

Bibliometric analysis of public policies for older adults: A framework for defining financing and income strategies

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ABSTRACT

Objective. A bibliometric analysis of the literature on public policies aimed at older adults was conducted to establish a frame of reference for defining financing and income strategies that respond to the needs of this group.

Design/Methodology/Approach. The Scopus database was employed for the extraction of literature. A total of 1,125 publications were identified, resulting in 20,385 citations. The analysis was further expanded with the generation of thematic network and evolution maps using VOSviewer, which facilitated the identification of emerging research areas and patterns in topic development.

Results/Discussion. The bibliometric analysis revealed a notable surge in scientific output about public policies for the elderly recently, with a pronounced emphasis on financial sustainability and social welfare. However, an absence of literature was observed concerning specific financing strategies tailored to the realities of developing countries. The extant research primarily focuses on European and North American models, thereby underscoring the necessity to adapt these policies to local contexts.

Conclusions. The bibliometric analysis facilitated the establishment of a framework for developing public policies to enhance older people's financial security and income. The findings underscore the necessity for strategies tailored to local contexts, particularly in regions with constrained resources. Combining inclusive and sustainable policies is essential for addressing the demographic and financial challenges affecting older people and ensuring their quality of life. Furthermore, it is recommended that priority be given to studies in developing countries to facilitate a more equitable and global approach.

Originality/value. This study makes an innovative contribution to applying bibliometric techniques in the description of literature on public policies focused on older adults and in proposing a framework for financing strategies adapted to local realities. The research offers a robust foundation for developing policies considering social welfare and financial sustainability in developing countries

Keywords: older adults; bibliometric analysis; silver economy; personal development; thematic network mapping; financing; public policies.

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INTRODUCTION

IN RECENT decades, the aging of the population has become one of the most significant challenges worldwide. According to data from the World Health Organization (WHO), by 2050, the world's population of people over 60 will reach 2.1 billion, representing almost 22 % of the total population. However, this phenomenon is unevenly distributed throughout the world. In Asia, particularly in countries such as China and Japan, aging is occurring at an accelerated pace due to decades of birth control policies and high levels of longevity. China is projected to have more than 400 million older adults by 2050, putting enormous pressure on its healthcare and pension system. In Europe, especially in countries such as Italy, Germany, and Spain, low birth rates and increasing life expectancy are leading to significant population aging, requiring urgent reforms in social security systems and more flexible labor models to integrate older people. In contrast, regions such as sub-Saharan Africa still have a predominantly young population. However, the proportion of older people is expected to increase significantly in the coming decades, posing future challenges in contexts where social safety nets are weak or non-existent (Cristea *et al.*, 2020; Fang *et al.*, 2020).

In Latin America, countries such as Brazil, Argentina, and Mexico are experiencing rapid population aging, posing complex challenges to the sustainability of pension systems. By 2050, more than 25% of the region's population will be over 60. This phenomenon occurs in the context of social inequality and high labor informality, meaning that a large part of the older population needs more pensions or sufficient savings. In Mexico, for example, the combination of a declining birth rate and increasing life expectancy is jeopardizing the viability of the social security system, which needs to be designed to support such a significant demographic burden. This forces governments to rethink policies that include access to health care and the development of financial inclusion programs for older people (Okumura *et al.*, 2020; Sanchez *et al.*, 2020).

Public policies for older people encompass health and wellness and fundamental areas such as financing and sustainable income. With

increasing longevity, traditional pension systems and social security schemes face growing pressure, especially in regions with low coverage. In Northern Europe, countries such as Sweden, Norway, and Denmark have developed robust pension systems and social welfare programs based on an active aging model that promotes the labor participation of older people. In these countries, public policies focus on prolonging working life and encouraging private savings, which has allowed for maintaining long-term financial sustainability (Oget, 2021).

However, in Latin American and Caribbean countries, the high rate of informal employment means that many older adults do not have access to a contributory pension, so they are forced to continue working in informal jobs to subsist. In Asia, countries such as India and Indonesia face the challenge of extending the coverage of their social security systems in the context of rapid urbanization and economic inequalities. Pilot non-contributory pension programs for the poorest people have begun to be implemented in these countries, but the sustainability of these programs remains a long-term challenge. In Africa, social security policies for older people are still incipient, and the majority of the population relies on family networks to subsist in old age, which is not always sufficient in the face of increasing urbanization and changes in traditional family structures (Anderberg, 2020; Chen *et al.*, 2022).

Thus, the need to develop innovative financing models and income strategies for older adults is an urgent issue that requires attention at the policymaking and program design levels. In the United States, for example, options such as retirement savings accounts and long-term care insurance are being explored to ease the burden on the pension system. In Japan, faced with a lack of young labor, tax incentives have been introduced for older adults to continue working beyond retirement age. In Latin America, some countries have begun experimenting with conditional transfer programs to help older adults in extreme poverty. However, these programs require improvements to be sustainable in the long term (Viljamaa *et al.*, 2022).

In this context, Mexico faces a significant demographic challenge due to the rapid aging of its population. According to the National Institute of Statistics and Geography (INEGI, in

Spanish), in 2020, there were 15.1 million people over 60 years of age, representing approximately 12% of the total population. However, by 2050, this figure is projected to double, reaching around 32.4 million people, equivalent to more than 25% of the total population. One out of every four Mexicans will be an older adult, which will have profound implications for the country's health, pension, and social welfare systems (Pérez & Valdés, 2021).

Currently, 66 % of older adults in Mexico depend on non-formal sources of income, such as remittances, informal jobs, or support from relatives. This situation reflects the high labor informality that characterizes the country, where more than 55% of the working population works in the informal sector. This situation limits older adults' access to contributory pensions since only 32% of workers are affiliated with a formal pension system. Consequently, many older people do not have a guaranteed retirement income, increasing their economic vulnerability (Castañeda *et al.*, 2023).

The pension system in Mexico, mainly composed of the Mexican Social Security Institute (IMSS, in Spanish) and the Institute of Security and Social Services for State Workers (ISSSTE, in Spanish), has severe limitations. Currently, only 4 out of 10 older adults receive a contributory pension. Moreover, the average monthly pension is approximately 4600 Mexican pesos (about 260 USD), which is insufficient to cover the basic expenses of an older adult, especially in urban areas where the cost of living is higher (Del Río Monges, 2024).

In response, the government has implemented the "Pension for the Welfare of the Elderly" program, which provides a non-contributory pension of 4800 pesos bimonthly (approximately USD 270 every two months) to people aged 65 years and older. Although this program is beneficial, it is not enough to guarantee long-term economic security, especially considering that 8 out of 10 older adults in Mexico have no retirement savings.

The situation in Mexico is also affected by regional disparities. While in Mexico City and the state of Nuevo Leon, there is greater availability of health services and support programs for the elderly, in states such as Oaxaca, Chiapas, and Guerrero, older adults have limited access to these services. In rural areas, where almost

30% of the older population lives, the lack of infrastructure and resources further aggravates the situation, leaving many older adults without adequate access to health services and social support (Arenas *et al.*, 2023; Zhang, 2021).

Given the increasing demands on pension and health systems, bibliometric analysis of the scientific literature on public policies targeting older adults is crucial to identify evidence-based solutions. Thanks to the use of bibliometric tools such as VOSviewer and academic databases such as Scopus, it is possible to analyze which strategies have worked in other countries and how they could be adapted to the Mexican context (Álvarez-Diez & López-Robles, 2022; Álvarez-Diez *et al.*, 2023; Álvarez-Diez *et al.*, 2020; Álvarez-Diez *et al.*, 2022). In this sense, bibliometrics has become one of the key tools for formulating public policies in a world that depends on accurate data and scientific evidence for decision-making. By providing a quantitative analysis of the scientific literature, policymakers can clearly understand the current state of knowledge in critical areas, facilitating evidence-based policymaking. This tool is essential in an ever-changing global context to address complex problems effectively, ensuring that decisions are made based on up-to-date and accurate information (Herrera-Viedma *et al.*, 2020).

Thanks to bibliometric analysis, policymakers can identify trends and gaps in research, prioritizing topics that need more attention and allocating resources more efficiently. This ability to map the evolution of issues over time also helps to anticipate future challenges and detect emerging areas. For example, an increase in the literature on population aging can guide the development of policies focused on social protection and the sustainability of pension systems, allocating resources to problems that will have a more significant social impact in the coming years (Marcucci *et al.*, 2021). In addition, bibliometrics makes it possible to assess the impact of existing public policies and fosters cooperation between disciplines, which is vital for addressing cross-sectoral problems such as the welfare of older people. By identifying which approaches have been most effective, policymakers can reorient their strategies for better outcomes. In the context of limited resources, bibliometrics helps optimize investments and

ensures that policies are efficient and capable of improving the quality of life of vulnerable populations (Carradore, 2024; Peña-Campello *et al.*, 2024).

Finally, this approach allows for a systematic and comprehensive review of the existing literature, which facilitates the identification of patterns, gaps, and trends in research related to public policies and financing strategies for older people. By analyzing a large volume of studies with bibliometric tools, a deeper understanding of policy developments in different contexts and practices that have proven effective internationally is obtained. This not only enriches the study's theoretical framework but also provides empirical foundations that reinforce the validity of the proposals made (Husain *et al.*, 2024; Zahra *et al.*, 2021).

Integrating findings from the international literature into local policy development ensures that strategies are based on proven evidence, which increases the likelihood of successful implementation. Furthermore, by focusing on practices that have proven effective in similar contexts, it is possible to reduce the margin of error when designing financing policies to financially support older people in Mexico, adapting them to the socioeconomic and cultural particularities of the country. In this way, the use of bibliometric analysis not only provides a solid basis for the formulation of more effective public policies but also allows for a contextual adaptation that responds to the specific needs of the Mexican population. This is particularly relevant in an environment where the aging population and the high rate of informal employment limit access to pensions and other forms of income for older people. By optimizing the proposed model through a research-based approach, both the efficiency and sustainability of policies designed to ensure more inclusive economic and social welfare for this vulnerable group are improved (Tamrin *et al.*, 2024; Zhavoronok *et al.*, 2022).

METHODOLOGY

This study used a bibliometric approach to comprehensively analyze the scientific literature on public policies for older adults, focusing on their relationship with financing and income strategies. The Scopus database was

selected because of its extensive collection of peer-reviewed publications and its coverage of multiple disciplines, making it a reliable source for obtaining a comprehensive overview of the current state of knowledge in the field. The search was conducted using a keyword string designed to capture terms such as “silver generation,” “elderly generation,” “aging generation,” among others. The search was limited to papers in English published between 1972 and 2024, to include historical and the most recent and relevant studies (Álvarez-Díez & López-Robles, 2022; Álvarez-Díez *et al.*, 2023; López-Robles *et al.*, 2019; López-Robles *et al.*, 2020a, 2020b).

The advanced search used was: *TITLE-ABS-KEY (“silver generation” OR “elderly generation” OR “ageing generatio” OR “senior generation” OR “third age generation” OR “grey generation” OR “silver polic” OR “ederly polic” OR “ageing polic” OR “senior polic” OR “third age polic” OR “grey polic”) AND PUBYEAR > 1972 AND PUBYEAR < 2025 AND (LIMIT-TO (DOCTYPE, “ar”) OR LIMIT-TO (DOCTYPE, “cp”) OR LIMIT-TO (DOCTYPE, “re”) OR LIMIT-TO (DOCTYPE, “ch”)) AND (LIMIT-TO (LANGUAGE, “English”))*. The search process identified 1125 publications that, in total, accumulated 20 385 citations, with an h-index (h-index) of 65. This index suggests that 65 of these papers have received at least 65 citations each, reflecting a high impact on research related to public policy and the economics of older adults. The substantial number of accumulated citations highlights the growing scholarly interest in how policies affect the older population's quality of life and economic well-being. In addition, bibliometric analysis indicates a significant increase in scientific production in this area during the last decades, reflecting the growing importance of population aging worldwide.

The VOSviewer tool, which specializes in visualizing bibliometric data focused on the co-occurrence of keywords, was used to analyze the results further. This technique enabled it to identify the main thematic areas and research trends within the literature collected. Through co-occurrence mapping, thematic groupings called clusters that group-related concepts were detected. These visual maps help to understand how research priorities have evolved and to identify the areas of most excellent attention.

In addition, the tool allowed us to identify the growing presence of certain concepts in the literature, focusing on creating policies that promote the economic autonomy of older people.

The use of VOSviewer also made it possible to visualize the distribution of topics over time, which showed an increase in publications that address innovative approaches to financing the care of the elderly and fostering their active participation in society. These findings are especially relevant for Mexico, a country that faces significant challenges in adapting its public policies to the needs of a rapidly aging population.

Finally, the bibliometric analysis conducted with Scopus and VOSviewer provided a clear understanding of trends and priorities in research on public policies for older people. The focus on keyword co-occurrence made it possible to identify the areas of most significant interest and the gaps that still need to be addressed. The results provide a solid basis for formulating policies in Mexico that respond to current demographic challenges, promoting a more sustainable and equitable approach to the well-being of the older population.

RESULTS AND DISCUSSION

Population aging is a demographic phenomenon transforming social and economic structures worldwide. With projections suggesting that by 2050, a quarter of the world's population will be over 60, the development of public policies that address the needs of older people has become a priority. In this context, it is essential to understand how the scientific community has studied economic and social support policies for this growing population. To this end, bibliometrics offers a quantitative approach that assesses the scientific output and impact of research in this field, providing a solid basis for evidence-based policy design.

Figure 1 shows a temporal analysis of publications and citations related to the intersection between the economics of the elderly and public policy from 1972 to 2024. The visual analysis shows an increasing trend in the number of publications and cumulative citations, reflecting a sustained and growing scholarly interest in the field. In the first decades of the period analyzed (1972-2000), the number of publications

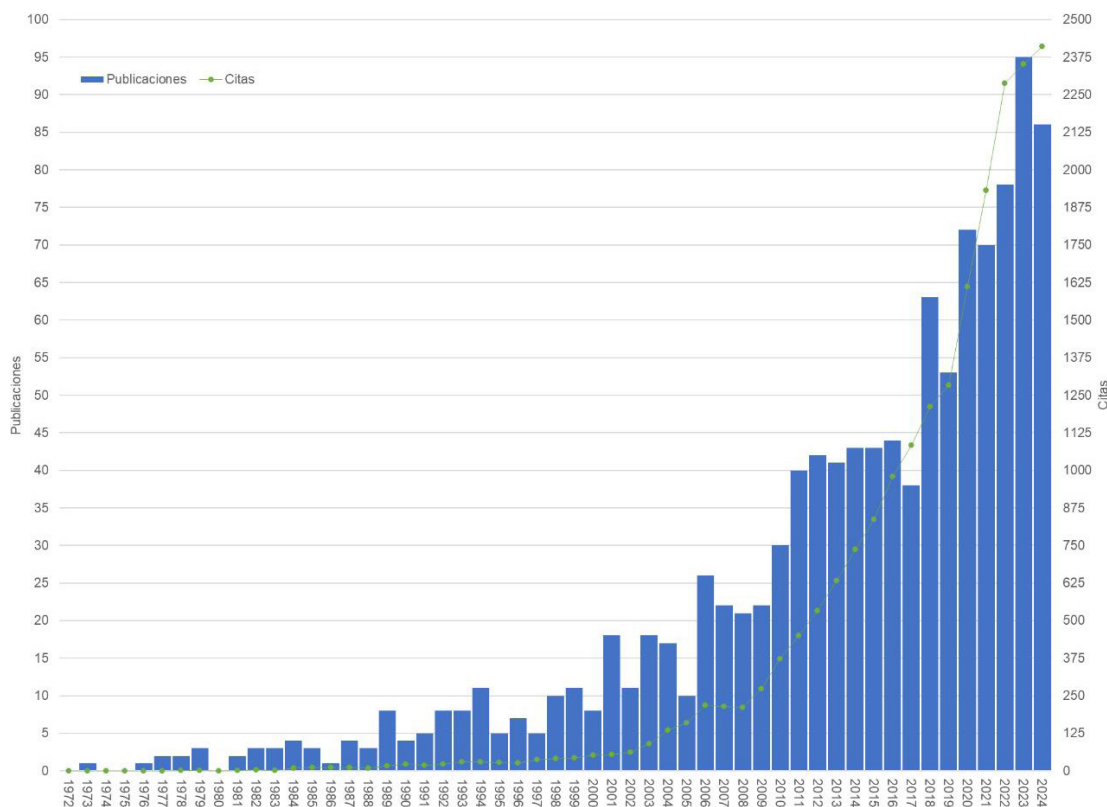


Figure 1. Scientific production and its impact on public policies for older adults.

was relatively low, with an average of less than ten articles per year and a modest growth in the volume of citations. This suggests that, during that period, the topic of public policies for older people had yet to receive significant attention from the scientific community. However, from 2000 onwards, a steady increase in publications can be seen, coinciding with the increased global awareness of population aging and its economic and social implications. The most notable growth is observed from 2015 onwards, when annual publications consistently exceed 80, reaching a peak close to 100 in recent years. This increase coincides with the growing global concern about the sustainability of pension systems and the need for public policies that promote the welfare of older people in the context of accelerated demographic aging, especially in developed countries and regions with emerging economies.

Regarding the number of accumulated citations, the upward trend has been even more pronounced since 2018, indicating an increase in the number of publications and the impact and interest of the scientific community. This suggests that studies on public policy for older adults have begun to consolidate as a key area of research, with significant growth in terms of academic influence. In recent years (2022-2024), total citations are approaching 2500, reflecting the continued relevance and recognition of the field in the scientific literature.

This bibliometric analysis reveals that, in the last decade, the need to develop sustainable funding models and policies that support the older population has become apparent. The results reinforce the importance of continuing research in this field, particularly in developing countries such as Mexico, where the financial and social challenges related to population aging are constantly evolving. The growing trend in scientific production and the number of citations suggest that the topic will continue to gain relevance in the coming years as more countries need to adapt their social and economic policies to support a rapidly aging population.

Table 1 reveals significant patterns in the scientific production related to public policy and economics for older adults and highlights the principal authors, organizations, countries, sources, and areas of research that have

contributed to the development of this field. Regarding the most productive authors, C. L. Cooper tops the list with 9 publications, J. Brown with 8 publications, and A. Principi with 7. Other notable authors, such as F. G. Caro, B. Kirkcaldy, M. Socci, and J. Warburton, have published between 6 and 7 papers, contributing significantly to the body of knowledge in areas ranging from active aging to the development of inclusive policies for the well-being of older adults.

Universities have also demonstrated high productivity in this area of study, with The University of Manchester leading the list with 18 publications, followed by the University of Southern California with 16. Other notable institutions are Australia's UNSW Sydney and The University of Queensland, with 14 publications each. Other universities that have had a considerable impact are the University of Massachusetts Boston and the University of Sydney, with 13 publications each, and Brown University and the National University of Singapore, with 12 publications. These institutions generate high-impact research and demonstrate a multidisciplinary approach encompassing health policy, economics, and social aging.

Geographically, the United States leads the scientific production with 266 publications, followed by the United Kingdom with 206 and Australia with 108. China and Canada also stand out with 67 and 64 publications, respectively, reflecting a growing interest in formulating policies that respond to demographic aging in both developed and emerging contexts.

The primary publication sources include the *Journal of Aging and Social Policy*, with 44 articles, followed by *Gerontologist*, with 25, and *Ageing and Society*, with 20. Also relevant are the *International Journal of Environmental Research and Public Health*, with 17 articles, and *Ageing International*, with 12 articles, reflecting a comprehensive approach encompassing social and public health aspects in studying policies for older people. Regarding research areas, most publications are concentrated in the Social Sciences, with 630, followed by Medicine, with 376, and Nursing, with 132. Psychology, with 108 publications, and the Arts and Humanities, with 90, also stand out.

Overall, this quantitative analysis highlights the growing importance of public policies and

funding strategies for the older population, reflected in a solid growth of scientific production and the diversity of disciplines involved. This

highlights the need for integrated approaches to address the complex challenges of population aging worldwide.

Description	(Publications) Description
Most productive authors	(9) Cooper, C. L. (8) Brown, J. (7) Principi, A. (6) Caro, F. G.; Kirkcaldy, B.; Socci, M.; Warburton, J.; (5) Bass, S. A.; Estes, C. L.; Kirkcaldy, B. D.; Solem, P. E.; Walker, A.; Zeng, B.
Most productive organizations	(18) The University of Manchester (16) University of Southern California (14) UNSW Sydney; The University of Queensland (13) University of Massachusetts Boston; The University of Sydney (12) Brown University; National University of Singapore
Most productive countries	(266) Estados Unidos, (206) Reino Unido, (108) Australia, (67) China, (64) Canadá
Most productive sources	(44) Journal of Aging and Social Policy (25) Gerontologist (20) Ageing And Society (17) International Journal of Environmental Research and Public Health (12) Ageing International
Main research areas	(630) Ciencias Sociales, (376) Medicina, (132) Enfermería, (108) Psicología, (90) Artes y humanidades

Table 1. Prominent authors, organizations, countries, and areas of knowledge in public policies for older adults.

Figure 2, generated using VOSviewer, presents a map of keyword co-occurrence. The map is based on the frequency with which specific terms appear together in the analyzed articles, allowing the identification of thematic clusters and research patterns in this area. The term “ageing population” is at the center of the map and acts as a connecting node between several clusters, indicating its cross-cutting relevance in the field. Around it, key terms such as “policy strategy,” “aging policies,” and “social policy” are clustered, reflecting a focus on policy formulation aimed at addressing the needs of an aging population.

The map reveals at least four main clusters of different colors representing different research approaches, as shown in Table 2. First, the blue cluster, labeled “Active Aging and Social Participation,” has the most significant number of occurrences (1,181) but a moderate number of linkages (7,936). This suggests that, although a large volume of research focused on promoting active aging and social participation, its interconnectedness with other topics is not as dense as the different clusters. This may reflect a more specialized focus on promoting the involvement of older adults in society.

For its part, the green cluster, entitled “Public Health and Social Determinants of Well-Being,” presents a high level in both occurrences (1,132) and total linkages (10,746), indicating strong interconnectivity and relevance of studies related to social determinants of health and public health in general. The many links suggest this topic is deeply interrelated with other areas, underscoring its central importance in policy research for older adults. The red cluster encompasses “Health Care and Long-Term Care Policies,” with 1,104 occurrences and 9,224 total links. This indicates a strong focus on long-term care delivery and policy formulation to improve health care for older adults. The high connectivity of this cluster reflects its relevance in the public policy arena, as long-term care is a key priority in many health systems.

Finally, the yellow cluster, also focused on “Global Dimensions and Key Factors”, presents a lower volume of occurrences (577) and links (3,682). This suggests that, although the topic is still relevant, the studies in this category may be more oriented to specific contexts or more focused on subtopics within the key factors. Overall, the 3,994 occurrences and 31,588 total

links reflect a diverse but strongly interconnected field of research. The preeminence of the green cluster in terms of interconnectivity underlines the importance of social determinants and public health in policymaking. In contrast, the other clusters bring specific approaches to active aging and health care.

Within the “Active Aging and Social Participation” cluster, the most prominent term is “aging population,” with the highest number of occurrences (401) and linkages (2,499), indicating that the aging population is the central concept connecting the various themes in this cluster. In addition, concepts such as “healthy aging” and “active aging,” with 70 and 64 occurrences, respectively, suggest a strong focus on promoting healthy and active aging, which implies extending life and improving its quality.

The analysis also reveals a significant focus on policy formulation and implementation, as evidenced by the terms “policy making” and “policy analysis,” with 49 and 13 occurrences, respectively. This indicates considerable interest in creating regulatory frameworks and evaluating policies to improve the lives of older adults. In addition, there is a geographical emphasis with references to regions such as Europe, Australia, Canada, and the United Kingdom, suggesting that these countries are leading efforts in formulating policies oriented to active and healthy aging.

On the other hand, terms such as “social participation,” “lifelong learning,” and “participatory approach” underscore the importance of social inclusion and lifelong learning in the lives of older people. Promoting social participation and continuing education is considered essential for older adults’ well-being and as a mechanism to foster their autonomy and active contribution to society. Likewise, concepts such as “wellbeing behavior” and “lifestyle” highlight the relevance of promoting a healthy lifestyle that includes activities that improve this population’s physical and mental health.

Overall, the cluster reflects a comprehensive approach that encompasses both the development of public policies and the promotion of practices that improve the well-being and participation of older people in society. This suggests a shift towards a more holistic perspective, in which aging is perceived as a challenge and an opportunity to promote the well-being,

inclusion, and participation of older adults in communities.

Within the “Public Health and Social Determinants of Well-Being” cluster, the most prominent term in this cluster is “female,” with 147 occurrences and a total of 1,383 links, followed by “male,” with 135 occurrences and 1,295 links, indicating a significant focus on studies addressing gender differences in the context of health and well-being. In addition, the terms “adult” and “middle aged” also have a high frequency, suggesting considerable interest in analyzing health conditions in different age groups. The presence of concepts such as “public health” (31 occurrences, 258 links), “quality of life” (35 occurrences, 309 links), and “epidemiology” (27 occurrences, 273 links) indicates a strong focus on research related to public health promotion and quality of life. The term “social support” (20 occurrences, 223 links) suggests that studies in this cluster also focus on the role of social networks and support in improving the well-being of individuals. In addition, terms such as “mental health,” “depression,” and “psychology behavior” reflect an interest in mental health and psychosocial factors that influence the quality of life. Including “social determinants of health” and “socioeconomic factors” highlights the importance of social and economic factors in overall well-being, underscoring the need for policies addressing these determinants to improve health outcomes.

On the other hand, the appearance of terms such as “coronavirus disease 2019” and “controlled study” suggests that an essential part of recent research has been influenced by the COVID-19 pandemic, highlighting its impact on public health and epidemiological studies. Including “cross-sectional studies” and “surveys and questionnaires” indicates that many of these studies have relied on quantitative research methodologies to assess the impact of social and economic factors on health. Overall, the green cluster reflects a comprehensive approach ranging from public health and epidemiology to social and psychological factors affecting the well-being of diverse populations. This multidimensional approach underscores the need to consider medical and social determinants when developing health and well-being policies.

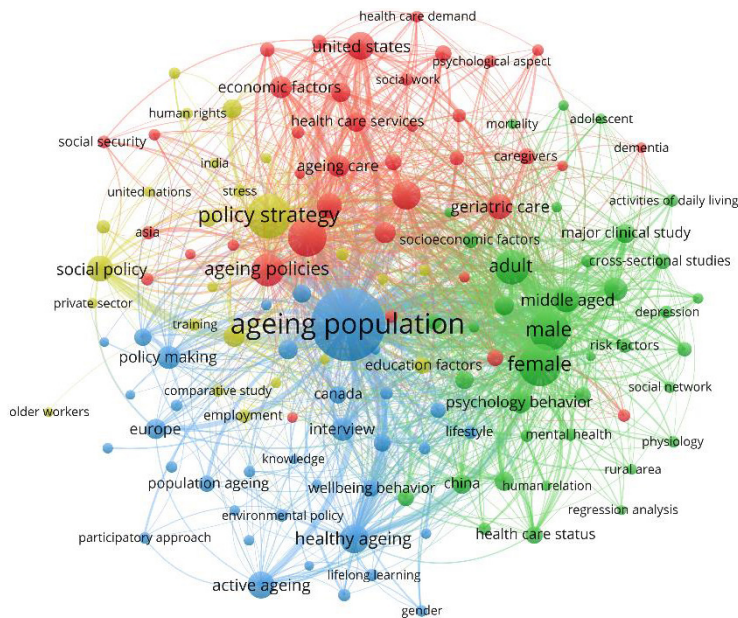


Figure 2. List of the main topics of research, development, and innovation in the field of public policies for older adults.

The “Health Care and Long-Term Care Policies” cluster presents the term “health care policy”. It stands out as the topic with the highest number of occurrences (121) and total links (956), indicating a central focus in formulating health policies for older adults. This term is closely related to “aging care” and “geriatric care,” which also have a high number of occurrences (45 and 54, respectively) and a considerable number of links. This suggests that much of the research is focused on how healthcare policies can optimize care delivery to the aging population. Another relevant topic within the cluster is “health care behavior,” with 72 occurrences and 604 links, reflecting an interest in the health behaviors of older adults and how these impact health care demand and planning. In addition, terms such as “long term care,” “home care services,” and “nursing home” indicate a focus on long-term care and home services for those requiring ongoing care, highlighting the importance of home-based aging support systems.

The cluster also addresses economic efficiency and health resource planning, as indicated by the terms “cost effectiveness analysis” and “organization and management,” focusing on optimizing health care to ensure the sustainability of health systems in a context of accelerated demographic aging. Also, the frequent

mention of terms such as “caregivers” and “community care” highlights the importance of the role of caregivers, both formal and informal, in providing long-term care services. From a geographic perspective, the cluster includes references to countries such as the United States, Japan, and Singapore, suggesting that these contexts’ specific challenges and policies influence the research. Japan and Singapore, for example, are known for their advanced care systems for an aging population, while the United States faces challenges related to access and equity in health services.

Overall, the presence of terms such as “social security” and “social welfare” indicates that the research also considers aspects of social welfare and economic security, underscoring the need for comprehensive policies that not only address health care but also ensure the quality of life of older adults through social security and community support. This cluster, therefore, reflects a comprehensive approach that combines health care, social support, and policy planning to address the complex challenges of population aging.

Finally, the “Global Dimensions and Key Factors” cluster highlights key terms that reflect structural and strategic aspects in global policies related to aging and health care. Within this cluster, the term “policy strategy”

is the most relevant, with a high number of occurrences (154) and total linkages (827). This underscores its central role in formulating strategic approaches to address global challenges, such as the sustainability of health systems and equity in care for aging populations. Other prominent terms include “government regulation” (42 occurrences, 368 links), which reflects the importance of government regulation in implementing policies and standards to ensure access and quality of services. Likewise, “legislation and jurisprudence” (33 occurrences, 238 links) emphasizes the need for a strong legal framework to support care policies and ensure the rights of vulnerable populations.

The cluster also highlights significant social and economic factors. For example, “social policy” (61 occurrences, 362 links) connects political strategies with social welfare provision. In comparison, terms such as “education factors” (27 occurrences, 229 links) and “employment” (19 occurrences, 136 links) reflect the intersection between educational policies, workforce training, and demographic aging. This indicates an interest in how to prepare societies for structural changes related to aging, including the impact on the labor market and the need for adapted educational programs.

At the international level, terms such as “international cooperation” (11 occurrences, 75 links) and “united nations” (12 occurrences, 61

links) underscore the relevance of global collaboration to address the challenges of aging, especially in areas such as knowledge transfer, best practices, and policy coordination. In addition, “developing countries” (19 occurrences, 108 links) highlight the attention to developing countries, which face particular challenges regarding limited resources and support systems. Economic and administrative factors are also present in the cluster, as indicated by “financial management” (12 occurrences, 108 links) and “funding programs” (10 occurrences, 84 links), which reflect concern for the financial sustainability of care policies and programs.

From a more humanistic approach, the term “human rights” (13 occurrences, 53 links) underscores the importance of protecting the rights of individuals within these policies. In comparison, “leadership” (23 occurrences, 93 links) emphasizes the role of leaders in effectively implementing global strategies. Taken together, this cluster evidences a comprehensive approach that combines regulation, international cooperation, educational and social factors, and economic management to address the challenges of aging from a global perspective. The high levels of connectivity between the terms suggest that the global dimensions are deeply interrelated, underscoring the need for holistic and collaborative approaches to policymaking.

Cluster	Sum of occurrence	Sum of total links	Cluster	Sum of occurrence	Sum of total links
Active Aging and Social Participation (blue)	1181	7936	Public Health and Social Determinants of Well-Being (green)	1132	10746
active ageing	64	257	activities of daily living	15	156
ageing population	401	2499	adolescent	12	126
australia	35	234	adult	99	916
canada	28	211	attitude of health personnel	11	113
clinical article	13	117	child	10	83
conceptual framework	14	120	china	35	230
england	10	70	controlled study	47	447
environmental policy	15	86	coronavirus disease 2019	23	156
europe	39	222	cross-sectional studies	23	246
gender	13	103	depression	15	148
governance approach	10	54	educational status	11	131
health care promotion	24	206	epidemiology	27	273
healthy ageing	70	555	female	147	1383

Cluster	Sum of occurrence	Sum of total links	Cluster	Sum of occurrence	Sum of total links
interview	48	406	health care status	28	273
knowledge	10	66	health care survey	15	152
lifelong learning	16	109	human relation	12	110
lifestyle	19	172	income behavior	10	90
management	29	225	information processing	15	136
participatory approach	14	76	major clinical study	34	372
policy analysis	13	109	male	135	1295
policy approach	10	69	mental health	17	155
policy development	13	77	middle aged	60	671
policy implementation	11	68	mortality	11	88
policy making	49	337	pension behavior	27	214
population ageing	27	139	physical activity	16	187
qualitative analysis	10	66	physiology	14	116
qualitative research	28	232	psychology behavior	43	414
risk assessment	12	60	public health	31	258
social behavior	16	167	quality of life	35	309
social exclusion	10	45	regression analysis	10	75
social participation	17	125	risk factors	20	204
sustainability	12	59	rural area	12	119
sustainable development	11	55	social determinants of health	12	131
systematic review	12	118	social network	13	146
united kingdom	31	181	social support	20	223
wellbeing behavior	27	241	socioeconomic factors	22	219
			surveys and questionnaires	34	269
			young adult	11	112
Health Care and Long Term Care Policy (red)	1104	9224	Health Care and Long-Term Care Policies (yellow)	577	3682
age factors	25	190	comparative study	13	107
ageing care	45	429	cooperative behavior	12	88
ageing in place	16	114	cultural factor	16	152
ageing policies	89	540	developing countries	19	108
asia	19	134	education factors	27	229
caregivers	25	242	employment	19	136
community care	18	164	financial management	12	108
cost effectiveness analysis	14	103	funding programs	10	84
delivery of health care	20	202	government regulation	42	368
dementia	12	114	human rights	13	53
demographic factors	42	352	india	11	84
economic factors	43	333	international cooperation	11	75
family factors	20	188	law enforcement	13	80
geriatric care	54	403	leadership	23	93
health care aged	20	215	legislation and jurisprudence	33	238
health care behavior	72	604	motivation	12	86
health care delivery	34	344	older workers	10	14
health care demand	14	172	policy strategy	154	827

Cluster	Sum of occurrence	Sum of total links	Cluster	Sum of occurrence	Sum of total links
health care personnel	11	117	prevention and control	13	118
health care planning	12	98	private sector	11	70
health care policy	121	956	social policy	61	362
health care services	33	319	stress	15	67
home care services	13	149	training	15	74
independent living	26	233	united nations	12	61
japan	11	61			
life expectancy	16	139			
long term care	26	246			
nursing home	12	136			
organization and management	56	502			
population dynamics	16	142			
primary health care	12	86			
psychological aspect	16	116			
singapore	11	78			
social security	17	101			
social welfare	14	132			
social work	16	136			
united states	67	513			
welfare behavior	16	121			

Table 2. List of the main topics of research, development, and innovation in the field of public policies for older adults.

Figure 3 shows a map of keyword co-occurrence with a color scale that reflects the temporal evolution of the terms used in the scientific literature on public policy and economics for older people. The colors of the map range from blue (corresponding to older research from around 2005) to yellow (indicating more recent studies from around 2020). This analysis makes it possible to identify research trends and the evolution of approaches in the field. At the center of the map, the term “aging population” acts as a central, connective node, indicating its cross-cutting relevance in aging and public policy studies. Around it are several key terms such as “policy strategy,” “aging policies,” and “social policy,” which have been in constant focus since the early years of the analysis. The colors of these terms are predominantly shades of green and blue, suggesting that these topics have been of sustained interest since the mid-2000s.

The presence of terms such as “health care services,” “geriatric care,” and “economic factors” in the blue cluster indicates that early studies in this field focused on health services and economic factors affecting the aging

population. These topics continue to be relevant, but their focus has evolved to include more specific aspects, as reflected in more recent terms appearing in yellow, such as “healthy ageing,” “active ageing,” and “lifelong learning”. A prominent feature in the analysis is the shift toward a more holistic and preventive approach in the last decade, as evidenced by the use of more recent terms such as “healthy aging,” “active aging,” and “wellbeing behavior” in shades of yellow. These terms reflect a shift from policies focused on reactive health care to more proactive strategies that promote healthy and active aging. This suggests that recent research has been oriented toward promoting the holistic well-being of older adults beyond traditional medical care.

Another relevant finding is the emergence of terms related to mental health and psychosocial well-being, such as “mental health,” “depression,” and “social network,” also in more recent tones. These terms underscore the growing importance of addressing psychosocial factors affecting the quality of life of older adults, indicating that public policy is beginning to recognize the importance of emotional and social

well-being and physical health. In addition, the yellow cluster shows a growing focus on terms such as “environmental policy,” “participatory approach,” and “lifelong learning,” reflecting an

interest in policies that not only address aging from a health perspective but also promote participation and social inclusion of older adults in the community.

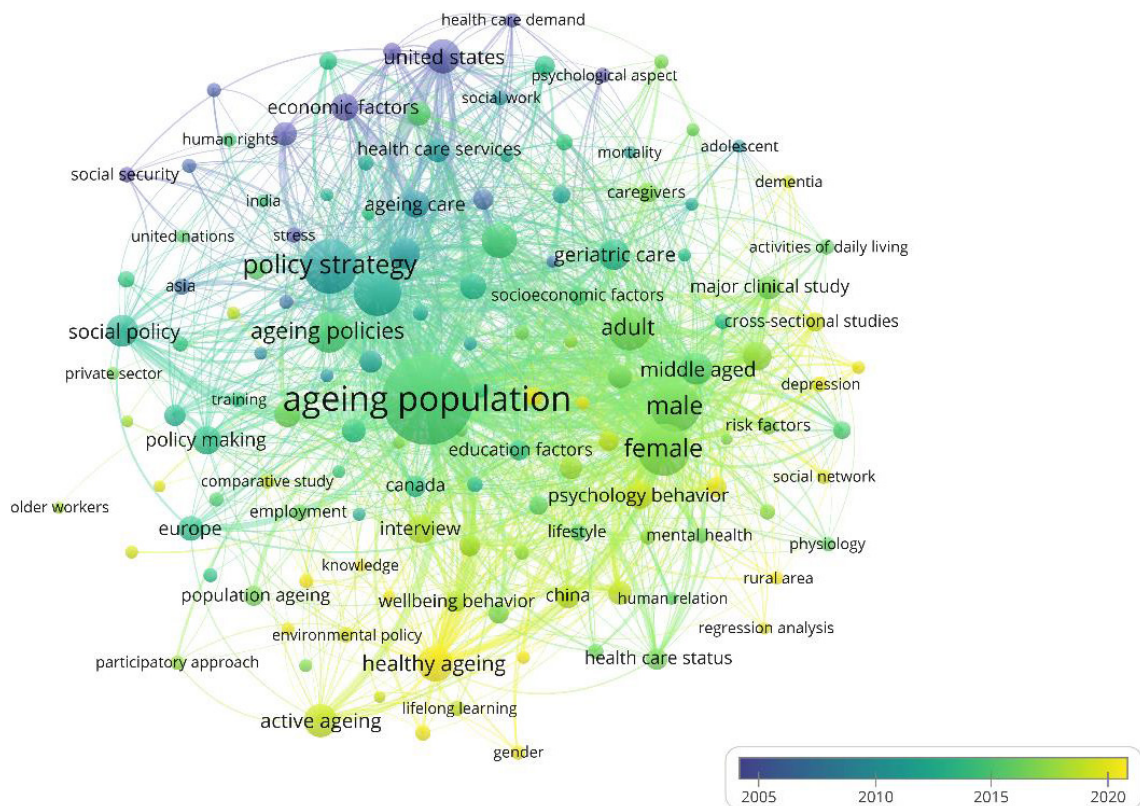


Figure 3. Evolution of the primary research, development, and innovation topics in public policies for older adults.

CONCLUSIONS

This article explores the current landscape of research on public policy for older adults using a bibliometric approach to identify the main trends and areas of interest. A large body of literature has been analyzed, and key themes related to active aging, public health, health care, and long-term care policies have been identified. The results show the scientific community's growing interest and recognition of the importance of designing comprehensive policies that promote social inclusion, psychosocial well-being, and economic sustainability of support systems for older people.

From a bibliometric perspective, there is evidence of an accelerated growth in the volume of publications from 2000, with a particularly pronounced increase from 2015 onwards. This

suggests a growing interest on the part of the academic community in issues related to population aging, possibly driven by the recognition of the demographic challenges facing both developed and developing countries. The steady increase in publications reflects the urgent need to develop sustainable public policies and strategies that respond to the needs of a rapidly aging population.

Furthermore, the analysis of cumulative citations, which shows significant growth from 2018, indicates that the most recent research has increased in quantity relevance and impact within the scientific community. This pattern suggests that, as the topic has gained visibility, studies have become more influential in policy formulation and developing sound theoretical frameworks to address aging. This highlights the importance of continuing to prioritize

research in this field, as the increase in citation volume reflects recognition of the need for evidence-based approaches to address the challenges posed by population aging.

On the other hand, in qualitative terms, it is observed that research on public policy and the economic well-being of older people is dominated by institutions and authors located primarily in developed countries, such as the United States, the United Kingdom, and Australia. This suggests that these countries have prioritized research on population aging, which has allowed them to generate a robust body of knowledge and best practices. However, the lower output volume in emerging countries indicates a difference in the focus of aging policies. This represents an opportunity to expand research in regions such as Latin America and Asia, where the older population is increasing.

Similarly, the predominance of research areas such as social sciences, medicine, and nursing highlights the need for interdisciplinary approaches to address the challenges of aging. The concentration of publications in these areas reflects a comprehensive strategy considering economic, social, and health aspects. However, other disciplines, such as the arts and humanities, indicate a growing interest in understanding aging more holistically, integrating cultural and quality-of-life elements for older people. This highlights the need to develop public policies that focus on financial sustainability and the integral well-being of older people.

On the other hand, the analysis of the different clusters allows key conclusions to be drawn about the current focus of research on public policies related to aging and health. The cluster “Active aging and social participation” (blue) reveals a strong interest in promoting social participation and active aging among older people. However, the lower density of linkages compared to other clusters suggests that these issues are often addressed more isolatedly, highlighting the need to integrate them into a broader framework that includes public policies and health programs to maximize their impact on quality of life.

The cluster “Public Health and Social Determinants of Well-Being” (green) presents the most excellent interconnectivity among all the topics analyzed, underscoring the importance of considering the social determinants of

health when developing public policies for older people. The strong linkage with multiple areas of research indicates that factors such as economic inequality, access to health services, and social support are key to improving the overall well-being of this population, suggesting that policies should comprehensively address these determinants.

Regarding the cluster “Health Care and Long-Term Care Policies” (red color), the high frequency and connectivity reflect the relevance of this topic in the context of health policies for older people. This indicates the continued need to develop strategies to improve long-term care, especially regarding sustainability and efficiency. The results suggest that health care for this population remains a critical challenge that requires careful planning and innovative policies to ensure the quality of care in the context of accelerated aging.

Finally, the “Global Dimensions and Key Factors” cluster (Yellow), although with fewer studies, focuses on specific areas within the healthcare field, such as financial management and cooperation between the public and private sectors. The lower density of studies and linkages in this cluster reflects a more specialized focus, suggesting that there are still opportunities to expand research in this field, especially in implementing effective policies that integrate financial sustainability with comprehensive health care for older people.

This article has highlighted the importance of a multidimensional approach to address the challenges of population aging through sound and informed public policies. The bibliometric analysis has revealed how research in this field has evolved and highlighted the need to integrate strategies that address the social determinants of well-being, participation, and financial sustainability beyond health care. As the world's population ages, it becomes crucial for policymakers to adopt evidence-based approaches that prioritize the comprehensive health and well-being of older people, especially in contexts where resources are limited. The findings of this study underscore that to ensure dignified aging; it is essential to implement inclusive and sustainable policies that promote autonomy, quality of life, and social integration and thus provide a more equitable future for an ever-growing population.

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Conflict of interest

The authors declare that they have no conflicts of interest.

Declaration of data consent

The data are included in the study. ●

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