

A Scoping Review of the Literature on Ageing in Morocco : Trends, Gaps, and Future Directions

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DOI: <https://doi.org/10.51244/IJRSI.2025.120700024>

Received: 09 June 2025; Accepted: 18 June 2025; Published: 30 July 2025

ABSTRACT

Introduction: Morocco, like many low- and middle-income countries, is experiencing a significant demographic shift. By 2050, it is projected that over 10 million Moroccans will be aged 60 or older. While this ageing trend presents major implications for health systems, Morocco has yet to establish a fully developed geriatric specialty or a coordinated research strategy in ageing. This scoping review aims to synthesize available literature on the ageing population in Morocco published between 2010 and 2021, offering insights to inform future research and enhance gerontological and geriatric care. **Methods:** A scoping review was conducted in accordance with PRISMA-ScR guidelines. Literature searches were performed in Medline (via PubMed), Google Scholar, and official government websites. We included original research articles, national reports, and theses focused on older adults in Morocco, without language restrictions. Thematic analysis was used to classify findings into relevant domains. **Results:** Out of 23,029 records initially identified, 60 studies were included in the final analysis. Most publications were original research (85.0%), with a dominant focus on epidemiology. Three major themes emerged: 1) Geriatrics, primarily addressing physical health, chronic conditions, and limited coverage of mental, sexual, and spiritual health; 2) Habits and life environment, including healthcare utilization, medication adherence, and social support systems; and 3) The ageing process, highlighting demographic transitions and gender-specific vulnerabilities. **Conclusions:** Despite a growing ageing population, research on older adults in Morocco remains limited in scope and depth. This review highlights the urgent need to expand multidisciplinary research, integrate gerontology education into health training programs, and adopt a holistic approach to ageing. It provides a foundational step for shaping future policy and practice to promote healthy and dignified ageing in Morocco.

Keywords: Morocco; Older adults; Ageing; Geriatrics; Gerontology; Scoping review

INTRODUCTION

Older adults are generally defined as individuals aged 65 years and older, though in some contexts the threshold is set at 60. The “oldest-old” refers to those aged 80 years and above [1]. With age, people are more likely to experience common conditions such as hearing loss and visual impairment, along with chronic diseases like diabetes and dementia. Indeed, age is a significant risk factor for multi-morbidity [2].

To address the unique health needs of this population, the medical specialty of geriatrics was developed. Geriatric medicine focuses on the physical, mental, functional, and social conditions of older adults across acute, chronic, rehabilitative, preventive, and end-of-life care settings [3]. While not all age-related changes lead to negative clinical outcomes, the aging process is influenced by a range of determinants (biological, social, economic, and cultural) that extend beyond purely medical factors [4]. These dimensions are studied within the field of

gerontology, a multidisciplinary science encompassing biological, psychological, and social analyses of aging [5].

Globally, population aging is a growing phenomenon. According to the World Health Organization, the proportion of people aged 60 and over is projected to rise from 12% in 2015 to 22% by 2050, reaching over 2 billion individuals [6,7]. For the first time in history, the number of older adults will surpass the population of children under five [1], and the number of centenarians will continue to increase throughout the 21st century. These trends are driven primarily by declining fertility rates and improvements in life expectancy and healthcare access [8,9].

Low- and middle-income countries (LMICs) are also experiencing this demographic shift. In fact, the growth rate of the population aged 60 and over is nearly three times faster in LMICs than in high-income countries, and it is expected that by 2050, around 80% of older adults will reside in LMICs [10,11].

Morocco is no exception. The number of older adults in the country increased from 2.376 million in 2004 to approximately 3.209 million in 2014 [12,13]. In 2020, they represented 11.5% of the population, a proportion expected to reach 15.4% by 2030. Projections estimate that by 2030, Morocco will have 6 million people aged 60 and over, rising to 10 million by 2050 [8,14].

This demographic transition poses substantial challenges for Morocco, particularly given the scarcity of data and research on older adults. Geriatric care remains underdeveloped, and although geriatrics was introduced as a medical specialty in the early 2000s, it is still underrecognized. There is a pressing need to better document aging-related issues to inform public health planning and policy, as has been done in high-income countries [15,16].

Our main hypothesis is that aging in the Moroccan context remains insufficiently explored, as evidenced by the scarcity of both scientific and grey literature. This scoping review aims to synthesize available literature on the ageing population in Morocco published between 2010 and 2021, a period marked by increasing demographic shifts and policy attention, offering insights to inform future research and enhance gerontological and geriatric care.

METHODS

Study design

We conducted a scoping review in accordance with the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews) guidelines [17]. The protocol was registered on the Open Science Framework (OSF) platform [18]. A qualitative thematic analysis was used to synthesize the data.

Population and eligibility criteria

The target population was individuals aged 60 years and older living in Morocco. Studies were included based on the following criteria:

All types of studies published in peer-reviewed journals indexed in Medline and Google Scholar, focusing on older adults in Morocco;

Reports and records from official Moroccan government websites identified via Google Search (grey literature);

Documents published between 2010 and 2021;

No language restrictions.

Information sources

We searched Medline and Google Scholar for peer-reviewed publications. Additionally, we used Google Search to identify relevant grey literature, including government reports and official documents, assuming that not all important data are available in academic journals.

Search strategy

The main keywords were: “aged,” “geriatrics,” “health services for the elderly,” and “Morocco.” Search strategies included:

PubMed:

((((((("aged"[MH] OR ("aged"[TW] OR "oldest-old"[TW] OR "frailty"[TW] OR "ageing"[TW] OR "elderly"[TW]))) OR (((("geriatrics"[MH] OR ("gerontological"[TW] OR "geriatrics"[TW] OR "gerontology / geriatrics"[TW] OR "gerontology"[TW])))) OR (((("health services for the aged"[MH] OR ("service, geriatric health"[TW] OR "health services for the elderly"[TW] OR "health service, geriatric"[TW] OR "geriatric health services"[TW] OR "health services for aged

Google Scholar:

Morocco AND (Geriatric OR elderly OR aged)

Selection of records

Screening was conducted in two phases by two independent reviewers. First, titles and abstracts were reviewed to identify potentially eligible records. In the second phase, full-text articles were assessed based on inclusion criteria. Any disagreements were resolved through discussion and consensus.

Data charting process

A standardized data extraction form was developed in Microsoft Excel. Extracted variables included: title, country, publication type, publication year, population characteristics, health condition or service focus, and main findings. A separate section documented excluded records and reasons for exclusion. Data extraction was performed independently by two reviewers and reconciled by consensus.

Thematic analysis

We applied a qualitative content analysis approach, following five steps:

Initial Data Organization:

The dataset was cleaned and filtered to identify duplicates and characterize included studies (e.g., publication year, discipline, and key findings).

Development of a Thematic Grid:

A thematic framework was constructed during the data extraction process based on emerging patterns. The grid was refined and validated by all authors.

Thematic Classification:

Each study was categorized under one of four main themes:

The aging process Habits and living environments of older adults Geriatric care Health policies for older adults

Data Coding and Manual Analysis:

Two reviewers independently coded the studies into the thematic grid. Themes were reviewed and finalized through consensus.

Synthesis of Results:

Coded data were synthesized within each theme to identify trends, gaps, and key insights.

RESULTS

Description of the search

A total of 23029 records were identified through Google Scholar, PubMed as well as Governmental websites and organisations. After title and abstract screening, 101 records underwent full-text examination.

Ultimately, 60 records were included in this review [19–78] (Figure 1).

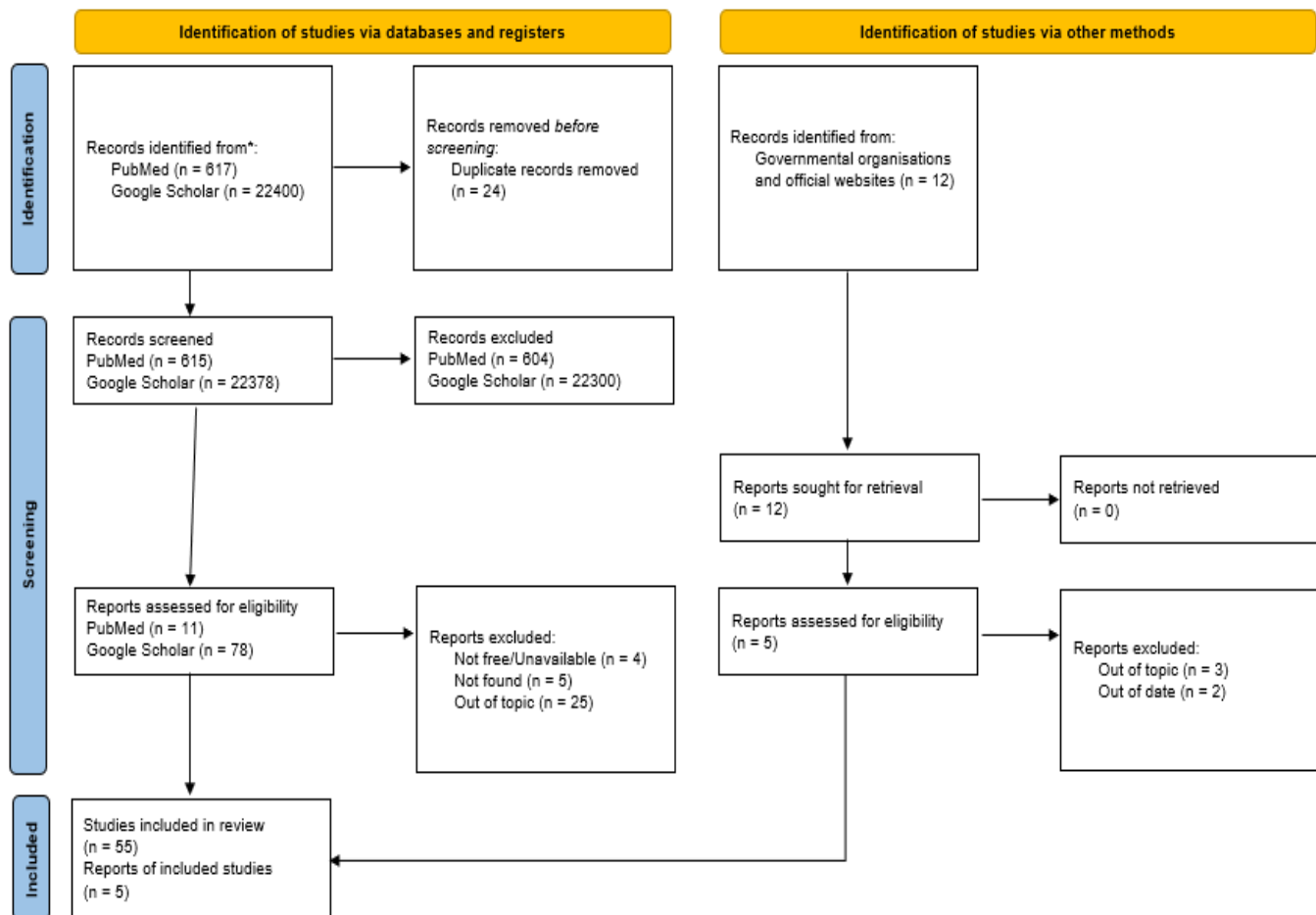


Figure 1: Search description using the PRISMA 2020 flow diagram

Characteristics of the records

Among the 60 records included in the review, a significant majority (85.0%) were original research articles, indicating a strong emphasis on the generation of new empirical data in the field. The studies spanned eight distinct scientific disciplines, with epidemiology emerging as the most dominant, featured in 70.0% of the publications.

In addition to epidemiology, several other academic disciplines were represented, including the human and social sciences, biology, economics, and international studies.

Most of the first authors (80.0%) were affiliated with institutions based in Morocco. Furthermore, there has been a clear upward trend in the number of publications focusing on older adults in Morocco over the past decade (Table 1).

Table 1: Characteristics of the records included in the review

Characteristics		Records (n=60)	
		Effective (n)	Percentage (%)
Types of record	Original articles	51	85.00
	Reports	5	8.30
	Theses	4	6.60
Main scientific fields	Epidemiology	42	70.00
	Demography	5	8.3
	Economics	4	6.7
	Sociology	4	6.7
	Biology	2	5.00
	Anthropology	1	1.7
	International Relation	1	1.7
	Psychology	1	1.7
Country of the first author	Morocco	48	80.00
	France	7	11.7
	United Kingdom	2	3.33
	Lebanon	2	3.33
	Switzerland	1	1.7
Years of publication	2010-2012	6	10.0
	2013-2015	14	23.3
	2016-2018	18	30.0
	2019-2021	21	35.0

Topics covered in the literature

The most prevalent theme identified across the literature was "Geriatrics," which appeared in 44 out of 60 records, accounting for 73.3% of the total. Within this overarching theme, the most frequently explored subtheme was the health status of older adults, addressed in 90.9% of the geriatrics-related studies. In contrast, significantly fewer studies (15.0%) concentrated on the subtheme of geriatric education and professional practice.

In addition to geriatrics, several other prominent themes emerged. These included the habits and living environments of older adults, discussed in 33.3% of the records.

The ageing process itself was examined in 28.3% of the studies.

Lastly, health policies targeting the older adults were addressed in 16.7% of the publications (Table 2).

Table 2: Relevant topics on older adults in Morocco found in the literature.

Topics		Records (n=60)	
		Effective (n)	Percentage (%)
Ageing process		17	28.3
	Epidemiological transition	16	94.1
	Female ageing	5	29.4
	Social inequities	4	23.5
Habits		20	33.3
	Physical activity	2	10.0
	Nutrition	3	15.0
	Medical adherence, consumption, access	13	65.9
	Economy	2	10.0
Life environments	Social, culture, education	3	15.0
		8	13.3
	Area (rural/urban)	6	75.0

	Family structure, dynamic, solidarity	3	37.5
	Residency quality	1	12.5
	Residency in homes for seniors	1	12.5
Geriatrics		44	73.3
Health status of older adults		40	90.9
	Mental health	8	20.0
	Cognitive functions	4	10.0
	Sexual health	2	5.0
	Social and cultural health	8	20.0
	Physical health and mobility	33	82.5
	Spiritual health	1	2.5
Practices and education of health professionals		6	15
	Practice	4	66.7
	Education	2	33.3
Health policies		10	16.7
	Health insurance, retirement	9	90.0
	Laws, governmental programs	5	50.0

Synthesis of the thematic analysis

Geriatrics

This theme encompasses the physical, mental, social, spiritual, and sexual health of older adults, as well as professional education and care practices. Regarding mental health, older Moroccans often describe their quality of life as satisfactory and tend to be optimistic. However, many experience low self-esteem, depressive or anxious symptoms, and somatic expressions of psychological distress [28, 33, 42, 48, 52, 57, 59, 69, 70, 74, 75]. Functional impairments and chronic conditions contribute to dependency and negatively impact well-being.

Three primary categories were identified under physical health: infectious diseases (notably HIV and urinary tract infections), chronic diseases (e.g., cancer, diabetes, cardiovascular and kidney diseases), and age-related conditions (e.g., falls, visual and hearing impairments) [20, 22, 24, 28–37, 40, 42–46, 49, 51, 55, 56, 58, 59, 61, 62, 64–67, 69–71, 75]. Gender differences were noted in nutritional deficiencies, such as vitamin D and calcium, and in physical parameters like weight. Cognitive impairment, especially memory and concentration difficulties, was common [20, 25, 26, 67]. Physical activity and good nutrition were associated with better cognitive function and a sense of competence.

In terms of social and cultural health, older adults often prefer limited information about serious diagnoses unless explicitly interested in knowing their prognosis. This tendency may be linked to low literacy levels and cultural norms. Families frequently protect the ill by withholding information. Medication adherence was generally good when older adults received strong social support and did not suffer from multiple chronic conditions. However, social exclusion and abuse were more prevalent among older adults compared to the general population [24, 28, 52, 59, 69, 70, 77].

Sexual health was rarely addressed in the literature [24, 48], although diminished sexual function was reported as significantly impacting quality of life. Spiritual health was also underexplored [24, 52]. Most older adults are devout Muslims and interpret illness as a divine test or punishment. Religious practices, including prayer and fasting, are central but tend to decrease with deteriorating health.

Geriatric care and professional education were discussed in a limited number of records. Recommendations focused on supportive care for chronic conditions and emphasized quality of life [20, 21, 24, 29, 30, 37, 40, 42, 45, 47, 51, 54, 55, 66, 67, 72, 74, 77]. Psychoanalytic support appeared largely absent. Morocco lacks an integrated national strategy for older adults. Geriatrics has only been recognized as a specialty since 2005, resulting in limited human resources and few trained geriatricians [21, 31, 39, 53, 54, 57, 67].

Ageing process

Morocco is undergoing a demographic transition marked by increased life expectancy and reduced fertility rates. Life expectancy rose from 42.9 years in 1950 to 77.6 years in 2015 [21, 36, 38, 41, 56, 57, 69, 70, 76]. By 2050, one in four Moroccans is expected to be aged 60 or older. Women outnumber men among older adults, but they also face greater economic vulnerability, barriers to accessing care, and lack of social protection [24, 28, 34, 35, 37, 48, 50, 57, 58, 70, 76, 78]. These challenges are exacerbated in rural areas. Women are also more prone to chronic diseases, psychosocial isolation, and perceive ageing more negatively [38, 44, 50, 69, 70, 78].

Habits and life environment of older adults

Ageing in Morocco is associated with declining health, increased care needs, and socioeconomic vulnerability. Low educational levels, lack of health coverage, and economic hardship often lead to care renunciation. Traditional medicine and self-medication are commonly used, sometimes inappropriately [19, 22–26, 34, 35, 37, 50, 52, 56, 57, 59, 62–64, 67–70, 73].

Physical and leisure activity levels were low. Older adults—particularly women—mainly engaged in household chores and prayer rather than outdoor exercise. Family remains the cornerstone of care, but modern life challenges and female employment strain traditional caregiving roles [21]. Some older adults live in social institutions, which are not specifically adapted to their needs and often serve broader vulnerable populations [27, 35, 44, 50, 53, 56, 60, 68–70, 76, 78].

Health policies for older adults

Several national initiatives aim to promote intergenerational solidarity and older adult welfare, including the creation of the National Observatory for Older Adults [38]. However, Morocco's retirement and health coverage systems remain underdeveloped, limiting access to care. Chronic diseases impose a heavy financial burden on health insurance schemes [19, 22, 57, 59, 69, 70, 76, 78].

There is a pressing need for laws that specifically address older adults' rights and for policies to reduce discrimination and improve living conditions. Key policy areas include strengthening family care, expanding research on older adults, and improving geriatric training for health professionals [21, 31, 36, 38, 39, 52, 53, 57, 67] (Figure 2).

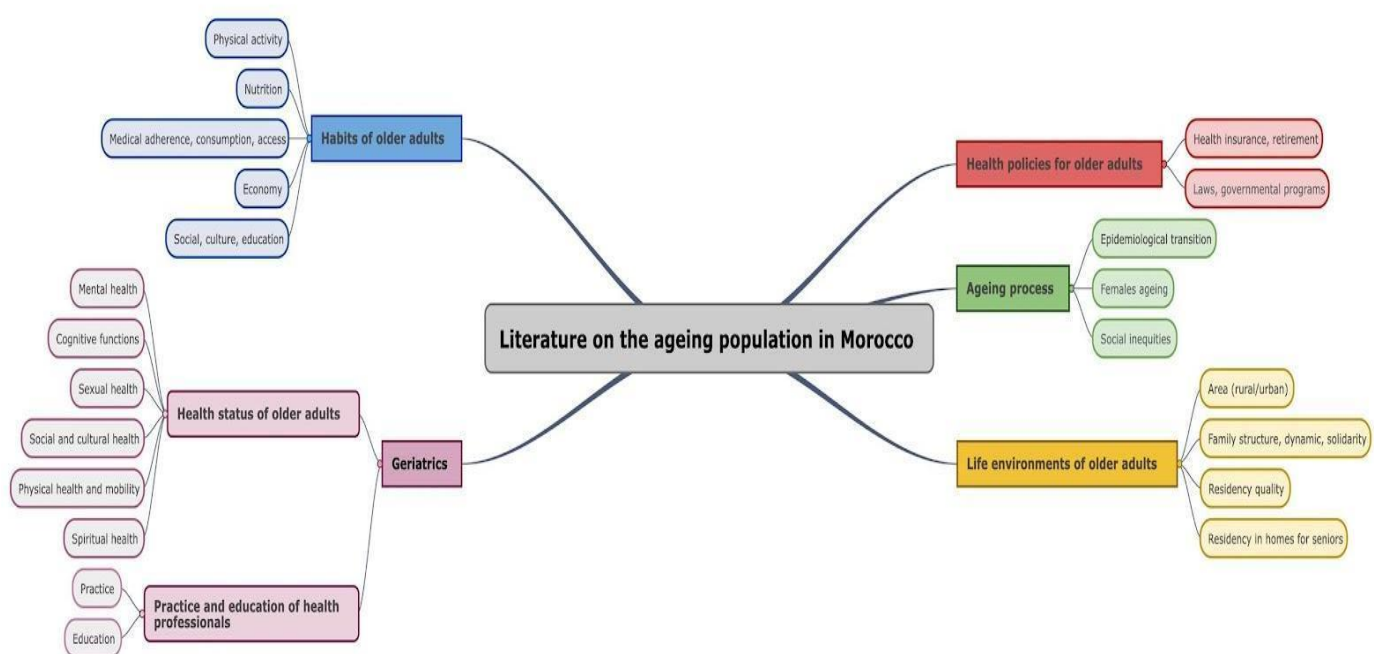


Figure 2: Mapping of research domains found in the literature on the ageing population in Morocco

DISCUSSION

The primary objective of this scoping review was to synthesize available literature on the ageing population in Morocco between 2010 and 2021, in order to inform future research, clinical practice, and policy initiatives in geriatrics and gerontology.

Main findings

We identified 60 studies, most of which were original research articles with a strong representation from epidemiology. The literature addressed three overarching thematic areas:

Geriatrics, which focused largely on the physical health of older adults—including chronic diseases, cognitive decline, sensory impairments, and mobility issues—as well as aspects of mental, social, spiritual, and sexual health, and the limited development of professional geriatric education and care models.

Habits and life environments, highlighting challenges related to socioeconomic vulnerability, healthcare access, the use of traditional medicine, low physical activity, and the evolving role of the family in caregiving.

Ageing process, reflecting demographic trends, gender inequalities, and disparities in health outcomes, particularly in rural settings. Women were found to be especially disadvantaged due to higher rates of poverty, chronic illness, and limited access to care.

These findings demonstrate both the growing academic interest in older adults in Morocco and the fragmentation of the field, with important gaps in interdisciplinary, integrative, and gender-sensitive approaches.

PERSPECTIVES AND RECOMMENDATIONS

Based on this synthesis, we propose three key recommendations to guide future research and health system development in Morocco:

Expand gerontology education and training

Although geriatrics has been officially recognized as a medical specialty in Morocco since 2005, there remains a critical shortage of trained professionals in the field [21, 31, 39, 53, 54, 57, 67]. Integrating gerontology and geriatrics into the curricula of nurses, general practitioners, social workers, and other health professionals is essential for strengthening workforce capacity [79, 80]. This would also facilitate better translation of research into clinical practice and improve multidisciplinary collaboration in older adult care.

Develop research on geriatric syndromes

Current Moroccan studies tend to address individual chronic conditions (e.g., diabetes, hypertension, cognitive decline), but rarely adopt the integrative framework of geriatric syndromes defined as multifactorial conditions such as frailty, falls, and incontinence, which arise from the interplay of multiple deficits across physiological systems [81]. Emphasizing this concept in future research would support more effective screening, diagnosis, and intervention tailored to older adults' complex needs [82, 83].

Promote interdisciplinary and context-sensitive research

Ageing is not only a biological process, but also a deeply social, cultural, and economic phenomenon. As such, research must draw on diverse fields such as epidemiology, public health, sociology, psychology, and economics to inform person-centered and contextually relevant care strategies [5, 84, 85]. This approach aligns with the World Health Organization's call for integrated, community-based primary care that responds holistically to older adults' needs. In the Moroccan context, such a model could help reduce health disparities and enhance quality of life for the ageing population [12].

STRENGTHS AND LIMITATIONS

This review has some limitations. Chiefly, we did not conduct a formal critical appraisal of the included studies, and therefore cannot assess their methodological quality or potential biases. This limits the strength of the conclusions drawn from individual studies.

Nonetheless, this is, to our knowledge, the first scoping review focused on the ageing population in Morocco. It provides a broad and interdisciplinary overview of research trends, covering peer-reviewed and grey literature from multiple scientific fields. The review highlights both the progress made and the areas needing attention to strengthen ageing research and health systems. By identifying underexplored topics and proposing future directions, this work contributes to the development of more inclusive and evidence-based policies for older adults in Morocco.

CONCLUSIONS

This scoping review highlights the limited and fragmented nature of research on the ageing population in Morocco. Addressing the needs of older adults requires a substantial investment in multidisciplinary research that reflects the biological, psychological, social, and cultural dimensions of ageing. Strengthening the evidence base will be essential to developing person-centered geriatric care and informing health policy reforms. This study represents a foundational step toward advancing gerontology and geriatrics in Morocco and fostering ageing with dignity.

Ethical Considerations

Ethical Approval: As this study did not involve human participants or primary data collection, ethical approval was not required.

Conflict of Interest: The authors declare that there are no conflicts of interest related to this research and its publication.

Data Availability

The data collected and analyzed during this study are not publicly available due to privacy and confidentiality restrictions but are available from the corresponding author on reasonable request.

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REFERENCES

1. Abdi, J., Al-Hindawi, A., Ng, T., & Vizcaychipi, M. P. (2019). Scoping review on the use of socially assistive robot technology in elderly care. *BMJ Open*, 9(2), e018815. <https://doi.org/10.1136/bmjopen-2017-018815>
2. Aboderin, I., & Beard, J. R. (2015). Older people's health in sub-Saharan Africa. *The Lancet*, 385(9968), e9–e11. [https://doi.org/10.1016/S0140-6736\(15\)60576-4](https://doi.org/10.1016/S0140-6736(15)60576-4)
3. Agogo, G. O., & Rispel, L. C. (2021). Implementing the WHO Integrated Care for Older People (ICOPE) approach in sub-Saharan Africa: A scoping review and research agenda. *International Journal of Environmental Research and Public Health*, 18(16), 8572. <https://doi.org/10.3390/ijerph18168572>
4. Al-Jumaily, A., Olugbade, T. A., & Pino, M. (2022). Ageing and technology: A systematic review. *Journal of Gerontechnology*, 21(1), 1–15. <https://doi.org/10.4017/gt.2022.21.1.481.00>
5. Alvarez-Nieto, C., et al. (2022). Implementation of healthy aging programs: A systematic review. *International Journal of Environmental Research and Public Health*, 19(3), 1782. <https://doi.org/10.3390/ijerph19031782>

6. Andrade, C. R., et al. (2022). Implementation of the WHO ICOPE approach in Brazil: Challenges and opportunities. *Frontiers in Public Health*, 10, 811452. <https://doi.org/10.3389/fpubh.2022.811452>
7. Apóstolo, J., et al. (2019). Implementation of the WHO ICOPE approach: A scoping review. *Journal of Clinical Medicine*, 8(7), 1124. <https://doi.org/10.3390/jcm8071124>
8. Beard, J. R., Officer, A., de Carvalho, I. A., Sadana, R., Pot, A. M., Michel, J.-P., ... & Chatterji, S. (2016). The World report on ageing and health: A policy framework for healthy ageing. *The Lancet*, 387(10033), 2145–2154. [https://doi.org/10.1016/S0140-6736\(15\)00516-4](https://doi.org/10.1016/S0140-6736(15)00516-4)
9. Berens, E.-M., et al. (2021). Health literacy and health information-seeking in older adults: A scoping review. *BMC Public Health*, 21, 714. <https://doi.org/10.1186/s12889-021-10734-4>
10. Bettio, F., & Verashchagina, A. (2013). Women and men working at older ages: Gender differences in the EU. European Commission. https://ec.europa.eu/info/publications/women-and-men-working-older-ages_en
11. Bloom, D. E., et al. (2015). The global economic burden of noncommunicable diseases. World Economic Forum. https://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_201.pdf
12. Bouillon-Minois, J. B., et al. (2021). WHO ICOPE implementation in France: A pilot study. *Revue d'Épidémiologie et de Santé Publique*, 69(6), 361–368. <https://doi.org/10.1016/j.respe.2021.06.002>
- Briggs, A. M., et al. (2020). Implementing integrated care for older people in low- and middle-income countries: WHO ICOPE in practice. *International Journal of Integrated Care*, 20(3), 6. <https://doi.org/10.5334/ijic.5451>
13. Caminiti, C., et al. (2021). Development and testing of a health literacy tool for older adults. *Patient Education and Counseling*, 104(3), 682–688. <https://doi.org/10.1016/j.pec.2020.09.030>
14. Cesari, M., & Araujo de Carvalho, I. (2018). Evidence for the domains included in the ICOPE screening tool: A narrative review. *BMJ Open*, 8(10), e021049. <https://doi.org/10.1136/bmjopen-2017-021049>
15. Cesari, M., et al. (2017). Frailty: An emerging public health priority. *Journal of the American Medical Directors Association*, 18(12), 564–565. <https://doi.org/10.1016/j.jamda.2017.09.001>
16. Charles, A., et al. (2018). Supporting integration through new roles and working across boundaries. The King's Fund. <https://www.kingsfund.org.uk/publications/supporting-integration-new-roles>
17. Chatterji, S., et al. (2015). Health, functioning, and disability in older adults—present status and future implications. *The Lancet*, 385(9967), 563–575. [https://doi.org/10.1016/S0140-6736\(14\)61462-8](https://doi.org/10.1016/S0140-6736(14)61462-8)
18. Cieza, A., et al. (2021). Disability and rehabilitation: WHO's work on the ICF. *Disability and Rehabilitation*, 43(17), 2426–2430. <https://doi.org/10.1080/09638288.2020.1743776>
19. Colombo, F., et al. (2011). Help wanted? Providing and paying for long-term care. *OECD Health Policy Studies*. <https://doi.org/10.1787/9789264097759-en>
20. Comas-Herrera, A., et al. (2018). How can we improve care for older people with complex needs? International Long-Term Care Policy Network. <https://ltccovid.org/publication/how-can-we-improve-care-for-older-people-with-complex-needs/>
21. Cristea, M., Noja, G. G., Stefea, P., & Sala, A. L. (2020). The impact of population aging and public health support on EU labor markets. *International Journal of Environmental Research and Public Health*, 17(4), 1439. <https://doi.org/10.3390/ijerph17041439>
22. Cutilli, C. C., & Bennett, I. M. (2009). Understanding the health literacy of America: Results of the National Assessment of Adult Literacy. *Orthopedic Nursing*, 28(1), 27–32. <https://doi.org/10.1097/01.NOR.0000345852.22122.d6>
23. De Carvalho, I. A., et al. (2017). Operationalizing the concept of intrinsic capacity in clinical settings. *Bulletin of the World Health Organization*, 95(11), 843–852. <https://doi.org/10.2471/BLT.17.199216>
24. Dent, E., Martin, F. C., Bergman, H., Woo, J., Romero-Ortuno, R., & Walston, J. D. (2019). Management of frailty: Opportunities, challenges, and future directions. *The Lancet*, 394(10206), 1376–1386. [https://doi.org/10.1016/S0140-6736\(19\)31785-4](https://doi.org/10.1016/S0140-6736(19)31785-4)
25. Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature*, 50(4), 1051–1079. <https://doi.org/10.1257/jel.50.4.1051>
26. Duppen, D., et al. (2020). Social participation in older adults: A scoping review. *PLOS ONE*, 15(11), e0243044. <https://doi.org/10.1371/journal.pone.0243044>

27. Fairhall, N., et al. (2011). Development and impact of the "frailty phenotype" model. *Journal of Gerontology: Medical Sciences*, 66A(4), 456–462. <https://doi.org/10.1093/gerona/glq166>
28. Fancourt, D., & Finn, S. (2019). What is the evidence on the role of the arts in improving health and well-being? WHO Health Evidence Network Synthesis Report 67. https://www.euro.who.int/__data/assets/pdf_file/0007/403415/WHO-Report-Arts-and-Health-2019.pdf
29. Fong, T. G., et al. (2015). Delirium in elderly people: A systematic review and meta-analysis of pharmacologic and nonpharmacologic treatments. *The Lancet*, 383(9920), 911–922. [https://doi.org/10.1016/S0140-6736\(13\)60688-1](https://doi.org/10.1016/S0140-6736(13)60688-1)
- Foster, L., & Walker, A. (2015). Active and successful aging: A European policy perspective. *The Gerontologist*, 55(1), 83–90. <https://doi.org/10.1093/geront/gnu028>
30. Fuster, V., et al. (2011). Health and aging in the developing world. *The Lancet*, 377(9765), 2055–2056. [https://doi.org/10.1016/S0140-6736\(11\)60825-3](https://doi.org/10.1016/S0140-6736(11)60825-3)
- Gebhard, C., et al. (2020). Impact of sex and gender on COVID-19 outcomes in Europe. *Biology of Sex Differences*, 11, 29. <https://doi.org/10.1186/s13293-020-00304-9>
31. Ginter, E., & Simko, V. (2012). Global prevalence and future of diabetes mellitus. *Advances in Experimental Medicine and Biology*, 771, 35–41. https://doi.org/10.1007/978-1-4614-5441-0_6
32. Gnjjidic, D., et al. (2012). Polypharmacy and health outcomes among older adults. *Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 67(5), 505–512. <https://doi.org/10.1093/gerona/glr233>
33. Gobbens, R. J., et al. (2010). Towards an integral conceptual model of frailty. *Journal of Nutrition, Health and Aging*, 14(3), 175–181. <https://doi.org/10.1007/s12603-010-0045-6>
34. Gómez, M., & Vásquez, E. (2019). ICOPE implementation in Latin America: Perspectives and challenges. *Revista Panamericana de Salud Pública*, 43, e55. <https://doi.org/10.26633/RPSP.2019.55>
35. Gopinath, B., et al. (2017). Association between vision impairment and functional decline in older adults. *JAMA Ophthalmology*, 135(9), 926–932. <https://doi.org/10.1001/jamaophthalmol.2017.3031>
36. Guralnik, J. M., & Ferrucci, L. (2003). Assessing the building blocks of function: Utilizing measures of functional limitation. *American Journal of Preventive Medicine*, 25(3 Suppl 2), 112–121. [https://doi.org/10.1016/S0749-3797\(03\)00175-1](https://doi.org/10.1016/S0749-3797(03)00175-1)
37. Hanlon, P., et al. (2018). Frailty measurement and outcomes in older adults. *Age and Ageing*, 47(1), 142–150. <https://doi.org/10.1093/ageing/afx174>
38. Hansen, T. B., et al. (2019). Physical activity and functional independence among older adults. *Scandinavian Journal of Public Health*, 47(6), 632–640. <https://doi.org/10.1177/1403494818767411>
39. Harmer, B. J., & Orrell, M. (2008). What is meaningful activity for people with dementia living in care homes? A comparison of the views of older people with dementia, staff and family carers. *Aging & Mental Health*, 12(5), 548–558. <https://doi.org/10.1080/13607860802343019>
40. Hennessy, C. H., et al. (2001). The effect of a health promotion intervention on physical function in older adults. *Journal of the American Geriatrics Society*, 49(9), 1121–1129. <https://doi.org/10.1046/j.1532-5415.2001.49222.x>
- Higgs, P., & Gilleard, C. (2014). Frailty, abjection and the “othering” of the fourth age. *Health Sociology Review*, 23(1), 10–19. <https://doi.org/10.5172/hesr.2014.23.1.10>
41. Holstein, M. B., & Minkler, M. (2003). Self, society, and the "new gerontology". *The Gerontologist*, 43(6), 787–796. <https://doi.org/10.1093/geront/43.6.787>
42. Hoogendijk, E. O., et al. (2019). Frailty: Implications for clinical practice and public health. *The Lancet*, 394(10206), 1365–1375. [https://doi.org/10.1016/S0140-6736\(19\)31786-6](https://doi.org/10.1016/S0140-6736(19)31786-6)
43. Howdon, D., & Rice, N. (2018). Health care expenditures, age, proximity to death and morbidity: Implications for an ageing population. *Journal of Health Economics*, 57, 60–74. <https://doi.org/10.1016/j.jhealeco.2017.11.001>
44. Ilinca, S., & Leichsenring, K. (2017). From care in homes to care at home: European experiences with (de)institutionalization in long-term care. *European Journal of Social Work*, 20(6), 1–13. <https://doi.org/10.1080/13691457.2016.1255936>
45. Inouye, S. K., Studenski, S., Tinetti, M. E., & Kuchel, G. A. (2007). Geriatric syndromes: Clinical, research, and policy implications of a core geriatric concept. *Journal of the American Geriatrics Society*, 55(5), 780–791. <https://doi.org/10.1111/j.1532-5415.2007.01156.x>

46. Jeon, Y. H., et al. (2013). Effective interventions to improve the mental health and well-being of older adults in long-term care: A systematic review. *International Psychogeriatrics*, 25(10), 1485–1505. <https://doi.org/10.1017/S1041610213000860>
47. Kalache, A., & Kickbusch, I. (1997). A global strategy for healthy ageing. *World Health*, 50(2), 4–5. <https://apps.who.int/iris/handle/10665/330258>
48. Kelaiditi, E., et al. (2013). Frailty phenotype and cognitive decline: A systematic review. *Journal of the American Medical Directors Association*, 14(9), 714–722. <https://doi.org/10.1016/j.jamda.2013.03.002>
49. Kenny, R. A., et al. (2010). Falls and syncope in older adults. *Clinics in Geriatric Medicine*, 26(4), 583–607. <https://doi.org/10.1016/j.cger.2010.07.002>
50. Kinsella, K., & He, W. (2009). An aging world: 2008 (International Population Reports, P95/09-1). U.S. Census Bureau. <https://www.census.gov/prod/2009pubs/p95-09-1.pdf>
51. Koller, D., & Mielck, A. (2009). Sociodemographic determinants of multimorbidity: A study of the GEDA dataset. *BMC Public Health*, 9, 349. <https://doi.org/10.1186/1471-2458-9-349>
52. LaPlante, M. P. (2010). The classic measure of disability in activities of daily living is biased by age: A study of differential item functioning. *Journal of Gerontology: Social Sciences*, 65B(6), 733–741. <https://doi.org/10.1093/geronb/gbp134>
53. Lee, P. G., Cigolle, C., & Blaum, C. (2009). The co-occurrence of chronic diseases and geriatric syndromes: The Health and Retirement Study. *Journal of the American Geriatrics Society*, 57(3), 511–516. <https://doi.org/10.1111/j.1532-5415.2008.02150.x>
- Liu, L. F., et al. (2014). Healthy aging in Chinese older adults: Development and validation of a healthy aging index. *Geriatrics & Gerontology International*, 14(3), 781–788. <https://doi.org/10.1111/ggi.12167>
54. Lloyd-Sherlock, P., et al. (2014). Population ageing and health. *The Lancet*, 385(9968), 505–606. [https://doi.org/10.1016/S0140-6736\(14\)61596-8](https://doi.org/10.1016/S0140-6736(14)61596-8)
55. Lupp, M., Luck, T., Weyerer, S., König, H. H., Brähler, E., & Riedel-Heller, S. G. (2010). Prediction of institutionalisation in the elderly. *Social Psychiatry and Psychiatric Epidemiology*, 45(4), 395–403. <https://doi.org/10.1007/s00127-009-0071-8>
56. Macintyre, S., Ellaway, A., & Cummins, S. (2002). Place effects on health: How can we conceptualise, operationalise and measure them? *Social Science & Medicine*, 55(1), 125–139. [https://doi.org/10.1016/S0277-9536\(01\)00214-3](https://doi.org/10.1016/S0277-9536(01)00214-3)
57. Marmot, M., et al. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. *The Lancet*, 372(9650), 1661–1669. [https://doi.org/10.1016/S0140-6736\(08\)61690-6](https://doi.org/10.1016/S0140-6736(08)61690-6)
58. Marengoni, A., et al. (2011). Aging with multimorbidity: A systematic review of the literature. *Ageing Research Reviews*, 10(4), 430–439. <https://doi.org/10.1016/j.arr.2011.03.003>
59. Marmot, M. (2015). The health gap: The challenge of an unequal world. *The Lancet*, 386(10011), 2442–2444. [https://doi.org/10.1016/S0140-6736\(15\)00150-6](https://doi.org/10.1016/S0140-6736(15)00150-6)
60. Marmot, M., & Bell, R. (2012). Fair society, healthy lives. *Public Health*, 126(1), S4–S10. <https://doi.org/10.1016/j.puhe.2012.05.014>
61. Marsiglia, F. F., & Kulis, S. S. (2009). Diversity, oppression, and change: Culturally grounded social work. Chicago: Lyceum Books.
62. Martin, L. G., & Soldo, B. J. (Eds.). (1997). Rethinking the effects of aging on health and health care. National Academy Press.
63. Mathers, C. D., Stevens, G. A., Boerma, T., White, R. A., & Tobias, M. I. (2015). Causes of international increases in older age life expectancy. *The Lancet*, 385(9967), 540–548. [https://doi.org/10.1016/S0140-6736\(14\)60569-9](https://doi.org/10.1016/S0140-6736(14)60569-9)
64. McKee, M., & Nolte, E. (2004). Responding to the challenge of chronic diseases. *Lancet*, 362(9390), 903–906. [https://doi.org/10.1016/S0140-6736\(03\)14367-2](https://doi.org/10.1016/S0140-6736(03)14367-2)
65. Mitnitski, A., Song, X., & Rockwood, K. (2013). Frailty in relation to the accumulation of deficits. *Journal of Gerontology: Medical Sciences*, 68(11), 1363–1370. <https://doi.org/10.1093/gerona/glt061>
66. Morley, J. E., et al. (2013). Frailty consensus: A call to action. *Journal of the American Medical Directors Association*, 14(6), 392–397. <https://doi.org/10.1016/j.jamda.2013.03.022>
67. Nicholson, C., Meyer, J., Flatley, M., & Holman, C. (2013). The experience of living at home with frailty in old age: A psychosocial qualitative study. *International Journal of Nursing Studies*, 50(9), 1172–1179. <https://doi.org/10.1016/j.ijnurstu.2012.01.006>

68. O'Brien, M., & Moules, N. J. (2007). Hope and hopelessness: Critical clinical constructs. *Journal of Psychosocial Nursing and Mental Health Services*, 45(7), 11–14. <https://doi.org/10.3928/02793695-20070701-05>
69. Oksuzyan, A., et al. (2010). Sex differences in health and mortality. *European Journal of Epidemiology*, 25(10), 705–718. <https://doi.org/10.1007/s10654-010-9499-0>
70. Organisation mondiale de la santé (OMS). (2002). *Vieillessement actif: Un cadre politique*. Genève: OMS. <https://apps.who.int/iris/handle/10665/67215>
71. Organisation mondiale de la santé (OMS). (2015). *Rapport mondial sur le vieillissement et la santé*. Genève: OMS. <https://apps.who.int/iris/handle/10665/186463>
72. Organisation mondiale de la santé (OMS). (2017). *Cadre d'action mondial pour les soins intégrés aux personnes âgées (ICOPE)*. Genève: OMS. <https://apps.who.int/iris/handle/10665/258547>
73. Organisation mondiale de la santé (OMS). (2019). *Dix priorités pour une décennie du vieillissement en bonne santé*. Genève: OMS. <https://www.who.int/fr/news/item/28-03-2019-ten-priorities-for-a-decade-of-healthy-ageing>
- Organisation mondiale de la santé (OMS). (2020). *Décennie pour le vieillissement en bonne santé (2020–2030)*. Genève: OMS. <https://www.who.int/fr/initiatives/decade-of-healthy-ageing>
74. Ortman, J. M., Velkoff, V. A., & Hogan, H. (2014). *An aging nation: The older population in the United States (Current Population Reports, P25-1140)*. U.S. Census Bureau. <https://www.census.gov/library/publications/2014/demo/p25-1140.html>
75. Patel, K. V., et al. (2006). Prevalence of anemia in older adults: Findings from the third National Health and Nutrition Examination Survey, 1988–1994. *Journal of the American Medical Association*, 293(22), 2866–2871. <https://doi.org/10.1001/jama.293.22.2866>
76. Young, Y., Frick, K. D., & Phelan, E. A. (2009). Can successful aging and chronic illness coexist in the same individual? A multidimensional concept of successful aging. *Journal of the American Medical Directors Association*, 10(2), 87–92. <https://doi.org/10.1016/j.jamda.2008.11.003>
77. Rubenstein, L. Z., et al. (1991). Impaired performance on a “timed up and go” test in elderly patients with a history of falls. *Journal of the American Geriatrics Society*, 39(7), 695–698. <https://doi.org/10.1111/j.1532-5415.1991.tb03455.x>
78. Satariano, W. A., et al. (2012). Mobility and aging: New directions for public health action. *American Journal of Public Health*, 102(8), 1508–1515. <https://doi.org/10.2105/AJPH.2011.300631>
79. United Nations, Department of Economic and Social Affairs, Population Division. (2019). *World population ageing 2019*. <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf>