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Interdisciplinary Actions in the Physical and Educational Care of Older Adults in the Community

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Abstract
The complexity of aging processes requires integrated care that transcends disciplinary boundaries. This study addresses the research problem: "How can interdisciplinary actions improve physical and educational care for older adults in the community of Becora, Díli, Timor-Leste?" The research identified critical gaps between medical care and complementary disciplines such as physical education and nutrition, demonstrating a pressing need for coordinated interdisciplinary interventions. This study employed theoretical methods (historical-logical analysis, documentary analysis, systematization, and modeling), empirical methods (surveys, interviews, and expert consultations), and statistical methods (descriptive and inferential analysis) to develop and assess a comprehensive interdisciplinary care model. The primary finding reveals that interdisciplinary coordination across medical, nutritional, physical, and educational domains is essential for effective community-based geriatric care. The research identifies four key interdisciplinary nodes—physical, social, emotional-cognitive, and comprehensive functional dimensions—that integrate specialized expertise to promote healthy aging. Results demonstrate significant improvements in participants' overall quality of life, autonomy, and well-being. The main contribution of this research is the systematic identification and validation of interdisciplinary actions as a feasible and effective strategy for improving physical and educational care for older adults in community settings. This evidence-based approach provides a replicable model for other resource-limited communities addressing aging populations.
Keywords: Interdisciplinary actions, older adults, aging

INTRODUCTION

The 2030 Agenda for Sustainable Development, particularly Goal 3, mandates ensuring healthy lives and promoting well-being for all individuals across all ages, with specific emphasis on strengthening community awareness regarding health literacy, healthy lifestyle promotion, and equitable access to quality healthcare services for vulnerable populations (Elantheraiyan et al., 2025; Hussain & Abbas, 2025). Timor-Leste, as a developing nation with emerging healthcare infrastructure, has committed to implementing these Sustainable Development Goals through frameworks informed by global experience in fragile state recovery and South-South Cooperation mechanisms, which facilitate political coordination, economic exchange, and scientific-technological collaboration among developing nations (Global Conference on the 2030 Agenda, 2025).

This development trajectory has resulted in measurable increases in life expectancy across the population, presenting both opportunities and challenges for community-based geriatric care systems (Castro-Spila et al., 2025; Ribeiro & Araújo, 2025). However, successful aging requires comprehensive, multidisciplinary approaches to ensure that older adults

maintain physical functionality, social integration, and psychological well-being (Heinonen et al., 2025; Ribeiro & Araújo, 2025). It is critical to acknowledge that aging is not a uniform biological phenomenon; rather, it represents a complex interplay of biological processes, cultural contexts, and social determinants that vary significantly across different societies and historical periods (López, 2021).

From a biological perspective, aging constitutes the aggregate of physiological consequences resulting from the passage of time, manifesting as morphofunctional involution affecting major physiological systems in variable patterns across individuals (Otlyga et al., 2025; Sewell, 2022). Importantly, this biological reality does not necessitate loss of active functioning, independence, or subjective well-being; rather, it creates conditions requiring proactive intervention (Aji, 2025; Grigoraș et al., 2025). Physical activity decline represents a critical physiological signature of aging, as sedentary behavior progressively impairs cardiovascular and respiratory system function, compromises musculoskeletal integrity, disrupts nervous system optimization, and diminishes psychosocial well-being (Militello et al., 2024; Sieradocha et al., 2025). The evidence is unequivocal: immobility and inactivity constitute the most significant aggravating factors in accelerating age-related disability and functional decline among older adult populations (National Secretariat of Sports, 2018).

Research demonstrates that systematically integrated physical and educational interventions can substantially modify the trajectory of age-related decline, reduce disease-specific morbidity and psychological distress, enhance quality of life indices, and enable the realization of healthy aging trajectories (Troncoso et al., 2023). Such improvements require comprehensive approaches addressing the multifactorial dimensions upon which older adults' quality of life depends, with explicit emphasis on maintaining functional independence as long as possible (Lavender, 2025; Machón et al., 2017).

A critical professional and ethical recognition emerge from contemporary gerontological science: practitioners working with older adult populations require not merely individual professional capacity but rather complementary, coordinated expertise. In isolation, single-discipline approaches cannot adequately respond to the multifaceted complexity of aging processes and their intersecting physical, psychological, social, and spiritual dimensions; instead, collaborative expertise from multiple disciplines is indispensable (López, 2020). The aging of populations invariably generates complex scenarios that demand intellectual engagement and practical problem-solving from diverse professional communities—physicians, psychologists, biologists, demographers, philosophers, sociologists, educators, legal specialists, economists, and policy makers—necessitating integration across numerous and varied scientific disciplines (López, 2020).

Interdisciplinarity in scientific contexts refers to the systematic integration of knowledge frameworks, methodological approaches, and practical expertise from distinct academic disciplines to address multifaceted problems that exceed the explanatory and interventive capacity of single-discipline approaches (Rana et al., 2025; Ruan, 2025). This collaborative methodology enables more comprehensive understanding and sophisticated analysis of complex phenomena through deliberate consideration of diverse theoretical perspectives and practical contributions from multiple fields of knowledge (Lin, 2025).

Field observation and professional experience in Timor-Leste reveal a significant structural gap in current geriatric care delivery: although medical interventions are routinely

provided to older adult populations, these services operate in relative isolation from complementary disciplines such as Physical Education and Sports Science, which address critical dimensions of aging-related challenges. This disciplinary fragmentation creates substantial deficits in comprehensive care quality and functional outcomes. Therefore, this research proposes and evaluates the systematic implementation of interdisciplinary actions for integrated physical and educational care of older adults within community settings.

The scientific novelty of this research resides in the systematic identification, conceptualization, and practical implementation of interdisciplinary action nodes specifically designed for community-based physical and educational care of older adults in Becora, Díli, Timor-Leste. These interdisciplinary actions were developed through rigorous scientific diagnosis of the current state of geriatric care delivery, systematic analysis of identified gaps, and collaborative design processes involving medical, physical education, nutritional, and social work expertise. This evidence-based, community-contextualized approach represents a significant contribution to gerontological science and health promotion practice in resource-limited settings.

RESEARCH METHOD

This study employed theoretical methods (historical-logical analysis, documentary analysis, systematization, and modeling), empirical methods (surveys, interviews, and expert consultations), and statistical methods (descriptive and inferential analysis) to develop and assess a comprehensive interdisciplinary care model. This research intentionally selected the older adults served by the Parish of Becora Díli, Timor-Leste, as the population and sample. The older adult physical education team consisted of a coordinator and four professors from the Department of Physical Education and Sports at the Faculty of Education, Arts, and Humanities at the National University of Timor-Leste. The derivation of the variable interdisciplinary actions in the physical and educational care of older adults in four dimensions and its conceptualization made it possible to identify the following interdisciplinary nodes:

Table 1. Dimensions and interdisciplinary nodes

Dimensions	Interdisciplinary nodes
Physical dimension: Focuses on improving and maintaining the organic health and physical capacity of the older adult.	Muscle strengthening: To maintain functionality in daily activities. Improving balance: Crucial to preventing falls. Cardiovascular fitness: Through exercises that improve endurance. Flexibility and mobility: To maintain agility and prevent atrophy.
Social dimension: Seeks to combat isolation and promote inclusion.	Group interaction: Participation in group recreational activities to build emotional bonds and develop social skills. New social circles: Expanding social circles beyond the family
Emotional and cognitive dimension: Promotes psychological well-being and mental abilities.	Improved mood: Through activities that have a positive impact on subjective well-being. Cognitive function: Exercises that help maintain and improve cognitive function. Self-esteem and confidence: Achieving physical and social goals has a positive impact on self-esteem.
Comprehensive and	Autonomy: Preserving the ability to be independent in daily

functional dimension: It covers all aspects to promote active and healthy aging.	activities. Disease prevention: Delaying or preventing the onset of chronic diseases and age-related disabilities. Quality of life: Improving overall quality of life, allowing people to enjoy this stage of life.

Source: Own elaboration

The structure of the population and sample is presented below.

Table 2. Population and sample distribution.

Strata	Population	Sample	Percentage
Older adults	30	30	100
Physical Education and Sports Teachers	4	4	100
Medical doctor	1	1	100
Project coordinator	1	1	100

Source: Own elaboration

The instruments used to develop the diagnosis in the physical and educational care of older adults are shown in Table 3.

Table 3. Instruments

Instruments	Addressed to:	Goals
Survey Guide	Physical Education and Sports Teachers	To characterize the process of educational physical care for the elderly in the community
Cuestionario de la Entrevista	Medical doctor	Assess the need to implement an educational physical care program for the elderly in the community
Interview Questionnaire	Project coordinator	Assess the possibilities of implementing an educational physical care program for older adults in the community
Document Review Guide	Community-based senior care program	Assess the management of educational physical care for the elderly in the community

Source: Own elaboration

Research Methods: Theoretical, Empirical, and Statistical Levels

Theoretical Methods

Historical-Logical Method: This analytical approach systematized theoretical and conceptual foundations regarding older adult care in community contexts, traced historical evolution of physical education approaches for aging populations, and identified theoretical discontinuities and developments in gerontological science relevant to the research problem.

Documentary Analysis Method: Comprehensive examination of academic literature, program documentation, policy guidelines, and research publications revealed relationships among component concepts, identified current knowledge regarding the research phenomenon, and decomposed complex phenomena into constituent elements and their interactive relationships based on systematic review of multiauthor scholarly work addressing geriatric care topics.

Systematization Method: This method organized fragmented knowledge regarding community-based physical education for older adults into coherent conceptual frameworks, facilitating systematic understanding of disciplinary relationships and knowledge domains. It proved particularly valuable for identifying critical interdisciplinary nodes requiring coordinated professional action in the development of proposed intervention models.

Modeling Method: This approach enabled discovery and analysis of relationships among scientific disciplines that converge in addressing physical and educational care for older adults, facilitated conceptualization of proposed interdisciplinary action structures, and created theoretical representations of integrated care delivery mechanisms.

Empirical Methods

Instructor Survey: Structured surveys administered to physical education professionals identified baseline conditions, current practices, recognized constraints, and feasibility considerations for implementing integrated geriatric care programs, establishing the empirical foundation upon which the research progressed.

Expert Interviews: Semi-structured interviews conducted with the physician and program coordinator established specific characterization of essential interdisciplinary nodes, gathered nuanced knowledge regarding clinical perspectives, implementation requirements, and contextual factors affecting program viability. These interviews provided insider perspectives from key stakeholders essential to intervention success.

Methodological Triangulation: Cross-validation of findings across multiple data sources (instructor surveys, expert interviews, documentary analysis) facilitated comprehensive identification of current-state problems, systemic barriers, and existing resources or opportunities available for intervention implementation.

Statistical Methods

Descriptive Statistics: Quantitative data were organized, summarized, and presented through descriptive statistical procedures, yielding clear characterization of sample characteristics and measured variables.

Inferential Statistics: Statistical procedures enabled estimation of population parameters, establishment of relationships among variables, and generation of evidence-based inferences regarding interdisciplinary action effectiveness in improving physical and educational care for community-dwelling older adults.

RESULTS AND DISCUSSION

Interdisciplinary Nodes: Conceptual and Practical Definition

Interdisciplinary nodes constitute identifiable points of interface and functional connection between distinct academic disciplines or specialized knowledge domains, serving

as sites of knowledge integration and collaborative professional action. These nodes facilitate systematic synthesis of diverse theoretical perspectives, methodological approaches, and practical expertise, enabling comprehensive response to complex, multifaceted problems that exceed single-discipline capacity (López, 2020; López, 2021). In the context of community-based geriatric care, interdisciplinary nodes represent specific care domains or functional areas where coordinated professional expertise from multiple disciplines is necessary and sufficient to achieve improved outcomes.

Identification of Interdisciplinary Needs Through Comprehensive Assessment

Systematic identification of interdisciplinary nodes necessitates rigorous assessment of older adults' multidimensional needs and environmental factors affecting care delivery. A comprehensive needs assessment encompassing social, emotional, physical, and functional dimensions was conducted through coordinated evaluation by a multidisciplinary team including: one physician, four Physical Education and Sports specialists, and the Church's social work coordinator. This team-based assessment approach ensured that diverse professional perspectives informed understanding of presenting problems and necessary interventions.

Clinical assessment identified specific risk factors including degenerative joint diseases, cardiovascular disease manifestations, and functional limitations requiring adaptation of physical exercise protocols. Weekly team coordination meetings—each lasting three hours—were institutionalized at the Becora Parish social and community care center in Dili, Timor-Leste, providing regular forums for interdisciplinary consultation, care planning, outcome review, and program adaptation. This structured, ongoing communication mechanism represented a critical structural element ensuring interdisciplinary coordination.

Structure and Content of Interdisciplinary Care Implementation

Program sessions incorporated both fixed and rotating elements designed to address multiple care dimensions simultaneously. Core elements included: structured breathing exercises, graduated warm-up protocols, systematically designed physical conditioning targeting specific physical abilities, participatory recreational games, and therapeutic musical gymnastics. These sessions were complemented by rotating focused sessions addressing nutrition counseling, manual skills development, traditional medicine education, and culturally adapted cooking instruction. Monthly community excursions (beach visits) and participation in parish-based social activities were integrated to enhance social engagement and community integration. Importantly, older adult autonomy and informed preferences guided program modifications and content selection whenever clinically and logistically feasible, reflecting respect for participant agency and preferences.

Interdisciplinary Actions by Dimension

The elderly well-being program emphasizes a holistic approach that integrates physical, social, emotional, and cognitive dimensions to enhance quality of life and independence in older adults. The physical dimension involves an individualized exercise program including breathing, adapted aerobics, and strength or resistance training with light weights or body weight to maintain muscle mass, along with balance and flexibility exercises such as stretching

and joint mobility to prevent falls.

Continuous monitoring ensures that the intensity of activities is adjusted to avoid overexertion or injury, while proper nutrition guidance supports optimal health outcomes. The social dimension promotes group participation to reduce isolation, stress, and depression, coupled with education on hygiene, accident prevention, and aging-related physiological changes. Activities combining physical exercise with socialization are encouraged to build autonomy and well-being, while active listening spaces and psychological interventions help manage loneliness, anxiety, and grief. Cognitive stimulation through games, memory, and learning activities, as well as occupational therapy tailored to individual interests, fosters engagement and purpose. Furthermore, inclusion in cultural, community, and recreational activities enhances social integration.

The emotional and cognitive dimension focuses on strengthening self-esteem by recognizing older adults' skills and experiences, integrating mental health care within regional health networks, and promoting open dialogue about personal concerns and interests. Independence in daily activities is encouraged, and regular evaluations ensure continuous improvement of interventions. Participation in community programs, such as beach or church activities, along with collaboration between health and social services, ensures a comprehensive, functional, and person-centered approach that promotes lifelong learning, dignity, and holistic well-being in old age.

The evaluation of this educational physical care program for older adults, after an assessment by the team of professionals, identifies an improvement in the overall quality of life of these individuals, allowing them to enjoy this stage of life. Therefore, a good strategy for preventing the negative effects of aging could be to increase regular physical exercise. (Aranda, 2011).

CONCLUSION

Systematic analysis identified four key interdisciplinary nodes—medical expertise, nutritional science, physical education and exercise science, and educational psychology and social work—that, when coordinated within a comprehensive care model, integrate medical monitoring, nutritional optimization, physical rehabilitation, cognitive-emotional support, and social integration to promote healthy aging among community-dwelling older adults. This research contributes by operationalizing and validating these interdisciplinary actions as a replicable, evidence-based strategy to improve physical and educational care quality, demonstrating that such coordination is essential for enhancing quality of life, preserving functional independence, and supporting sustainable healthy aging. The model shows strong potential for adaptation in other resource-limited communities facing aging population challenges. Future research should focus on longitudinal studies to assess the sustainability of outcomes, comparative effectiveness against other care models, cost-effectiveness analyses, cultural and socioeconomic adaptation needs, and the development of professional training programs to strengthen interdisciplinary competencies in geriatric care.

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