Domestic Pension Industry: Trends, Themes and Research Trends-- Visual Analysis based on CiteSpace knowledge Graph

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Abstract. Analyzing the hot issues and frontier evolution in the field of domestic senior care industry is of great significance to the high-quality development of China's senior care industry. Based on CiteSpace software, this study mined the research results of domestic senior care industry published in core and above journals from 1998 to 2023, drew knowledge maps, and systematically analyzed the research hotspots and frontier evolution of this field. The research results show that the hot areas of the domestic senior care industry include "senior care industry", "senior care service", "senior care finance", "smart senior care", and "smart senior care". ", "pension model", "medical and nursing integration", "pension real estate", "industrial integration "etc. The latest research frontiers in the field of domestic senior care industry are related to "intelligent senior care", "medical and nursing integration", "industry integration", "artificial intelligence", "policy integration", "policy development", "medical and nursing model", "medical and nursing integration", "senior care real estate", and so on. The latest research frontiers in the field of senior care industry are related to "wisdom", "medical and nursing integration", "industry integration", "artificial intelligence" and "policy tools", and the research is closely related to the national policy orientation. It is suggested that in the future, based on multidisciplinary perspectives, communication and cooperation between scholars and research institutions should be strengthened, the infrastructure construction in the field of senior care industry should be enhanced, and a high-quality senior care industry system should be constructed to promote the high-quality development of the senior care industry.

Keywords: Old-age service; Pension industry; CiteSpace; Visual analysis.

1. Introduction

The elderly care industry refers to a type of industry that serves the elderly population and relies on various forms of industry such as daily care, professional assistance, health care, and spiritual comfort to meet their needs in terms of life and spirit. It has the characteristics of targeting the elderly population, having a long investment cycle and low return rate, and being public welfare oriented. It has the characteristics of targeting the elderly population, having a long investment cycle and low return rate, and being public welfare oriented. The elderly care industry is the top priority of the entire elderly care industry system and also a basic industry that meets the rigid needs of the elderly[1] . The aging population society has given rise to many needs that need to be met. The aging population society has given rise to many needs that need to be met, such as living needs, health care, and spiritual pursuits. Based on these needs, the elderly care industry has emerged and The aging population society has given rise to many needs to be met, such as living needs, health care, and spiritual pursuits. The high-quality development of the elderly care industry is conducive to improving the quality of life of the elderly and enhancing their aspirations for a better life. Promoting the development of the elderly care industry is an important measure to actively respond to the aging population, and also a practical requirement to meet the socialization needs of elderly care services in China. quality development of the elderly care industry has become an important focus to solve the problem of elderly care, meet the needs of elderly care, and Currently, the high- quality development of the elderly care industry has become an important focus to solve the problem of elderly care, meet the needs of elderly care, and promote social and economic growth.

Elderly care is both a family matter and a national matter. Providing diversified and differentiated elderly care service resources for the elderly is related to the vital interests of every individual and the development of the country's economy and society . Providing diversified and differentiated

elderly care service resources for the elderly is related to the vital interests of every individual and the development of the country's economy and society[2] . Therefore, the Party and the country have also provided various support for the development of the elderly care industry. also provided various support for the development of the elderly care industry. The report of the 20th National Congress of the Communist Party of China states "Implement the national strategy of actively developing the elderly care industry". The report of the 20th National Congress of the Communist Party of China states "Implement the national strategy of actively responding to population aging, develop elderly care undertakings and industries, optimize services for elderly people living alone optimize services for elderly people living alone, and promote the realization of basic elderly care services for all elderly people." Premier Li Keqiang also pointed out in the "Government Work Report" that we need to strengthen social security and services, actively respond to the aging population, promote the development of the elderly care services for all elderly people. Premier Li Keqiang also pointed out in the "Government Work Report" that we need to strengthen social security and services, actively respond to the aging population, promote the development of the elderly care industry, and provide elderly people with a basis and a sense of security. Therefore, in the context of high-quality development of the elderly care industry, research on the elderly care industry is an important topic that can effectively respond to the severe situation of population aging. Therefore, in the context of high-quality development of the elderly care industry, research on the elderly care industry is an important topic that can effectively respond to the severe situation of population aging. Promoting high-quality development of the elderly care industry not only ensures the rights and interests of the elderly, but also promotes harmonious social development and sustainable economic development.

The reality of the gradual weakening of the family elderly care function has given rise to academic research on the elderly care industry issue[3] . Looking at existing literature, it is found that research on the development of the elderly care industry focuses on the types of industrial service demand[4] , industrial development status , influencing factors , and development paths . industrial development status[5-7] , influencing factors[8-9] , and development paths[10-11] . However, there are still shortcomings in comprehensiveness and However, there are still shortcomings in comprehensiveness and systematicity, making it difficult to intuitively capture the research hotspots and development trends in the elderly care industry. To promote the high-quality development of the elderly care industry and objectively understand the current development status of the domestic elderly care industry, it is very important to grasp the current development status of the domestic elderly care industry. To promote the high-quality development of the elderly care industry and objectively understand the current development status of the domestic elderly care industry , it is very important to grasp the research hotspots and directions. Therefore, this study attempts to use CiteSpace software, using Chinese core and Therefore, this study attempts to use CiteSpace software, using Chinese core and CSSCI source journal literature indexed by China National Knowledge Infrastructure (CNKI) as data sources, to quantitatively analyze the relevant achievements of the domestic elderly care industry, and visually analyze the research status, development pulse, and evolution law in this field, providing important reference for subsequent theoretical and practical work. providing important reference for subsequent theoretical and practical research.

2. Data sources and research methodology

2.1 Data sources

The data used in this study come from the database of China Knowledge Network (CNKI), and the relevant literature is searched with "pension industry" as the subject term, excluding dissertations, conference papers, newspapers and other irrelevant results, and retaining only the journal literature. In order to ensure the quality of the articles and make the analysis results representative, this study only retains the literature published in the core journals of Peking University and CSSCI source journals. The reasons for selecting this data: (1) China Knowledge Network (CNKI) database contains the largest variety of Chinese journals, which is representative; (2) the core and CSSCI source journals

of NU are more recognized, and the quality of the articles is guaranteed, which can more accurately reflect the current status of the research on the domestic pension industry; (3) the subject matter is the core content of the article, which can better reflect the main idea of the article that is applicable to the specialized research on a certain field. Therefore, in this study, after excluding irrelevant literature, a total of 402 core journals from 1998-2023 were retrieved as research data.

2.2 Research methodology

The research method selected for this study is CiteSpace software, which is a knowledge mapping tool containing cluster analysis, multi-scale analysis, social network analysis and other methods developed by Prof. Chao-mei Chen of Drexel University in the U.S.A., and it is one of the most widely used and influential literature analysis software[12] . In this study, CiteSpace software is selected to visualize and display the analysis of authors and institutions, research hotspots and research trends in the research field of domestic pension industry, which can reveal the current research status and development trend in the field of pension industry to a certain extent and provide reference for the subsequent research.

3. Current status of research on the domestic elderly care industry

3.1 Analysis of the number of articles published on elderly care industry research

By analyzing the amount of articles published in the field of senior care industry over the years, the development process and trend of research in this field can be seen in general. This study selected 402 core articles included in China Knowledge Network during the period of 1998-2023, and drew a graph of the trend of the number of articles published in the domestic senior care industry in all the years, see Fig. 1.From Fig. 1, it can be seen that the research on the senior care industry in China started late, and scholars began to engage in the research in this field in 1998, mainly exploring the current situation of the aging population and the senior care industry, as well as analyzing the development prospects of the senior care industry, which began the boom of research on the senior care industry. It opened up a boom in the research on the senior care industry. From the point of view of the number of articles, the overall trend is upward, from 2010 onwards, the research on the senior care industry began to grow rapidly, and the average annual number of articles remained at about 30, and the research on the field of senior care industry has become more mature.
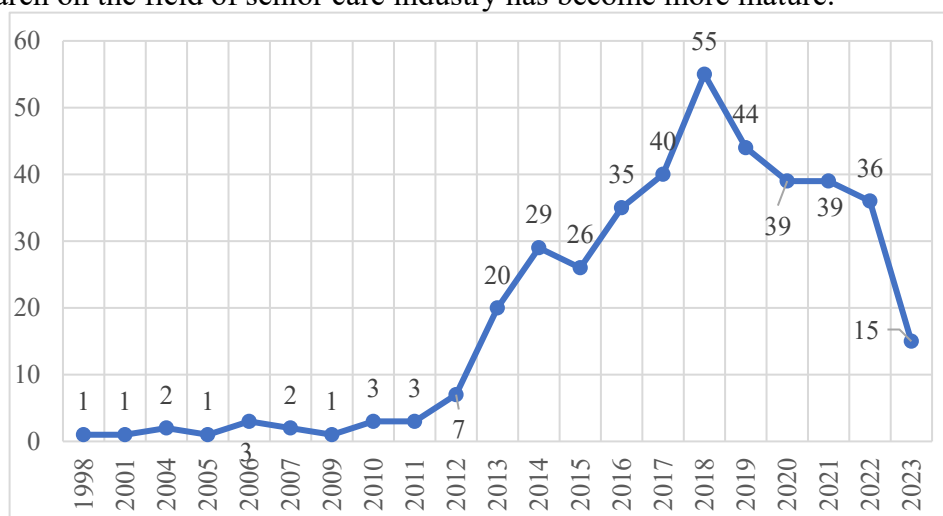

Fig. 1 Domestic senior care industry's publications over the years

3.2 Co-occurrence analysis of research authors in the elderly care industry

By using CiteSpace software to visualize and analyze the authors of the literature in the field of domestic elderly care industry, it is possible to see the authors who have issued a large number of articles in this field and the cooperative network relationship between the authors. The specific

operation is as follows: 402 documents screened from the China Knowledge Network database search were exported and imported for analysis according to the conversion format of CiteSpace. The time span is 1998-2023, and the time slice selects 2; the node type selects authors and sets Top N=50; the pruning type selects Pathfinder, and then the software is run to conduct the visualization analysis to obtain the distribution of authors and cooperation network relationship in the field of domestic pension industry. Each node in the graph represents an author, and the larger the node, the more articles the author posts; The connection indicates the cooperation between authors. The total number of nodes is 343, the total number of links is 102, and the network density is 0.0017, which can visualize the number of articles published by authors in the field of senior care industry and the cooperation between authors.

Many people in China have begun research on the senior care industry, but there are fewer authors with a high number of individual publications. Table 1 counts the authors with more publications about the senior care industry, among which those with more than 2 publications are Bo Zhang (5), Songzhong Ye (4), Pei Zhang and Zhou Yu (3). Many scholars have 2 articles, such as Yang Zhenxuan, Wang Jianfeng, and Qu Changhui, and most of the rest have 1 article, which shows that scholars have yet to further deepen their research on community-based elderly care services. From the cooperation relationship between scholars, the connecting line between nodes is more scattered, indicating that scholars cooperate loosely in the field of senior care industry, and have not formed a closer relationship network, and the existing cooperation of authors is mainly based on 2-person cooperation, and the cooperation of authors with 3 or more persons is relatively less. According to the statistics, out of a total of 473 analyzed documents, 221 articles were published independently, accounting for 46.7% of the total; the number of articles with 2-author collaboration was 169, accounting for 35.7% of the total; the number of 3-author collaboration was 64, accounting for 13.5% of the total; and the number of articles with 3 or more authors was 20, accounting for about 4.2% of the total. In addition, it can also be seen from the figure that some authors with a high number of articles basically have no connecting lines, which indicates that their published articles are all sole-authored articles, which also reflects that for the research on the elderly care industry, the mechanism of cooperation between authors is relatively weak.

Table 1 Number of publications by core authors of domestic research on the elderly care industry

scholars	volume of
Zhang Bo	5
Ye Songzhong	4
Zhang Pei, Yu Zhou	3
Yang Zhenxuan, Wang Jianfeng, Qu Changhui, Zhao Xiaoming, Fang Yuan, Hu Lijun, Mao Xi, Guo Huaiying, Liu Changping, Huang Jianfeng,	2

3.3 Analysis of the total presence of domestic research institutes in the elderly care industry

In order to further explore the institutions with more publications in the field of senior care industry and the cooperation between institutions, while keeping other settings unchanged, we select the node type as institutions in CiteSpace and run the software to get the distribution of institutions in the field of senior care industry in China and the cooperation mapping. The total number of nodes in the figure is 289, the total number of connecting lines is 89, and the density of the network is 0.0021, which indicates that there is a lack of cooperation between institutions in the field of senior care industry. From the perspective of issuing institutions (see Table 2), there are 8 institutions with more than 3 articles in this field, namely, Social Security Research Center of Wuhan University (7 articles), School of Economics and Management of Beijing Institute of Technology (4 articles), School of Business of Northeast Normal University (4 articles), Graduate School of Chinese Academy of Social Sciences (4 articles), School of Public Administration of Renmin University of China (4 articles), School of Humanities of Northeast Normal University (4 articles), Yueyang Institute of Vocational Technology (4 articles), and School of Public Administration of Northeast Normal University (4

articles). articles), School of Nursing, Yueyang Institute of Vocational Technology (4 articles), and School of International Business, Shaanxi Normal University (4 articles), and the time of issuance is mainly concentrated between 2011-2018, with less issuance in the last five years. From the data, it can be seen that in the context of the development of the new era, the research of the pension industry needs to be further deepened to explore the model of high-quality development of the pension industry as well as the development mechanism.

In terms of institutional cooperation, most institutions show a point-like distribution, with connecting lines between some of them, with two points and one line intersecting in most cases, such as the cooperation between the School of Humanities of Northeast Normal University and the Postdoctoral Mobile Station of Industrial Economics of Northeast Normal University, and the cooperation between the School of Economics of Peking University and the China Academy of Financial Sciences. This reflects that although the research in the field of senior care industry has received extensive attention from research institutions, it is mostly dominated by independent research, with a lack of awareness of cooperation between institutions and a smaller output of results. Therefore, research in the field of senior care industry also needs to strengthen the sense of communication and cooperation among institutions and promote the sharing and flow of results.

Table 2 The top 10 domestic senior care industry research (unit: articles)

rankings	Name of organization	volume of
1	Social Security Research Center, Wuhan	7
2	School of Economics and Management,	4
3	School of Business, Northeast Normal	4
4	Graduate School of the Chinese Academy of	4
5	School of Public Administration, Renmin	4
6	College of Humanities, Northeast Normal	4
7	Yueyang Institute of Vocational Technology	4
8	Shaanxi Normal University International	4
9	School of Economics, Peking University	3
10	School of Information Management, Nanjing	3

4. The domestic elderly industry research hot spot analysis

4.1 Analysis of Hot Terms in Domestic Elderly Industry Research

Research hotspot refers to the problems or topics studied in a certain period of time by a large number of papers that are connected with each other[13] . The keywords in the article can refine and summarize the core content of the article, reflecting the research value and direction of the article, and the research hotspots and research direction in the field of pension industry can be determined by analyzing the keywords with high frequency in the field of pension industry, which to a certain extent can reveal the intrinsic connection of the knowledge in the field.

In CiteSpace, the nodes are selected as keywords, set Top N=35, and run to get the keyword network mapping. There are 340 nodes in the mapping, 709 connecting lines, and the density of the network is 0.0123. Each node represents a keyword, and the size of the node indicates the frequency of the keyword in the total sample, the bigger the node represents the more occurrences, and the more it represents the research hotspot of the field, and the connecting lines represent the co-occurrence relationship between keywords. the more representative of the research hotspots in the field, and the connecting line represents the co-occurrence relationship between the keywords. From the study, the largest node in the graph is the senior care industry, followed by senior care service, senior care finance, intelligent senior care, aging, senior care model, medical and nursing care, senior care real estate, senior care institutions, and so on. The frequency of these keywords in the sample is high, which can reflect the research hotspots in the field of senior care industry to a certain extent. Statistics on the frequency of keyword appearances show that there are 9 keywords appearing more than 10

times in the field of domestic senior care industry, of which the top 10 keyword appearances are shown in Table 3.

Table 3 Glossary of hotspots for research on community-based elderly care services in China

rankings	High Frequency Keywords	frequenc	first
1	the pensions industry	139	1998
2	Elderly services	57	2006
3	Pension finance	41	2013
4	Intelligent Retirement	36	2017
5	aging (population)	33	2010
6	Pension model	22	2007
7	combine healthcare and	17	2013
8	Retirement real estate	15	2012
9	Nursing institutions	14	2017
10	industrial integration	9	2017

The high-frequency keywords reflect the importance of the topic of senior care industry in the whole keyword co-occurrence map, representing the research theme and research direction of the field in a certain period of time, which is the key to promote the in-depth development of the field. As can be seen from the table, the keyword with the highest frequency is the senior care industry, followed by senior care service, senior care finance, intelligent senior care, aging, etc. respectively. Therefore, a comprehensive analysis reveals that at the early stage of the research in the field of pension industry, the keywords of pension industry, pension service, pension finance, intelligent pension, and aging are the hotspots that scholars pay more attention to. With the accelerating aging of China's population, scholars have begun to explore the high-quality development of the pension industry, intelligent pension mode and other aspects of research, and constantly broaden the research field of the pension industry.

4.2 Cluster analysis of hot spots in domestic elderly care industry research

The clustering function in the CiteSpace software can further refract the current status of hot issues in the field of domestic elderly care industry. The Log-likelihood ratio (LLR) algorithm is chosen to cluster the high-frequency keywords in this field, so as to generate the keyword clustering knowledge map. The modularity value of Modularity Q for clustering is 0.734, and the average silhouette value is 0.966. Generally speaking, the modularity value ranges from 0.4 to 0.8, which indicates that the keywords in this field are suitable for clustering, and the average silhouette value ranges from 0 to 1, and the larger the value is, the more the keywords are clustered together. The module value is 0.4 to 0.8, which means that the keywords in this field are suitable for clustering, and the mean silhouette value is between 0 and 1, and the larger the value is, the higher the internal similarity of the keywords is. Therefore, this paper has a better effect on keyword clustering in the field of domestic pension industry, and the degree of internal similarity is also higher, and the results have a certain degree of representativeness and credibility. This results in 15 major clusters of research in this field, which are, in order of clustering size: pension finance, pension service, aging, health and old age, insurance industry, industrial integration, pension policy, pension real estate, pension trust, pension institutions, pension, urban-rural integration, public service, aging industry and recruitment and auctioning, which are also the 15 major research themes of concern in the field of domestic pension industry.

Table 4 Clustering table of hot vocabularies for research on domestic elderly care industry

clust	Cluster	Identifiers (select first 5)
#0	41	Elderly Care Industry; Xiaoshan Daily; Social Elderly Care;
#1	35	Pension finance; pension industry; second pillar; pension funding;
#2	22	Elderly services; smart ageing; population ageing; community
#3	21	Elderly service; Elderly consumption; Elderly industry; Medical-
#4	17	Senior care model; tourism senior care; institutionalized senior

#5	16	Digital Age; Risk Prevention and Control; Senior Care Services;
#6	16	Sports industry; Senior care industry; Industrial integration;
#7	16	Elderly policy; content analysis; policy text analysis; co-
#8	13	Senior living real estate; development model; investment strategy;
#9	13	Fiduciary Income; Insolvency Isolation; Senior Living Real
#10	11	Nursing homes; government responsibility; costumers; admission
#11	9	Senior care industry; Path choice; Development status; "Four-in-
#12	8	Old age approach; urban-rural integration; practice patterns;
#13	8	Public services; PPP model; aging society; elderly care;
#14	7	Aging industry; relevant policies; tax incentives; aging;
#15	5	Senior care industry; recruitment and auction; private senior care

On the basis of the keyword knowledge map, the clustering information provided by CiteSpace is organized to obtain the keyword co-occurrence network clustering table of the research in the field of pension industry, as shown in Table 4. Combined with the corresponding literature information, it can be found that the research theme of "pension industry" mainly focuses on the pension industry, pension industrialization, social pension, widow and elderly, and the study of development issues, etc.; the research theme of "pension finance" mainly focuses on pension finance, The research theme of "pension finance" mainly focuses on pension finance, pension industry, the second pillar, pension funds, population aging, etc.; the research theme of "pension service" mainly focuses on pension service, intelligent pension, population aging, community ageing, the role of the government, etc.; the research theme of "aging The research theme of "aging" focuses on pension services, pension consumption, pension industry, medical-nursing, health care, cluster development, etc. "Healthy aging" is a serious reality facing China's demographic development, and the main research points are in the areas of pension mode, tourism, institutional pension, healthy aging, and strategic industries; "The insurance industry, as an important part of the pension, focuses on the digital era, risk prevention and control, pension services, digital transformation, and comprehensive service platforms; the research theme of "industrial integration" mainly focuses on the sports industry, pension industry, and industrial integration, The research theme of "Industrial Integration" mainly focuses on the sports industry, senior care industry, industrial integration, pattern recognition, relationship review, etc.; "Senior Care Policy" refers to the relevant support programs established based on the needs of the elderly, and its research keywords are community senior care policy, content analysis, policy text analysis, co-word analysis, cluster analysis; "Senior Care Real Estate" theme mainly focuses on the research of "Senior Care Real Estate". The research on the theme of "Senior Citizen Real Estate" mainly focuses on senior citizen real estate, development mode, investment strategy, home appliance industry, government subsidies; the research on the theme of "Senior Citizen Trust" mainly focuses on trust income, bankruptcy isolation, senior citizen real estate, senior citizen market, trust products and other content research; The research theme of "Senior Living Institutions" mainly focuses on senior living institutions, government responsibility, cost subject, admission conditions, environmental design, etc.; the research theme of "Senior Living" mainly focuses on the senior living industry, path choices, development status, healthcare, wellness, and healthcare. "Four-in-one", SWOT analysis and other aspects of the research. The main keywords of "urban-rural integration" research are pension mode, urban-rural integration, practice pattern, generation mechanism, pension to the countryside, etc.; the theme of "public service" mainly focuses on public service, PPP mode, aging society, pension business, collaborative development, etc.; the research of "aging industry" focuses on the development of aging industry, path selection, development status, medical, recreational and health care, and SWOT analysis, etc. The theme of "public service" mainly focuses on public service, PPP model, aging society, nursing career, collaborative development, etc. The theme of "aging industry" is a multi-industry integration, which mainly focuses on aging industry, related policies, tax incentives, aging career, constraints, etc. The theme of "tendering and auctioning" is a way of granting land, which mainly focuses on aging industry, tendering and holding, private nursing institutions, and off-site development. The research mainly focuses on the senior care industry,

auctioning and holding, privately-run senior care institutions, off-site senior care, and senior care service industry.

5. Frontier Evolution of Domestic Research on the Elderly Industry

The identification and tracking of research frontiers can enable researchers to grasp the research hotspots and development trends in the field and further explore the subsequent research themes and directions. In CiteSpace software, research frontiers can identify emerging theories and emergent new topics, which should be comprehensively analyzed based on emergent literature and emergent keywords[13] . Since the data of this study mainly comes from China Knowledge Network, only the keywords can be analyzed by emergence analysis, running the keyword emergence function in CiteSpace software, we get 25 nodes of emergent words in the field of domestic community elderly care industry, see Fig. 2. According to the emergent words and emergent years of the domestic research in the field of elderly care industry, and combining with the analysis of the centrality of the keywords, we will classify the research literature about this field during the period of 1998-2023 into three types of emergent words and emergent years. The research literature on this field is divided into three stages to detect the frontier issues of concern to the research on the senior care industry and its evolutionary trend.
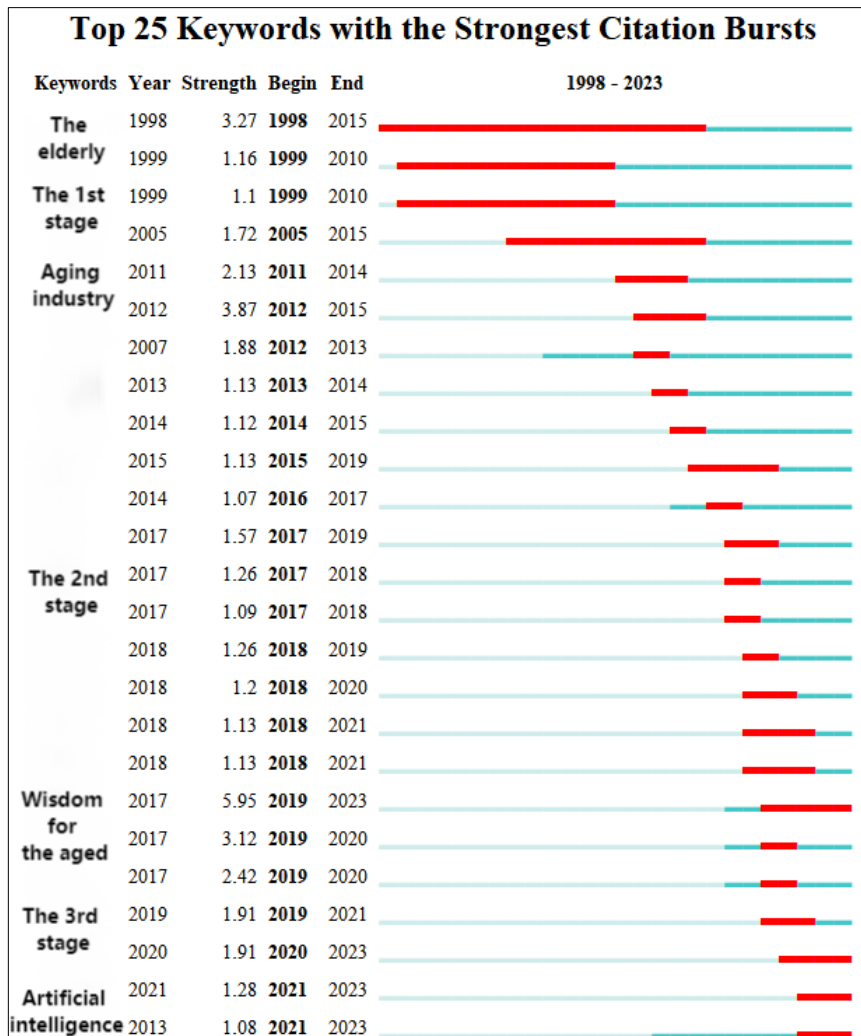
Top 25 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	1998 – 2023
The elderly	1998	3.27	1998	2015	
	1999	1.16	1999	2010	
The 1st stage	1999	1.1	1999	2010	
	2005	1.72	2005	2015	
Aging industry	2011	2.13	2011	2014	
	2012	3.87	2012	2015	
	2007	1.88	2012	2013	
	2013	1.13	2013	2014	
	2014	1.12	2014	2015	
	2015	1.13	2015	2019	
	2014	1.07	2016	2017	
	2017	1.57	2017	2019	
The 2nd stage	2017	1.26	2017	2018	
	2017	1.09	2017	2018	
	2018	1.26	2018	2019	
	2018	1.2	2018	2020	
	2018	1.13	2018	2021	
	2018	1.13	2018	2021	
Wisdom for the aged	2017	5.95	2019	2023	
	2017	3.12	2019	2020	
	2017	2.42	2019	2020	
The 3rd stage	2019	1.91	2019	2021	
	2020	1.91	2020	2023	
Artificial intelligence	2021	1.28	2021	2023	
	2013	1.08	2021	2023	

Fig. 2 Glossary of emergent nodes in domestic elderly care industry research

5.1 Early Research Frontiers in the Domestic Elderly Care Industry

The early frontier emerged from 1998 to 2010, when the research frontiers in the field of senior care industry mainly focused on "elderly population", "the elderly", "home care", "off-site care",

"senior care model" and so on. During this period, the research frontiers in the field of senior care industry mainly focused on "elderly population", "the elderly", "home care", "off-site care", "senior care model" and other aspects. Since its launch in 1998, research related to the elderly care industry has been receiving extensive attention from scholars. In the early frontier stage of research, more attention was paid to ageing in place and the elderly population.

Li Jianwu (1998) points out that the main forms of old age in China are traditional family old age and community old age, and proposes the future development direction of old age - the industrialization of old age, so as to realize the goal of social old age and the sustainable development of the population[14] . Based on the constraints and bases of industrial selection in the western development boom, Zhang Zehui (2001) clarified that the cultivation of leisure and pension industry in western China is of some significance to break through the misunderstanding of industrial selection and promote the real economic development[15] . Li Shimei (2007) reveals the multidimensional changes in China's elderly care model and the diversification trend of future elderly care through the analysis of mainstream elderly care, institutional elderly care, tourism elderly care, and mini-type family nursing home models[16] . Tian Xianglan (2010) takes Japan's elderly care business and elderly care industry as an example and verifies that both the elderly care business and the elderly care industry must be protected by a set of comprehensive laws and regulations; to meet the different needs of the elderly, it is necessary to realize the socialization of the welfare of the elderly[17] .

Generally speaking, this stage is mainly characterized by qualitative research, including theoretical analysis, case study and comparative analysis. In terms of the number of articles published, although the overall trend shows a year-on-year increase, the number of articles published is very small, and the development trend is relatively slow. 2009 held a meeting on the deployment of national research on the strategy of coping with the aging of the population, the Vice Premier of the State Council, the director of the National Working Committee on the Elderly, Hui Liangyu, elevated the problem of the elderly to the height of "the relationship between national economy and people's livelihood, and the country's long-term governance and security". "This stage has also become the stage for the diversification of the domestic elderly care industry. This stage has also become the cornerstone of the diversified development of the domestic pension industry.

5.2 Domestic medium-term research frontiers in the elderly care industry

The mid-term frontiers emerged from 2011 to 2018, during which the research frontiers in the field of senior care industry mainly focus on "aging industry", "senior care industry", "senior care facilities", "Internet", "healthy China", "rural revitalization" and "sharing economy". ", "Internet", "Healthy China", "Rural Revitalization" and "Sharing Economy". " mainly. The number of articles issued in this phase shows an explosive growth. The government began to pay attention to the diversified development of the senior care industry, and the Outline of the Twelfth Five-Year Plan in 2011 emphasized accelerating the development of social services for the elderly, fostering and expanding the business and industry of services for the elderly, increasing the number of community venues for the elderly and facilitation facilities, and developing and utilizing the human resources of the elderly. Caring for and taking care of the elderly and vigorously developing the elderly care industry play an important role in resolving the current contradiction between supply and demand for elderly care and in promoting the construction of a harmonious society.

Zhu Xiangjun and Dong Lin (2011) suggest that in the context of aging, there is a need to promote the coordinated development of the insurance industry and the pension service industry[18] . Jiang Rui and Su Zhou (2012) explored the potential of senior care real estate and suggested that the innovation of profitability and development model of senior care real estate needs to start grasping the investment opportunities of senior care real estate market[19] . Liang Yizhu (2013) pointed out that the spiritual level of care is the key to enhance the level of services provided by social institutions for the elderly, and that after meeting the material conditions, it is necessary to deeply cultivate the spiritual care of the elderly[20] . Zhan Yunzhou and Wu Fangfang (2014) argued that the construction of age-friendly cities needs to start from the levels of development orientation, facility layout, stock

assessment, standardization, and sectoral collaboration[21] . Zhang Xinsheng et al. (2015) suggest that the transformation and optimization of China's elderly care industry should take appropriate measures to strengthen publicity and change traditional concepts[22] . Liu Changping and Wang Lianjie (2017) believe that the residential care industry is a fusion between the tourism industry and the senior service industry, which is a research category of the "new economy", and should correctly guide the consumption behavior of the elderly group to promote the high-quality development of the residential care industry[23] .

Through combing the literature in this phase, it is found that the research in this phase focuses on the levels of case studies, regional studies, etc., and some of the articles also utilize quantitative research, and the research direction is beginning to diversify and the research content is gradually enriched.

5.3 The latest research frontiers in the domestic elderly care industry

The latest frontiers will emerge from 2019 to 2023, during which the research frontiers in the field of senior care industry will focus on "intelligent senior care", "industry integration", "sports industry", "rural senior care", "artificial intelligence", "policy tools", "medical and nursing integration", "healthcare and nursing industry", and so on. ", "Rural Senior Living", "Artificial Intelligence", "Policy Tools", "Medical and Nursing Integration " and so on. As China's economic development enters normalization and the urbanization process continues to accelerate, population aging has become an inescapable social reality, and the weakening of the functions of home care and institutional care has made social problems come to the forefront. Therefore, from the actual needs of the elderly, and taking into account the differences between rural and urban care, new types of elderly care such as smart care and medical-care integration are applied and are developing rapidly. In 2021, the Opinions of the Central Committee of the Communist Party of China and the State Council on Strengthening the Work of the Elderly in the New Era clearly pointed out that it is necessary to insist on the combination of responding to population aging and promoting economic and social development, and to insist on the combination of meeting the needs of the elderly and solving the problem of population aging. The report of the Twentieth National Congress of the Communist Party of China points out that it is necessary to promote the construction of a healthy China, develop the elderly care business and the elderly care industry, and promote the realization of basic elderly care services for all elderly people. "The 14th Five-Year Plan proposes to vigorously develop the silver-hair economy, promote the technological and intelligent upgrading of products for the elderly, and accelerate the in-depth application of information technologies such as big data, artificial intelligence and 5G in the field of products for the elderly.

He Dongmei and Wang Zengwen (2019) based on the coupling coordination degree model, compared and analyzed the pension industry, regional economy and the spatial and temporal evolution of the coupling coordination of the two in prefecture-level cities in Jiangsu Province, and found that the overall development level of the pension industry in Jiangsu Province is low, the regional economic development level is rising steadily, and the degree of coupling coordination between the pension industry and the regional economy is generally not high, and in general, it shows a remarkable "Center-periphery" differences, and most cities are dominated by the lagging (impaired) level of development of the pension industry[24] . Lei Xiaokang and Wang Jing (2020) constructed a "goal-structure-action" analytical framework in the context of Healthy China, explored the strategic goal of smart healthy aging, and analyzed the action plan of smart healthy aging under the structure of policy support, service supply, service standard and talent cultivation system. Action Program for Healthy Aging[25] . According to Li Jiansheng and Li Xinzhi (2021), the cultivation of elderly service talents needs time, as well as the precipitation and accumulation of education, and cannot be separated from the organic integration of resources from the government, schools, scientific research institutes, and elderly service organizations[26] . Kui (2022) showed that with the acceleration of population aging, the coupling of supply and demand of health care for the elderly in China shows a decreasing trend and regional differences are obvious, the level of marketization, the government's financial

capacity and the development of the tertiary industry are conducive to alleviating the contradiction between the incremental increase in the demand for health care for the elderly and the lack of supply in urban and rural areas in China[27] . Liu Yingjie and Wang Shuang (2023) take the Yangtze River Economic Belt as an example to empirically analyze the development level of the pension industry and tourism industry, the coupling status and the relationship with economic growth, and found that the two industries are not at a high level of development due to the imbalance of regional development and the polarization of development differences, etc., and that the degree of coupling and coordination between the two industries as a whole is on the rise, but there is a significant difference in the coupling and coordination level of each province and city[28] .

The number of articles published in this phase of the literature is maintained at more than 40 articles in general. With the introduction of national policies on the diversified and high-quality development of the pension industry, scholars gradually began to pay attention to the issues of intelligent pension, medical and nursing integration, and the integration of modern information technology such as artificial intelligence, big data and the pension industry, which made the research field of the pension industry more broad, and the research perspectives were gradually diversified, and the literature on the themes of intelligent pension and medical and nursing integration gradually increased, and the literature on empirical analysis also gradually increased, which, to a certain extent, indicates that the research on the diversified development of the domestic pension industry has gradually matured. There is also a gradual increase in the number of literature on topics such as smart aging, medical and nursing integration, and literature on empirical analysis, which, to a certain extent, indicates that the research on the diversified development of the domestic pension industry is gradually maturing.

6. Conclusions and outlook

With the help of CiteSpace software, this paper mines information on the core and above achievements in the field of domestic elderly care industry between 1998 and 2023, which are included in the China Knowledge Network (CNN), draws a knowledge map, and discusses the hot topics in the field of elderly care industry as well as analyzes the research frontiers. Research Findings:

(1) The research results in the field of domestic pension industry are relatively abundant, but there are not many high-yield scholars, and the cooperation and exchange among scholars as well as the distribution of research institutions are relatively fragmented, lacking certain cooperation mechanisms.

(2) There are more theoretical exploratory articles on the field of senior care industry, including theoretical analysis and policy discussion, while there are fewer empirical analysis articles and a lack of comparative research.

(3) The hot areas of domestic pension industry research include "pension industry", "pension service", "pension finance", "intelligent pension", "pension model", "medical and nursing integration", "pension real estate", "industrial integration", and "pension industry". ", "pension mode", "medical and nursing integration", "pension real estate", "industrial integration", etc. In recent years, the "pension industry" has become the most popular field in China. "In recent years, "smart old age" and "health care integration" have been the biggest hotspots for scholars.

(4) The latest research fronts in the field of domestic elderly care industry are related to "home care", "elderly care model", "elderly care industry", "elderly care facilities", "healthy China", "intelligent elderly care", "medical care integration", etc., and the research is closely related to the national policy orientation. Facilities", "Healthy China", "Intelligent Elderly", "Healthcare Integration", etc., and the research is closely related to the national policy orientation.

In response to the research findings obtained, the following two aspects will be used in the future to promote in-depth relevant research in the field of domestic elderly care industry:

(1) Based on a multidisciplinary perspective, communication and cooperation among scholars and research institutions should be strengthened. Research in the field of senior care industry involves the

cross-development of multiple disciplines, such as economics, management, sociology, education, psychology and so on. For example, in economics and management, data analysis is used to explore the driving mechanisms and paths for the high-quality development of the senior care industry; in medicine, it is used to combine the senior care industry with medical care to promote the development of the "medical and nursing" model.

(2) Promote the high-quality development of the elderly care industry, especially "smart elderly care" and "medical care integration". A policy system to support the development of the senior care industry should be gradually established, taking into full consideration the needs of the elderly for senior care services. The development of the senior care industry should be promoted in accordance with the actual situation in urban, rural and rural communities.

Of course, there are some shortcomings in this paper: first, the research literature mainly comes from the core and CSSCI source journals literature included in China Knowledge Network, and the literature is mainly in Chinese, excluding foreign research results; second, due to the limitation of the data format, it is not possible to carry out the citation analysis of the literature. Future research can expand the scope of the study and go deeper into the mode of high-quality development of the senior care industry, in order to be able to promote the development of the senior care industry.

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