on spirometry data from older adults infected with COVID-19 in 2022 and 2023. Inclusion criteria comprised outpatients who underwent spirometry both before and after a laboratory-confirmed COVID-19 diagnosis (RT-PCR). Exclusion criteria included recent thoracic surgery, cognitive impairment, decompensated comorbidities, or continuous use of mechanical ventilation. Data were extracted from electronic health records, including spirometric evaluations, clinical diagnoses, medical history, and sociodemographic data, with dual independent review by researchers. The Shapiro-Wilk test was used to assess data distribution, while paired t-tests were applied for intragroup comparisons. Pearson's correlation and simple linear regression were employed to evaluate relationships between anthropometric variables and pulmonary function, with a significance level set at 5%. **Results:** Thirty-two patients were evaluated, predominantly female (78.1%), with a mean age of 68.87 years and a high prevalence of comorbidities (87.5%). Half of the sample was unvaccinated. Unvaccinated individuals exhibited significantly higher mean body mass and BMI compared to vaccinated peers ( $p < 0.05$ ). A significant decline in pulmonary function was observed in 100% of the sample after infection, with pre-existing respiratory drive being associated with a less pronounced reduction in functional capacity. **Conclusion:** Pre-existing respiratory drive positively influences the reduction of spirometric parameters following COVID-19 infection in hospitalized older adults, supporting the development of a predictive equation for forced vital capacity loss. No statistically significant difference was found in respiratory forced vital capacity between older adults with or without a history of COVID-19 vaccination. The study included only individuals discharged after COVID-19 hospitalization, not assessing outcomes such as mortality or post-discharge recovery. **Implications:** The study developed a predictive equation based on respiratory drive to estimate pulmonary capacity loss in older adults after COVID-19 hospitalization, representing a potentially valuable tool for forecasting and monitoring the progression of respiratory dysfunction in this population.

**Descriptors:** Pulmonary Capacity, Older Adults, COVID-19, Pulmonary Function

## TECHNOLOGICAL INNOVATION IN COMMUNITY PHARMACIES: TRANSFORMING PHARMACEUTICAL CARE FOR THE PREVENTION AND COMPREHENSIVE MANAGEMENT OF OSTEOPOROSIS IN OLDER ADULTS

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### Abstract

**Background:** Osteoporosis is one of the leading comorbidities associated with aging, characterized by progressive deterioration of bone microarchitecture, increased skeletal fragility, and a higher risk of fractures. It is estimated that 200 million people worldwide are affected, resulting in more than 8.9 million fractures annually, with significant impacts on quality of life, functional autonomy, and healthcare system costs. In Brazil, the accelerated demographic transition exacerbates this scenario, demanding innovative prevention and care strategies that transcend traditional healthcare models. Community pharmacies stand out as strategic access points in the healthcare network due to their broad territorial coverage, proximity to the population, and ability to establish longitudinal follow-up of pharmacotherapeutic management. **Purpose:** To critically assess the contribution of community pharmacies, through the incorporation of innovative technologies, to the pharmacotherapeutic care of older adults with osteoporosis, focusing on medication adherence, rational drug use, and prevention of falls and fractures. **Methods:** An integrative literature review was conducted between May and July 2025 using Scopus, PubMed, and EBSCO databases. Original qualitative or quantitative studies published in the last five years were included if they addressed technological interventions applied within community pharmacy settings to optimize therapy management for older adults with osteoporosis. The selection process comprised three stages: title screening, abstract review, and full-text reading of eligible studies. Two independent reviewers conducted the selection, with disagreements resolved by a third researcher. Data extraction included authors, year of publication, country, study design, target population, technologies used, main findings, and conclusions. Descriptive analysis and thematic categorization were employed to synthesize the evidence. **Results:** Findings indicated that community pharmacies equipped with technological resources demonstrated superior effectiveness in early detection of osteoporosis risk factors, support for complex therapeutic regimens, and implementation of tailored educational programs. Tools such as medication reminder applications, telemedicine platforms, integrated electronic health records, and algorithms for drug interaction detection significantly enhanced the precision and reach of pharmaceutical care. Technology-mediated interventions were consistently associated with improved medication adherence, reduced drug-related adverse events, and a marked decrease in fall occurrences among older adults receiving care in community pharmacy settings. **Conclusion:** The integration of pharmacists' clinical expertise with the potential of digital technologies represents a strategic pathway to advance care for older adults with osteoporosis. This approach strengthens early detection, supports complex therapeutic decision-making, and enhances personalized educational interventions, positioning community pharmacies as key providers of safe, effective, and evidence-based gerontological care. **Implications:** The structured incorporation of digital technologies into community pharmacy practice, combined with ongoing professional training, is essential to modernizing elderly healthcare. By aligning technological innovation, evidence-based clinical practice, and equitable access policies, this model fosters autonomy among older adults, promotes rational drug use, and enhances the quality of pharmaceutical care within aging populations.

**Descriptors:** Artificial Intelligence; Pharmaceutical Care; Aging; Osteoporosis; Quality of Life.

## THE NEGLIGIBLE CORRELATION BETWEEN INTERNAL AND EXTERNAL LOADS IN OLDER WOMEN. THE NEGLIGIBLE CORRELATION BETWEEN INTERNAL AND EXTERNAL LOADS IN OLDER WOMEN.

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### Abstract

**Background:** Some research suggests a relationship between electrical stimulation and strength training to optimize neuromuscular function. However, the effects of different method configurations generate uncertainty regarding the variables that can be manipulated, including the relationship between variables expressing internal and external training loads. **Purpose:** To investigate the relationship between the sensory threshold and the external load of strength training. **Methods:** This is an observational, cross-sectional study. Handgrip tests and the 1-repetition maximum predictive test were used to measure external strength training loads. To assess internal loads, electrical stimulation was used, using a low-frequency direct current stimulus. The moment the volunteer perceived the electrical stimulus and when they indicated the impossibility of further increasing the intensity was identified. The Shapiro-Wilk test was performed to verify the normal distribution of the study variables. To analyze the correlation between the internal and external load variables, the values of the intensity (mA) of the electrical stimulus and the dynamic strength, by the 1 repetition maximum test (Kg), as well as the isometric strength by handgrip (KgF), were assumed, the Spearman correlation test was used. For the correlation analysis and statistical tests in general, SPSS version 26.0 will be used. **Results:** Sixteen senescent women were evaluated, aged  $60.25 \pm 6.48$  years, with a body mass of  $71.15 \pm 10.24$  kg, and a height of  $1.58 \pm 0.07$  m, generating an average BMI of  $28.59 \pm 5.09$  kg/m<sup>2</sup>. The average dynamic strength recorded for the vertical bench press, leg press and rowing machine was  $62.61 \pm 14.08$  kg, while for isometric strength, a handgrip of  $27.38 \pm 6.15$  kgF was recorded. For the evaluation of internal loads, the average sensitivity threshold was  $8.1 \pm 1.9$  and  $114.15 \pm 56.00$  mA. The correlations between dynamic strength and sensitivity thresholds ( $r = -0.137$ ;  $p = 0.614$ ), and pain threshold ( $r = 0.391$ ;  $p = 0.135$ ) were not significant, as well as for isomeric strength ( $r < 0.1$ ;  $p > 0.05$ ). **Conclusion:** No metrics were identified that could present conditions of correlation between the perceptions of intensity with the amount of external load identified, for the studied population. **Implications:** This study presents an interesting reflection on the usual system for estimating external training loads, which applies an analysis of internal perceptions of tolerance and sensitivity to a stimulus. This approach, in this study, proved inconsistent, given the correlational incompatibility between the two measures.

**Descriptors:** Elderly, Electrical Stimulation, Resistance Training, Pain Threshold, and External Loads.

## CHARACTERISTICS OF THE USE AND PERCEPTIONS ABOUT DIGITAL TECHNOLOGICAL TOOLS AMONG OLDER PEOPLE IN PRIMARY HEALTH CARE

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### Abstract

**Background:** Older adults in Primary Health Care settings can demonstrate diverse patterns in the use and perception of digital technological tools. While a segment of this population actively engages with digital platforms for tasks such as appointment scheduling, accessing health information, and teleconsultations, others encounter significant barriers. **Purpose:** To describe the characteristics of the use and perceptions about digital technological tools among older people in Primary Health Care. **Methods:** A cross-sectional study was conducted involving 68 older individuals receiving care at Primary Health Care Units. Participants provided information on their use of digital devices for the following activities: Text messaging, social media, downloading videos and images, playing games, conducting online searches, and using email. In addition, participants were asked to evaluate their perceptions of three categories of digital health technologies: Wearable devices for health data monitoring, mobile applications for self-monitoring and self-care and telehealth services. Perceptions were measured using a numerical scale from 0 to 10, where: 0 represented useless or difficult to use, and 10 represented useful and easy to use. Data were analyzed using IBM SPSS Statistics version 22. Descriptive statistics were applied, and results were expressed as percentages for categorical variables and means for continuous variables. **Results:** The sample consisted predominantly of female participants (69.1%), with a mean age of 67.9 years ( $\pm 6.5$ ) and an average educational attainment of 7.5 years ( $\pm 4.5$ ). Among the digital resources evaluated, social media was the most frequently used (70.6%), while games were the least utilized (22.1%). On a scale from 0 to 10, participants rated their perceptions of wearables devices, applications, and telehealth services at 7.4 ( $\pm 3.1$ ), 6.2 ( $\pm 3.4$ ), and 6.6 ( $\pm 3.7$ ), respectively. A majority (66.2%) considered digital health resources to be important, and 60.3% reported an intention to use these tools for self-care. Furthermore, 77.9% agreed that digital health facilitates access to healthcare services. Despite these positive perceptions, several barriers were identified: 63.2% did not find digital tools learning easy, 69.2% felt they lacked sufficient knowledge, and 79.4% expressed concerns about scams related to data sharing. Nevertheless, 76.5% indicated they could rely on assistance when using digital devices if needed. **Conclusion:** The study highlights both the potential and the challenges of digital health engagement among older adults. While a significant portion of participants recognize the importance of digital health tools and express willingness to use them for self-care, widespread barriers persist. These include limited digital literacy, perceived learning difficulties, and concerns about data security. Despite these obstacles, the high rate of social media use and the availability of support for using digital devices suggest a promising foundation for targeted interventions. **Implications:** One implications is the encouragement to implement digital tools in the healthcare of older adults. These resources can promote self-care, reduce demand on Primary Health Care, and strengthen the autonomy of this population. Multiple sectors should direct efforts toward enhancing digital inclusion by prioritizing accessible education, user-friendly technologies, and trust-building strategies to empower older adults in navigating digital health resources effectively.

**Descriptors:** Public Health, Aging, Digital Health.

## CELLULAR SENESENCE, INFLAMMATORY CYTOKINES, AND MOTOR DECLINE IN AGING: A SYSTEMATIC REVIEW

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### Abstract

**Background:** Aging is linked to cellular senescence and low-grade chronic inflammation, known as inflammaging. This persistent state, driven by cytokines like IL-6 and TNF- $\alpha$ , contributes to muscle loss and motor function decline in older adults. Understanding the biological mechanisms behind this functional deterioration is key to developing preventive and therapeutic strategies for healthy longevity. **Purpose:** To investigate the relationship between inflammatory cytokines, cellular senescence, and motor decline in older adults. Secondary goals included identifying cytokines with biomarker potential, analyzing molecular pathways involved, and evaluating emerging interventions, such as senolytics and anti-inflammatory agents. **Methods:** A systematic literature review was conducted following PRISMA guidelines, using PubMed, Scopus, and Web of Science. Original studies published between 2013 and 2024 were included if they involved human participants aged 60 or older and examined the relationship between inflammatory cytokines or senescence markers and outcomes such as muscle strength, gait speed, sarcopenia, or frailty. Animal studies, reviews, incomplete articles, or those without specific data on older adults were excluded. **Results:** Ten studies were included, with a total of approximately 3,800 participants. Most showed a significant association between elevated IL-6 and TNF- $\alpha$  levels and outcomes like reduced handgrip strength, slower gait, and sarcopenia. Eight studies reported a direct correlation between these cytokines and functional decline. NF- $\kappa$ B and p38 MAPK pathways were identified as mediators of muscle atrophy and neuromuscular degradation. Two clinical trials showed improved physical function with senolytics (dasatinib and quercetin), especially in gait and muscular endurance. Despite moderate methodological heterogeneity, study quality was generally high, reinforcing the findings. **Conclusion:** The senescence-associated secretory phenotype (SASP), mainly mediated by IL-6 and TNF- $\alpha$ , is closely linked to functional decline in aging. Low-grade inflammation from senescent cells actively contributes to muscle loss and impaired tissue regeneration. Future research should prioritize randomized trials and the development of accessible biomarkers for monitoring functional health in older adults. **Implications:** This study has practical implications for clinical practice, health education, and public policy. It supports the use of senolytic therapies and early screening strategies. It also highlights the need to train professionals in the biology of aging. The findings reinforce the importance of evidence-based guidelines that integrate science and innovation to promote longevity with quality of life.

**Descriptors:** Cellular senescence, inflammation, cytokines, aging, motor function

## DEMOTIC (DEMENTIA TOPICS CARTOON)

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### Abstract

**Background:** Dementia is a particular condition which in its symptomatic expressions involves a very broad system, which concerns not only the person living with dementia himself but also the entire family, loved ones as well as all the "care" staff that comes with it. Dementia enters in a disruptive way, altering balances and dynamics with important repercussions on the quality of life of all those involved.

**Purpose:** This is why we want to try to offer content on the topic accessible to all ages. We raise awareness and bring as much of the population closer to the topic of aging and dementia through a cartoon helped by the same people living with dementia who are the protagonist voices of the characters. **Methods:** Involvement of people living with mild dementia in Italian meeting centers in the writing of scripts and in the voice recording of dialogues. Creation of 2 cartoons by a graphic studio. Diffusion of cartoons through the partnership of Scientific Societies and the media. Study on the impact of the cartoon after one year by the Psychology faculty of the University of Bologna. **Results:** By 2024 production of 2 episodes of the cartoon and initial distribution in the national territory through national scientific societies and the media. Greater awareness on the topic of the elderly person living with dementia and on the possible situations related to it. Data on the impact of cartoons by 2025.

**Descriptors:** DEMENTIA, EDUCATION, CARTOON

## HUMANIZAÇÃO PROJECT: INNOVATION IN OUTREACH HEALTH PRACTICES WITH THE ELDERLY POPULATION

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### Abstract

**Background:** Population aging poses significant challenges to public policies, particularly concerning the promotion of health, human dignity, and the prevention of violence against older adults. Within this context, an outreach activity was developed targeting the elderly population of a community center, guided by the thematic axis of “Purple June” – a month dedicated to raising awareness about elder abuse. The choice of this theme aimed to broaden the discussion on human rights, citizenship, and the holistic health of older adults, while also providing students with a practical experience in delivering humanized healthcare actions. **Purpose:** The primary objective of the activity was to provide students with experiential learning in humanized healthcare practices, fostering welcoming attitudes, active listening, and direct engagement with the social realities faced by the elderly population. Secondary objectives included cultivating empathy, enhancing communication skills and emotional sensitivity among students, and promoting the appreciation of older adults as active agents in their own life stories. **Methods:** The methodology involved organizing the initiative into multiple phases. Initially, students developed educational materials – including banners, posters, and brochures – addressing elder abuse in clear and accessible language. On the day of the intervention, the welcoming of participants included instrumental music and greeting posters, followed by a group stretching session and an introductory icebreaker activity. The main segment consisted of conversation circles guided by reflective texts, during which older participants were encouraged to share personal experiences. This was followed by a painting workshop, allowing for artistic expression of positive memories. Each elder received a small token in the form of a violet flower – symbolizing the theme – accompanied by a personalized message. Additionally, blood pressure screenings were offered under professional supervision. **Results:** Among the key outcomes, there was notable engagement from the elderly participants in the conversation circles, where they shared meaningful narratives about their life experiences and perspectives on aging. The painting activity fostered moments of artistic expression and emotional relief, while the practice of active listening helped strengthen intergenerational bonds between students and elders. Students reported the experience as transformative, broadening their understanding of healthcare humanization and reinforcing the importance of a holistic approach to elderly care. **Conclusion:** The study concludes that outreach programs can serve as effective pedagogical and social tools. The integration of humanized healthcare, art, and popular health education created a space for attentive listening, empathy, and collaborative knowledge construction. The presence of students, combined with active listening and the recognition of personal life stories, proved to be a powerful means of promoting elderly well-being. Future research may explore the broader impacts of such interventions on older adults, as well as their influence on the education of health professionals, fostering more empathetic and better-prepared individuals to meet the demands of an aging population. **Implications:** The outcomes underscore the transformative role of university extension activities in bridging theory and practice, especially in areas such as longevity and innovation in health. The experience highlights the need for public policies that support humanized, interdisciplinary practices in elderly care, grounded in respect, active listening, and dignity.

**Descriptors:** Humanization of care; Aging; Health Education.

## EMPOWERING OLDER ADULTS FOR PATIENT SAFETY: A DIGITAL EDUCATIONAL TOOL FOR HAND HYGIENE IN HOSPITAL SETTINGS

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### Abstract

**Background:** Healthcare-associated infections (HAIs) pose a significant risk to hospitalized older adults, especially in intensive care units. In Brazil, it is estimated that 14% of hospitalized patients acquire some form of infection, often due to insufficient hand hygiene by healthcare workers. In this context, health education is a key empowerment strategy that promotes autonomy and encourages older adults to take an active role in preventing complications by overseeing the care they receive.

**Purpose:** To develop an educational tool aimed at older adults to promote knowledge, proactive attitudes, and the ability to request proper hand hygiene from healthcare professionals in hospital settings, thereby strengthening patient safety. **Methods:** This is a qualitative and educational study based on the development of a digital e-book titled “Hands That Save”. The content was designed using accessible language, visual resources, and scientific evidence aligned with ANVISA guidelines and international standards. The e-book is organized into chapters that explain, in a didactic way, the role of microorganisms, transmission risks, patient rights, and proper hand hygiene techniques, encouraging older adults to adopt educational questioning behaviors.

**Results:** The e-book is presented as an innovative educational technology to promote older adult patient safety and is currently in the implementation phase. Although it has not yet been applied directly with the target population, its design is supported by evidence showing that patient empowerment significantly improves healthcare workers’ adherence to hand hygiene and reduces HAI rates. The proposal aligns with the principles of lifelong learning and empowerment as a foundation for older adult patient safety strategies, aiming to promote a cultural shift in hospital care dynamics.

**Conclusion:** Educating older adults about hand hygiene represents a promising strategy to enhance their active participation in infection prevention. The “Hands That Save” e-book has the potential to transform healthcare practices by fostering shared responsibility and autonomy in the patient-provider relationship within hospital settings. **Implications:** Educational tools designed for older adults support lifelong learning and promote autonomy throughout aging. Strengthening a culture of empowerment in hospital environments can positively impact the quality of care, reduce infections, and foster a safe and dignified aging process.

**Descriptors:** Hand hygiene, Older adults, Health education, Patient empowerment, Hospital safety.

## OVERWEIGHT AND CONICITY INDEX IN OLDER ADULTS WITH CHRONIC DISEASES

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### Abstract

**Background:** Population aging is a global trend with major social, economic, and public health implications. The United Nations projects that the population aged 65 and over will reach 1.6 billion by 2050. In Brazil, the proportion of elderly individuals rose from 6.1% in 1980 to 15.8% in 2022. This shift increases the burden of chronic non-communicable diseases (NCDs) and conditions like overweight and obesity. According to the 2019 National Health Survey, 61.4% of Brazilian older adults were overweight, and 23% were obese – highlighting a critical public health issue. **Purpose:** This study aimed to evaluate factors associated with overweight and conicity index in older adults with NCDs. **Methods:** A cross-sectional, descriptive study was conducted at a Basic Health Unit in the Federal District. The sample included 110 older adults aged  $\geq 60$ , diagnosed with hypertension and/or type 2 diabetes, registered at the unit, and cognitively able to respond. Data collection included sociodemographic and clinical information, anthropometric measurements (waist circumference, weight, height), fasting blood samples, and body composition analysis via bioimpedance (Inbody® 570). Body Mass Index (BMI) was classified per Lipschitz (1994), and the Conicity Index (CI) was calculated with cut-off points of  $\geq 1.18$  for women and  $\geq 1.25$  for men. Statistical analysis used SPSS 25.0 ( $p < 0.05$ ). **Results:** Most participants were female (82.7%), retired (83.6%), with less than 9 years of education (54.5%). A large portion was aged 66–70 years (41.8%) and married (40.0%). Hypertension affected 88.2%, and diabetes 63.6%. The average CI was  $1.31 \pm 0.086$ , and 90% had high CI, which was not significantly associated with sociodemographic characteristics. However, participants with high CI had higher fasting glucose ( $p = 0.001$ ), HbA1c ( $p = 0.009$ ), triglycerides ( $p = 0.010$ ), and VLDL ( $p = 0.009$ ), and lower HDL ( $p = 0.002$ ). CI showed a positive correlation with BMI ( $r = 0.336$ ;  $p < 0.001$ ) and body fat percentage ( $r = 0.162$ ;  $p = 0.091$ ). **Conclusion:** A high prevalence of elevated CI was found among older adults with chronic conditions, especially women. High CI was associated with adverse biochemical markers, indicating increased cardiometabolic risk. The relationship between CI, BMI, and body fat highlights the importance of assessing central adiposity in this population. **Implications:** CI is a practical, low-cost anthropometric tool suitable for primary healthcare. It helps identify older adults at increased metabolic risk, supporting early interventions. Including CI in routine assessments may guide prevention strategies, such as promoting healthy lifestyles and monitoring, ultimately reducing cardiovascular complications in this vulnerable group.

**Descriptors:** Overweight, Aged, Chronic Diseases, Primary Health Care

## BDNF VAL66MET POLYMORPHISM IN OLDER ADULTS WITH HEMORRHAGIC STROKE OR CEREBRAL ANEURYSM: A COMPARATIVE STUDY

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### Abstract

**Background:** Stroke remains one of the leading causes of death worldwide, responsible for over 150,000 deaths in Brazil in 2023. Genetic polymorphisms have been analyzed for their potential influence on cerebrovascular diseases – among them, the Val66Met polymorphism in the gene for BDNF, the brain's most abundant neurotrophin. This polymorphism affects the rate of BDNF synthesis by reducing it. **Purpose:** This case-control study examines the association between the BDNF Val66Met polymorphism and the development of hemorrhagic stroke (HS) and/or aneurysms in the Federal District, especially in older adults. **Methods:** The study included 81 people (mean age  $54 \pm 9$  years; 48 female, 33 male) with HS/aneurysm and 81 age-matched individuals in the control group. Clinical evaluations recorded detailed medical history (hypertension, diabetes, smoking, alcohol use), blood pressure, and functional independence (Barthel Index). DNA extracted from the participant's venous blood was amplified and analyzed by PCR-RFLP using the enzyme BsaAI for genotypic determination. Statistical analysis employed chi-square tests ( $p < 0.05$ ). **Results:** While no significant differences in genotype distributions were observed between people in the case and control groups, the polymorphic (Met) allele was more frequent in men and people who smoke, groups with elevated stroke risk. Interestingly, carriers of this polymorphism demonstrated better Barthel scores, suggesting greater functional independence. Notably, hypertension was associated with the ancestral (Val) allele within the individuals in the case group, indicating a potential protective effect. Conversely, no statistical links were identified between the polymorphism and diabetes or alcohol consumption. **Conclusion:** Although the Val66Met variant was not directly associated with stroke or aneurysm incidence, its correlations with biological sex, smoking, hypertension history, and functional outcomes (Barthel Index) suggest nuanced interactions warranting deeper exploration, particularly regarding the pivotal role of ethnic variation. **Implications:** These findings enhance the understanding of genetic contributions to cerebrovascular risk and highlight the interplay between genotype and clinical factors. They also suggest the potential utility of genotyping in predicting functional prognosis, guiding personalized interventions, and informing strategies to foster autonomy and longevity in populations of older adults.

**Descriptors:** Hemorrhagic Stroke; Brain-Derived Neurotrophic Factor; Aneurysm

## CLINICAL ASSOCIATIONS OF IL1B +3954C/T POLYMORPHISM IN OLDER WOMEN UNDERGOING BARIATRIC SURGERY

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### Abstract

**Background:** The IL1B +3954C/T polymorphism (rs1143634), located in exon 5 of the IL1B gene, is a functional variant that influences the expression of interleukin-1 $\beta$  (IL-1 $\beta$ ), a central pro-inflammatory cytokine in obesity pathophysiology. The T allele has been linked to elevated IL-1 $\beta$  levels, heightened systemic inflammation, higher BMI, leptin imbalance, and impaired glucose regulation. In elderly individuals, the convergence of immunosenescence and obesity-related chronic inflammation may intensify metabolic disturbances. Bariatric surgery, particularly the Roux-en-Y gastric bypass (RYGB), effectively reduces adiposity and inflammatory markers, yet patient responses vary. Genetic factors, including IL1B variants, may help explain this variability. Investigating their clinical relevance in elderly patients undergoing bariatric surgery could support personalized approaches to metabolic and geriatric care. **Purpose:** To evaluate the association between the IL1B +3954C/T polymorphism and clinical characteristics in older women with obesity who underwent bariatric surgery, focusing on potential genotype-related differences in comorbidities and inflammatory profiles. **Methods:** This cross-sectional study included 21 older women (mean age: 61.6  $\pm$  5.0 years) who had undergone RYGB at least one year earlier at a public referral hospital in the Federal District, Brazil. Inclusion criteria targeted women aged  $\geq$ 50 years, reflecting the higher prevalence of bariatric procedures in this demographic. Exclusion criteria included major psychiatric disorders or surgery performed within 12 months of data collection. Genomic DNA was extracted from peripheral blood, and PCR-RFLP determined IL1B +3954C/T genotypes. Participants were grouped by dominant model: CC (n = 13) and CT+TT (n = 8). Associations with clinical variables were assessed using Pearson's chi-square test ( $p < 0.05$ ). **Results:** No significant associations were observed between IL1B +3954C/T genotypes and the clinical conditions assessed. A non-significant trend emerged for smoking status ( $p = 0.075$ ): 38.5% of CC carriers were former smokers, compared to none in the CT+TT group. Hypertension was prevalent in both groups (CC: 84.6%; CT+TT: 87.5%;  $p = 0.854$ ). Other conditions included depression/anxiety (CC: 46.2%; CT+TT: 25.0%;  $p = 0.332$ ), fibromyalgia (CC: 7.7%; CT+TT: 25.0%;  $p = 0.271$ ), dyslipidemia (CC: 7.7%; CT+TT: 25.0%;  $p = 0.271$ ), and retinopathy (CC: 15.4%; CT+TT: 37.5%;  $p = 0.248$ ). Limited sample size and low expected frequencies may have reduced statistical power. **Conclusion:** In this cohort of older women post-bariatric surgery, the IL1B +3954C/T polymorphism showed no significant associations with major comorbidities. However, observed trends suggest potential genotype-related influences on inflammation and metabolic profiles. **Implications:** Although inconclusive, these findings point to a possible role of the IL1B +3954C/T polymorphism in individual variability following bariatric surgery. Larger studies are needed to validate its utility in personalizing post-surgical care and long-term risk assessment in elderly patients with obesity.

**Descriptors:** oymorphism, Interleukin-1beta, Obesity Management

## EXCESS GLUTEN IN MODERN DIET EFFECTS ON ACCENTUATING THE EFFECTS OF AGING IN MENTAL HEALTH AND INTESTINE INFLAMMATION

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### Abstract

**Background:** In modern society, advancements leading to an improvement in longevity, and the reduction in birth rates, resulted in an increase in elderly population, implicating the necessity of improvements in dealing with the challenges of aging, to guarantee a higher quality of life to longevined individuals. One of the main factors that hinder elders is the reduced mobility capacity due to high rates of inflammatory diseases in joints, such as arthritis and arthrosis that impairs them in having a more active life. Furthermore, many end up developing advanced stages of neurodegeneration, leading to depression, anxiety and dementia. Some foods can contribute to body inflammation when consumed throughout life. Among these, the rich in gluten stands out. **Purpose:** That said, the study aims to elucidate the relation between these vulnerabilities related to the natural aging to the ingestion of gluten rich food. Therefore, bringing awareness to the possible negative implications in the quality of life and clinical care of the elderly population, highlighting the importance of a well balanced diet and the effects of an unbalanced diet in the accentuation of neuropathies already known to be associated with aging, in both gluten sensitive elders and not. **Methods:** This study is a critical narrative review based on a comprehensive search of PubMed, Scopus, Web of Science, and SciELO (2015–2025). We included original studies, systematic and narrative reviews, and meta-analyses addressing CD and NCGS in adults and the elderly, as well as gastrointestinal, immunological, and neurological changes related to aging and their links with mental health outcomes (e.g., depression, anxiety, fatigue, cognitive decline). Relevant animal models were also considered. Exclusion criteria were non-peer-reviewed works and studies without translational relevance. The review emphasized scientific relevance, multidisciplinary integration, and knowledge gaps in elderly populations. **Results:** The investigation revealed evidence of the relation between the vulnerabilities associated with aging and susceptibility to gluten sensitivity and its role in aggravating its symptoms in the elderly population. Highlighting the role of systemic inflammation induced by the consumption of gluten by individuals with Celiac Disease (CD) and Non-celiac gluten sensitivity (NCGS), in mental health decline. Its effects could go beyond just affecting the Gastrointestinal Tract (GIT), but through the impairment of intestinal absorption and heightened permeability, could contribute significantly to the development of psychologic pathologies such as dementia, depression, Anxiety and Humor instability, accentuated by the already existing influence of aging on the cognitive decline and stability. **Conclusion:** In conclusion, there's evidence that suggests the impacts on the mental health and intestine inflammation in elderly patients by these relations. However the research, specific to the elders, is lacking. Further research on this topic is necessary to breach the knowledge gap, improving the early diagnosis and treatment of elderly patients with NCGS or CD. In addition, a gluten controlled or a gluten free diet, could prevent the aggravation and development of neuropathies by aging, in the elderly population. **Implications:** The findings in this study suggest that it could be beneficial to the elderly population in adopting a gluten reduced or free diet, due to its impacts on gastrointestinal inflammation and mental health decline. Considering the diet in the clinical approach of elderly patients with unspecified neurophysic disorders. Furthermore, bringing attention to the relevancy in investing on new specific studies that explore diet intervention as a therapeutic treatment, and prevention, in the care of elderly patients with neuropsychiatric disorders. **Descriptors:** Celiac disease; Clinical care; Diagnosis

## TO ASSESS THE INFLUENCE OF DMFT FINDINGS ON THE FUNCTIONAL CAPACITY OF INDIVIDUALS OVER 60 YEARS OF AGE.

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### Abstract

**Background:** A high DMFT index can impair chewing, negatively impact nutrition, and even lead to loss of strength and independence in daily life. Older adults who face difficulties in eating properly often experience muscle mass loss and may struggle with simple daily tasks. Therefore, investigating the influence of the DMFT index on the functional capacity of individuals over the age of 60 is essential for promoting healthier aging, autonomy, and improved quality of life. **Purpose:** To examine the influence of DMFT index findings on the functional capacity of individuals aged over 60. **Methods:** Functional capacity was assessed using standardized questionnaires, handgrip strength tests, and functional mobility evaluations—specifically the Handgrip Dynamometer and the Timed Up and Go (TUG) test. These assessments were carried out in a properly prepared environment, with clear instructions and precise timing. Simultaneously, the DMFT index was evaluated using sterile wooden sticks as auxiliary instruments and full Personal Protective Equipment (PPE), in order to identify dental conditions, oral hygiene status, prosthesis usage, and possible dental issues on tooth surfaces. **Results:** No significant correlations were observed between Handgrip strength and DMFT index results ( $p = 0.93$ ;  $r = 0.022$ ), nor between the DMFT index and TUG performance ( $p = 0.77$ ;  $r = -0.071$ ). Additionally, no statistically significant differences were found among risk groups in either the TUG or Handgrip tests ( $p > 0.05$ ), relative to the number of dental occurrences. **Conclusion:** While a high prevalence of dental issues was identified within the study sample, no associations were found between these occurrences and the functional capacity parameters assessed in this age group. **Implications:** Implementing interdisciplinary approaches in the context of aging is crucial for promoting elderly health care. Accordingly, this study underscores the importance of integrating diverse themes relevant to the geriatric health team.

**Descriptors:** Physical Functional Performance, Dental Care for Aged, DMF Index.

## CORRELATION BETWEEN SOCIAL ISOLATION AND MENTAL HEALTH IN OLDER ADULTS: A SYSTEMATIC REVIEW

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### Abstract

**Background:** Social isolation and loneliness have emerged as critical public health concerns affecting the well-being of older adults worldwide. With the increasing aging population, many individuals aged 65 and above face reduced social networks, limited mobility, and emotional losses that contribute to social disconnection. These conditions are not merely social challenges but have profound implications for mental health, including higher rates of depression, anxiety, and cognitive decline. Understanding the extent and nature of this correlation is essential for designing effective interventions to support healthy aging. **Purpose:** This study aimed to investigate the correlation between social isolation and mental health outcomes among older adults. The primary focus was on associations with depression, anxiety, and cognitive decline. Secondary objectives included exploring potential links between loneliness and other health risks such as cardiovascular diseases and dementia. **Methods:** A systematic review was conducted in accordance with PRISMA guidelines. Electronic databases (PubMed, Scopus, Web of Science) were searched using the descriptors: “social isolation,” “loneliness,” “mental health,” “elderly,” “aging,” “depression,” and “anxiety.” Inclusion criteria comprised peer-reviewed studies published in English between 2013 and 2023, involving individuals aged 65 or older and quantitatively assessing the correlation between social isolation and mental health. Exclusion criteria included qualitative studies, opinion articles, and research that did not directly analyze the primary correlation. Data were extracted regarding study design, sample characteristics, measurement tools for social isolation and mental health, and key outcomes. Risk of bias was assessed using standardized quality assessment tools. **Results:** The studies reviewed consistently demonstrated a significant correlation between social isolation and negative mental health outcomes in older adults. Higher levels of isolation were associated with increased risks of depression and anxiety, as well as faster cognitive decline. Furthermore, loneliness was linked to a greater likelihood of developing cardiovascular diseases and dementia. These effects were observed regardless of geographic or cultural context, emphasizing the global relevance of the issue. **Conclusion:** Social isolation and loneliness are key determinants of mental health in later life. Their impact extends beyond psychological distress, contributing to functional decline and increased healthcare utilization. Addressing these issues is crucial to promoting dignity, autonomy, and quality of life in aging populations. Future research should prioritize the development and validation of targeted, evidence-based interventions that foster meaningful social connections and resilience. **Implications:** The findings underscore the urgency of incorporating structured social support into healthcare systems and community-based programs. Practical strategies include intergenerational activities, community engagement initiatives, and technology-enabled communication platforms. Policymakers should prioritize investments in age-friendly environments and public health campaigns that encourage social participation. These actions not only support individual well-being but also reduce healthcare burdens and align with broader goals of longevity and innovation.

**Descriptors:** Social isolation, mental health, depression, anxiety, cognitive decline.

## GERIATRIC CARDIOLOGY: A CRITICAL ANALYSIS OF THE UNDERREPRESENTATION OF PATIENTS OVER 75 IN CLINICAL STUDIES

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### Abstract

**Background:** The elderly population, especially those over the age of 75, faces an increasing burden of cardiovascular diseases, making it essential to understand the research landscape within this age group. However, the applicability of guidelines based on studies involving younger populations is often limited. **Purpose:** This abstract aims to assess the volume and characteristics of cardiology studies that specifically address patients aged 75 and older, analyzing thematic focus, the inclusion of factors such as frailty, and methodological disparities, in order to identify critical gaps and guide future investigations toward more equitable and effective cardiovascular care. **Methods:** A comprehensive systematic review was conducted, analyzing a broad range of literature in cardiology. From an initial search, 486 articles were identified as relevant, with 50 considered highly pertinent for in-depth analysis. The methodology included evaluation of study characteristics, thematic focus, considerations of disparities and social determinants of health, and, crucially, the identification of studies specifically addressing the elderly population—with an emphasis on those involving patients aged 75 and older. **Results:** The analysis reveals a robust annual volume of publications in cardiology (approximately 70 to 150 clinical trials); however, a significant underrepresentation of very elderly patients is evident. Of the 50 most relevant articles, only 5 focused on the theme "Aging, frailty, and cardiovascular outcomes in older adults." Among these 5, studies such as those by Ratcovich et al. ( $\geq 75$  years), Phan et al. ( $\geq 80$  years), and Rahouma et al. (octogenarians), demonstrated that frailty and biological age are more accurate predictors of adverse outcomes than chronological age. These findings suggest that interventions such as invasive management of certain conditions, like coronary artery disease, may benefit selected elderly populations. However, the scarcity of studies dedicated to this age group severely limits the generalizability of findings and the development of specific guidelines, while also perpetuating a lack of data on the impact of social determinants of health and socioeconomic disparities in this vulnerable age group. **Conclusion:** Despite its overall productivity, cardiology research demonstrates limited and insufficient attention to the elderly population, particularly patients over the age of 75. Frailty emerges as a critical prognostic factor, yet its full integration into risk models and clinical practice remains a challenge. **Implications:** The persistent underrepresentation of older adults in clinical trials undermines the generalizability of evidence and the development of age-specific guidelines, ultimately impacting equity in care. Future research should prioritize the inclusion and in-depth investigation of the cardiovascular characteristics of older adults, with a focus on frailty and social determinants of health, to ensure more precise and equitable care.

**Descriptors:** Elderly population, Cardiology, Frailty

## ANALYZING THE RELATIONSHIP BETWEEN LEAN MASS AND DENTAL COMPLICATIONS

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### Abstract

**Background:** The process of senescence affects various systems of the human body, causing independent and autonomous activities. This process occurs at different times of life, varying from individual to individual. As such, there is a need for strategies to identify its onset at an early stage. It is therefore suggested that dental assessment could be a low-invasive method capable of identifying a reduction in lean mass, which is responsible for the proper functioning of the locomotor system. **Purpose:** To investigate the relationship between lean mass profile, risk of sarcopenia and dental complications, influencing the health status of the elderly. **Methods:** In order to analyze the relationship between lean mass profile and dental complications, octopolar bioimpedance was used and the DMFT was applied using tongue depressors. In addition to age, gender and height, the body composition analysis report included data such as weight, fat mass, bone mass, protein mass, body water, muscle mass and skeletal muscle. A statistical analysis was carried out using SPSS, where normality was verified and the t-test for independent samples and Pearson's correlation test were used. **Results:** The MALG identified that 57.9% of the sample was at risk of sarcopenia. However, no statistical differences were identified ( $p=0.902$ ) between the number of dental findings among those at risk of sarcopenia ( $19.55\pm 7.22$  complications) and those not at risk of sarcopenia ( $19.13\pm 7.3$  complications). No significant correlations were identified between muscle mass and the number of dental complications ( $p=0.806; r=-0.060$ ), nor were any correlations identified between the DMFT assessment and fat-free appendicular mass ( $p=0.961; r=0.012$ ). **Conclusion:** The findings identified by DMFT are not directly related to muscle mass parameters capable of giving an early opinion of senescence for individuals over 60 years of age. **Implications:** This study presents a low-invasive evaluation initiative, capable of identifying parameters linked to early senescence, although it should evaluate a sample with a lower age range.

**Descriptors:** Body mass index, tooth, sarcopenia.

## EXPERIMENT WITH PHOSPHATE BUFFER SOLUTION (PBS) ON 3-D PRINTED FEMUR: INNOVATION FOR THE CARE OF ELDERLY VICTIMS OF FRACTURES

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### Abstract

**Background:** The 3D printing of body structures is an important procedure that will enable the future development of care, treatment, therapy, and rehabilitation for elderly individuals with numerous debilitating illnesses. **Purpose:** In this sense, this research proposed to develop a chemical experiment to verify the resistance of a 3D-printed femur bone when subjected to a solution that biochemically resembles human blood tissue. **Methods:** For the 3-D femur printing process, the following steps were carried out: "(1) Selection of materials to be scanned", "(2) Acquisition of image(s) of the objects to be 3-D printed", "(3) Modeling process with 3-D software tool", "(4) Configuration and 3-D printing of the model (prototype)", "(5) Durability, resistance, and compatibility tests", "(6) Description of the processes of the implemented technique", "(7) Data analysis". It is important to highlight that the guidelines and directives set out in "NBR 5.739/1994", related to "Concrete Provisions - Compression test of cylindrical specimens", were followed. This proposal is supported by the Brazilian Association of Technical Standards (ABNT). After 3-D printing for the image capture process and subsequent digitization of the femoral bone structure, a Sense® 3-D manual scanner was used, which has in its capabilities, dimensions of "17.8cm x 12.9cm x 3.3cm", field of view "horizontal: 45°, vertical: 54.7° and diagonal: 69°" and operating temperature of "10-40°". Regarding the Sense® 3-D manual scanner, its operating range is "Min 0.35m / Max 3m", its spatial x/y resolution @ 0.5m is "0.9mm", and its scanning volume is "Min: 0.2 x 0.2 x 0.2m / Min: 0.2 x 0.2 x 0.2m". Following this process, and to enhance the "slicing" process – that is, cutting the scanned image – to provide the best impression of the bone structure in three-dimensional format, the "CURA Ultimaker®" software, version 4.6, for "Windows®" was used. For the practical implementation of the biochemical experiment, a commercial 1x phosphate buffer solution (PBS), pH 7.4 (Sigma-Aldrich, Germany, catalog no. D8537) was used. After this process, the 3D-printed piece was submerged in this biochemical solution and accessed and photographed daily to verify its reaction(s). The results were organized using Microsoft Excel 2024®, part of the Microsoft Office 2024® package for Windows®. A descriptive statistical analysis was performed, including percentage (%), mean (MA), and standard deviation (SD) calculations. The results are presented in explanatory tables and graphs. The authors declare no conflicts of interest. **Results:** After a period of five (05), fifteen (15), thirty (30), forty-five (45), and sixty (60) days, no visibly noticeable modifications were identified in the 3-D printed anatomical "femur" piece. **Conclusion:** Thus, it was possible to verify that it remained with its shape and constitution preserved. **Implications:** The experiment should be continued, aiming to verify how long the 3-D printed piece will remain without modifications, while submerged in the proposed biochemical solution.

**Descriptors:** Three-Dimensional Printing; Femur; Materials Science; Chemistry. Innovation.

## PALLIATIVE CARE FOR ELDERLY PEOPLE IN THE FEDERAL DISTRICT: AN ANALYSIS OF THE LEGAL FRAMEWORK

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### Abstract

**Background:** With the aging of the Brazilian population, there is an urgent need to strengthen public policies aimed at the health of the elderly. In this context, palliative care plays a prominent role in promoting quality of life in serious illness. The establishment of the National Policy for Palliative Care (PNCP) represents progress in this field, although it is still in the early stages of implementation. Given this scenario, it becomes relevant to analyze local regulations, such as those in the Federal District, in order to assess their alignment with national guidelines and their ability to meet the growing demands of an aging population. **Purpose:** To map and describe the legal framework regarding palliative care in the Federal District, with a focus on elderly individuals, from 2020 to 2025. **Methods:** This is a descriptive, exploratory, and documentary research that included the construction of a timeline and the systematization of regulations related to palliative care in the DF. The search for legislation and administrative orders was conducted using the Descriptors "Cuidados Paliativos" and "Cuidado Paliativo" on the websites Leis Estaduais (<https://leisestaduais.com.br>) and the Official Gazette of the Federal District (<https://www.dodf.df.gov.br/>). Data collection occurred in July 2025. **Results:** A total of three laws, three decrees, and 18 ordinances related to palliative care in the Federal District were identified. Among the normative instruments enacted before the establishment of the PNCP, the following stood out: Law No. 7.054 of January 5, 2022; Law No. 7.198 of December 21, 2022; Decree No. 45.482 of February 9, 2024; and Decree No. 45.740 of April 25, 2024. Following the promulgation of the PNCP, Decree No. 46.632 of December 12, 2024, and Law No. 7.648 of December 26, 2024, were located. These normative documents correspond respectively to guidelines XV, X, I, II, and XI of the PNCP, which refer to promoting research, encouraging the development of measures that preserve patient autonomy, expanding the Rede de Atenção à Saúde (RAS), fostering the regionalization of services, and adopting educational strategies. Among the ordinances, eight are related to changes in staffing. Decrees No. 456, 383, 374, 205, 263, 190, 47, 528, 135, and 493 contain content aligned with the aforementioned guidelines. It is noteworthy that none of the analyzed regulations made any reference to the elderly population. **Conclusion:** The study revealed a lack of specificity in the legislation of the Federal District regarding palliative care with a focus on elderly individuals. Although the identified normative instruments are aligned with the guidelines of the PNCP, there is a clear gap in the detailing of how care should be provided and which professionals are responsible for its implementation. Moreover, none of the documents make direct or indirect reference to the elderly population. **Implications:** These findings highlight the need to improve the implementation of public policies through the development of specific guidelines that more comprehensively address palliative care for the elderly population in the Federal District.

**Descriptors:** Palliative Care; Aging; Public Policy

## THERMAL RESISTANCE OF 3-D PRINTED FEMUR BONE FOR REPLACEMENT IN ELDERLY PEOPLE WITH FRACTURES: INNOVATION FOR TREATMENT

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### Abstract

**Background:** 3D printing of body structures has great potential to become a significant and innovative therapeutic modality, once its techniques are refined. It offers important solutions for biohealth and medical bioengineering therapeutic practices, enabling greater personalization and potentially transforming treatments and procedures for various diseases and health problems. **Purpose:** Therefore, this research aimed to evaluate the thermal resistance of 3D-printed human femur anatomical parts. The specimens were subjected to temperatures ranging from body temperature to extreme temperatures to determine their durability and maintenance of structural integrity under controlled thermal conditions. **Methods:** This research was experimental, exploratory, descriptive, comparative, and quantitative-qualitative. It was submitted to the Research Ethics Committee (REC) of a higher education institution based in Brasília, Federal District (DF), which granted a "waiver" opinion after evaluation and bioethical treatment. The constitutive steps for its implementation included "material selection," "image acquisition," "3D modeling of the part," "printing with a GTMAX 3D Core H4® printer," and "durability and heat resistance testing" in accordance with the 1994 NBR 5.739 standard. In order to carry out the image capture process and subsequent digitization of the femoral bone structure, a Sense® 3-D manual scanner will be used, which has in its capabilities, but dimensions of "17.8cm x 12.9cm x 3.3cm", field of view "horizontal: 45°, vertical: 54.7° and diagonal: 69°" and operating temperature of "10-40°". Regarding the Sense® 3-D manual scanner, its operating range is "Min 0.35m / Max 3m", its spatial x/y resolution @ 0.5m is "0.9mm", and its scanning volume is "Min: 0.2 x 0.2 x 0.2m / Min: 0.2 x 0.2 x 0.2m". Regarding the Sense® 3-D handheld scanner, the image depth is 240 (W) x 320 (H) px, the resolution depth @ 0.5 mm is 1 mm, and the color image size is 240 (W) x 320 (H) px. After this process, and to enhance the slicing process, that is, cutting the scanned image, to provide the best impression of the bone structure in three-dimensional format, the "CURA Ultimaker®" software, version 4.6, for "Windows®" will be used. The tests were conducted in a muffle furnace with specification "Q318S25T®", which has temperature ramps and levels. The results are presented in the form of explanatory tables. The authors declare no conflicts of interest. **Results:** The 3D-printed femurs were exposed to 108.3°C without visible changes. At 150°C, three smaller femurs began to melt at their bases after 8 to 13 minutes, possibly due to porosity. At 200°C, the largest femur began to melt and became moldable, indicating that high temperatures cause significant changes in the material used in this experiment. **Conclusion:** The study showed that 3D-printed anatomical femurs have limited heat resistance. **Implications:** Further studies and research are needed to better understand the resistance of this material and improve the specimen, potentially enhancing its potential as a future treatment for elderly individuals, for later replacement in orthopedic surgical procedures. **Descriptors:** Temperature; Material Science; Femur; Elderly; 3-D Printer.

## IMPACT OF DENTAL INTERCURRENCES ON FUNCTIONAL CAPACITY AND QUALITY OF LIFE IN THE ELDERLY

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### Abstract

**Background:** The aging process leads to significant physiological, psychological, and social changes that can directly impact oral health. The DMFT index is widely used to assess oral health in this population. Although there are studies that relate oral health to functionality, this topic remains underexplored when associated with quality of life in older adults, highlighting the need for studies like this one. **Purpose:** To identify the association between dental complications, quality of life, and functional capacity in older adults, integrating dental status, functional tests, body composition, and quality of life perception questionnaires. **Methods:** The GOHAI (Geriatric Oral Health Assessment Index) was used as an evaluative tool, designed with questions related to well-being, social interaction, and daily activities, with an emphasis on oral health as the main factor. Additionally, the DMFT index was used to investigate dental occurrences, highlighting the greater vulnerability of the group under analysis. Participants received guidance on oral health, prostheses, lesions, and referrals for treatment when necessary. Finally, the TUG (Timed Up and Go) test was applied to assess mobility, motor function, and fall risk in older adults, together with handgrip strength measurement, both evaluating their functional capacity. **Results:** No significant correlations were found between the Handgrip test ( $p = 0.93$ ;  $r = 0.022$ ) and the DMFT index, nor were notable correlations identified between the DMFT index and the TUG test ( $p = 0.77$ ;  $r = -0.071$ ). Likewise, no consistent differences were found in the statistics of the functional risk groups for either the TUG or Handgrip tests ( $p > 0.05$ ) in relation to the number of dental occurrences. Regarding perceived quality of life associated with oral health, assessed through the GOHAI, only item Q7 showed a significant association with the DMFT, TUG, and Handgrip, indicating a positive relationship. The other items (Q1–Q6 and Q8–Q12) showed no significant statistical relationship, revealing an absence of association between oral health and self-reported quality of life in this test. **Conclusion:** The results indicate that, in general, the DMFT index does not show a relevant relationship with functional capacity as evaluated through the TUG and Handgrip tests, nor with most of the quality-of-life components measured by the GOHAI. The only exception was item Q7, which showed a positive trend, suggesting that this component may have a substantial association with oral health. These findings lead to the conclusion that the influence of dental occurrences on the functionality and quality of life of older adults may be less significant and more multifactorial, reinforcing the need for integrated evaluations. **Implications:** The results may enhance dental clinical practice, support the planning and management of services aimed at comprehensive elderly care, guide public policies for the promotion of oral health and functional capacity, and strengthen the training of professionals and educational actions that prioritize healthy aging and the autonomy of this population. **Descriptors:** Oral Health, Quality of Life, Aging

## PHARACOSENESENCE AND ARTIFICIAL INTELLIGENCE: CHALLENGES AND INNOVATIONS IN HUMAN AGING THERAPY

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### Abstract

**Background:** This study investigates the challenges of drug therapy in older adults, considering the pharmacokinetic and pharmacodynamic changes associated with aging, as well as the risks of polypharmacy and drug interactions. The research emphasizes the importance of pharmacosenescence in developing safe and rational prescribing strategies, highlighting the need for evidence-based clinical practices and the potential of artificial intelligence to improve pharmacotherapy and enhance the quality of life of this population. **Purpose:** The objective of this study is to examine the main challenges of drug therapy in the context of human aging, considering the pharmacokinetic and pharmacodynamic changes resulting from senescence, as well as the effects of polypharmacy, drug interactions, and the risks of iatrogenesis in older adults. The aim is to explore how pharmacosenescence, an area that investigates the influence of aging on drug response, can serve as a basis for developing safer prescribing strategies and encouraging rational drug use. **Methods:** This work consists of a qualitative bibliographical study, based on an integrative literature review. Data collection was conducted using databases such as PubMed, SciELO, LILACS, and BVS. The descriptors used in the search included the terms: elderly, medication use, polypharmacy, pharmacokinetics, pharmacodynamics, and drug safety. Articles published between 2015 and 2024 that address clinical and pharmacological aspects of geriatric therapy were included in the selection. **Results:** The analysis highlighted that most older adults continuously use five or more medications, which significantly increases the risk of drug interactions, adverse reactions, and avoidable hospitalizations. Factors such as changes in kidney and liver function, changes in body composition, and variations in drug receptor sensitivity directly impact both the efficacy and safety of treatments. To mitigate these risks, strategies such as periodic review of pharmacotherapy, adoption of criteria such as Beers and STOPP/START, health education initiatives, and the work of clinical pharmacists have shown positive results. In addition to traditional care models, the growing use of artificial intelligence-based tools has emerged as a promising alternative for optimizing pharmacotherapy in older adults. **Conclusion:** Conclusion: Pharmacosenescence offers a critical perspective tailored to the demands of an aging population. To address therapeutic challenges in older adults, it is essential to adopt an evidence-based, interdisciplinary clinical practice tailored to the specific needs of older adults. Medication care at this stage of life should focus on safety, functionality, and improving quality of life, going beyond mere prescriptions. The incorporation of artificial intelligence-supported technologies into the pharmaceutical field emerges as a strategic solution with great potential to increase safety and promote autonomy among older adults in managing their treatments. **Implications:** The results highlight the importance of implementing public policies that incorporate pharmaceutical care as an essential part of ongoing care strategies for older adults. These initiatives should promote the rational use of medications, encourage the application of digital tools based on artificial intelligence, and invest in the training of professionals specialized in clinical and pharmaceutical gerontology. **Descriptors:** pharmacosenescence; polypharmacy; older

## MEDICATION PRESCRIPTION PROFILE AMONG ELDERLY PEOPLE AT A PSYCHOSOCIAL CARE CENTER FOR ALCOHOL AND DRUG USE IN THE FEDERAL DISTRICT

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### Abstract

**Background:** The abusive use of Alcohol and other Drugs (AD) among the elderly has increased in recent years, along with the demand for healthcare services, becoming an emerging public health challenge for the SUS. This situation is influenced by multiple biological, functional, and psychosocial changes, as well as a high prevalence of polypharmacy and the consequent risk of iatrogenesis associated with the ageing process. **Purpose:** To analyze the sociodemographic profile and prescribed medications of elderly individuals who are or were using AD and receiving care at a CAPS-AD III in the Federal District. **Methods:** Observational, cross-sectional, descriptive, retrospective study. Sociodemographic and clinical data, as well as drug prescription information from the last consultation in 2023, were extracted from active medical records. Data collection occurred between March and September 2023. Descriptive statistics were used, with categorical variables presented as absolute and/or relative frequencies, and numerical data as means  $\pm$  standard deviation. The analysis of Potentially Inappropriate Medications (PIM) for the elderly was based on the 2023 Beers Criteria. **Results:** The sample consisted of 80 elderly individuals, mostly men (83.75%), with a mean age of  $64 \pm 4.46$  years. Most had a low level of education (46.25%), were married (43.75%), and lived with a relative (62.5%). The primary reason for seeking care was alcohol abuse (93.75%), with 42.5% arriving by spontaneous demand. The average number of medications per prescription was  $2.87 \pm 1.64$ , with naltrexone (17.4%) prescribed in 39 medical records. A total of 46 patients used three or more medications, 11 of which were polypharmacy patients. Among the 19 most frequently prescribed drugs, 11 were considered PIM, representing 72 (32.14%) of the total drugs prescribed, with diazepam ( $n=21$ ; 9.3%) and carbamazepine ( $n=14$ ; 6.4%) being the most common. The main reported symptoms were irritability and depressed mood ( $n=30$ ; 37.5%), followed by tremors and sleep disturbances ( $n=24$ ; 30%). No specific pharmaceutical care was documented in the medical records. Several data fields were incomplete or missing, including information on comorbidities ( $n=27$ ; missing:  $n=40$ ), suicidal ideation ( $n=20$ ; missing:  $n=26$ ), and prior medication use ( $n=35$ ; missing:  $n=33$ ). **Conclusion:** These findings underscore the complexity of treating substance use disorders in the elderly, particularly considering the frequent use of PIM. The absence of documented pharmaceutical care reveals a gap in comprehensive treatment, potentially increasing the risk of iatrogenic events such as polypharmacy. Longitudinal studies investigating the relationship between PIM and adverse outcomes should be prioritized to better understand their impact on this vulnerable population. **Implications:** These results highlight the need to adapt specific care protocols and workflows within SUS for elderly individuals in substance use treatment. The findings support decision-making regarding the inclusion of complete multidisciplinary teams and the need for ongoing evaluation of recurrent PIM use.

**Descriptors:** Substance Use Disorders, Mental Health Services, Drug Prescriptions, Elderly, Potentially Inappropriate Medications for the Elderly.

## PUBLIC POLICIES ON DIGITAL LITERACY FOR OLDER ADULTS: ACTION OF THE FEDERAL GOVERNMENT AND SUBNATIONAL ENTITIES

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### Abstract

**Background:** Population aging and digital transformation are social phenomena that are rapidly, continuously, and increasingly changing socioeconomic structures. Data from the 2022 Demographic Census reflect the aging of the Brazilian population: older adults already represent 15.8% of the total population. Indeed, the accelerated digitization of goods and services requires the digital inclusion of older people, who face greater difficulties interacting in digital environments. This group's lack of familiarity with the use of information and communication technologies (ICT) greatly compromises their ability to exercise citizenship on an equal footing with other people.

**Purpose:** The research aimed to investigate the actions of public entities in the three spheres of government to promote digital literacy among older adults from 2015 to 2024. In addition, it sought to identify federal, state, and municipal regulations that address the issue of digital inclusion and digital literacy among older adults. **Methods:** The research has a quantitative-qualitative approach, descriptive in nature, based on the inductive method. We mapped the legislation on digital inclusion and the actions or public policies for digital literacy for older adults developed by the federal government, state governments, and the 27 capitals of Brazilian states. The data were collected through requests sent to government agencies. We then categorized the responses and analyzed the content of the findings. **Results:** The results point to significant gaps in the institutionalization and monitoring of specific policies for the digital literacy of the elderly population. The responses to the questionnaires sent to public entities have been predominantly generic, without details on specific programs or mechanisms for evaluating and monitoring the actions implemented. In addition, it was found that less than one-third of Brazilian states have specific legislation on the subject. National legislation related to digital inclusion also makes little mention of the elderly as a priority audience. **Conclusion:** These findings indicate the need to strengthen public policies for the digital inclusion of older adults, a crucial aspect in a country that is rapidly aging and expanding digital access to citizenship rights. In addition, there is an urgent need for greater standardization and institutionalization of initiatives aimed at digital literacy for older adults, so that they occur in a continuous and progressive manner and meet the interests, specificities, and needs of this growing population group.

**Descriptors:** digital literacy, older adults, citizenship,

## THE INFLUENCE OF HYPERTENSION ON THE FUNCTIONAL CLINICAL CAPACITY OF ELDERLY PATIENTS IN AMAZONAS.

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### Abstract

**Background:** Systemic Arterial Hypertension (SAH) can be understood as a non-communicable chronic disease (NCD), characterized by an increase in the force exerted by the blood on the walls of the arteries. It is considered worldwide as one of the main risk factors for morbidity and mortality. In aging, processes such as the decrease in vascular elasticity, leading to arterial stiffness, can result in an increase in systemic blood pressure. Considering the projections about the increase in life expectancy, the number of elderly people with SAH draws attention, making discussions about public policies and strategies that aim to provide quality of life and autonomy for the elderly essential, ensuring comprehensive and functional care to strengthen and empower them for healthy and active aging. **Purpose:** To evaluate the prevalence of Systemic Arterial Hypertension and its impacts on the functional vulnerability of elderly residents of Manaus-AM. **Methods:** This is a cross-sectional population-based study conducted with 339 elderly individuals aged 60 years or older. The sample was selected by non-probabilistic convenience sampling, consisting of elderly individuals residing in Amazonas who met the study criteria. The analysis was carried out in two main blocks (sociodemographic characteristics and current health status). **Results:** A prevalence of 56.64% (n=192) of people with SAH was identified, with 28.6% being men and 71.4% women. The majority were mixed-race (76%), with 12% white and followed by black (8.3%). Of the 192 medical records evaluated, 49.00% presented some risk of functional vulnerability, with inversely proportional correlations identified between DBP ( $r=-0.162$ ;  $p=0.030$ ) and SBP ( $r=-0.164$ ;  $p=0.029$ ), and with moderate influence on ADLs ( $r=-0.526$ ;  $p=0.001$ ). **Conclusion:** SAH is a disease that directly influences the independence and autonomy of the elderly, making it difficult to perform daily tasks. **Implications:** The study highlights the relevance of public policies and innovative strategies to mitigate the impacts of systemic arterial hypertension on the functional vulnerability of the elderly, promoting autonomy and quality of life for healthy and active aging.

**Descriptors:** Hypertension; Elderly; Healthy Aging; Autonomy; Quality of Life.