

# Development and Prospects of Tourism-Based Elderly Care in China: A Visualized Bibliometric Analysis Based on CNKI and CiteSpace

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**Abstract:** This paper examines the development and future trends of the tourism-based elderly care industry in China using CiteSpace for a visualized bibliometric analysis. A total of 557 publications related to tourism-based elderly care were retrieved from the China National Knowledge Infrastructure (CNKI) database, with 331 valid documents selected for analysis. The study reveals an increasing focus by scholars on the integration of tourism and elderly care services, which is seen as a response to the country's aging population and national policy support. Through co-occurrence and clustering maps, three key research areas emerge: innovation in tourism-elderly care models, industrial integration, and the regional development of elderly care services. The paper also identifies challenges in the sector, such as incomplete infrastructure, inconsistent service quality, and high service costs. Finally, the study provides insights into future opportunities for the tourism-based elderly care industry, focusing on technological advancements and policy improvements to better serve the aging population.

**Keywords:** tourism-based elderly care; CiteSpace; visualized analysis

## 1. Introduction

As Chinese society gradually enters an aging stage, the quality of life and welfare issues for the elderly have gained increasing attention. Tourism-based elderly care, as an emerging mode of elderly care, can meet the diverse needs of older adults while improving their quality of life. This has become one of the key research topics in recent years. Particularly with the support of national policies, the integration of tourism and elderly care industries has deepened, offering more opportunities for leisure, health care, and life support for the elderly. Tourism-based elderly care not only occupies an important position in domestic economic and social development but is also becoming a new engine for local economic growth. In light of this trend, many scholars have conducted research on aspects such as "migratory" elderly care, rural health and wellness care, and urban-rural elderly care tourism models. [1] By exploring the tourism consumption behavior of the elderly, policies for the residential elderly care industry, and related social issues, research in this field has shown diverse and in-depth development trends. Currently, the development of tourism-based elderly care in China faces significant challenges, including incomplete infrastructure, inconsistent service quality, insufficient policy support, regional development imbalances, high costs and consumption thresholds, and a lack of professional talent in the industry. [2-4]

CiteSpace software is a bibliometric tool developed in the context of scientometrics and data visualization. It helps users retrieve bibliographic and citation data from major academic databases and visualize the data in the form of scientific knowledge maps. [5] Using CiteSpace, users can conduct keyword co-occurrence and burst detection analyses to identify research hotspots and trends in specific fields. [6] It can also analyze authorship to identify influential researchers in a field and examine collaboration patterns among them. Additionally, institutional analysis can reveal which universities or institutions are conducting in-depth research in a particular area. [7]

All data and materials for this study were sourced from the China National Knowledge Infrastructure (CNKI) database. The search criteria were set as: Subject "tourism-based elderly care",

with no time restrictions. As of September 16, 2024, 557 relevant documents were retrieved. After manually excluding theses, conference papers, newspapers, and books, 331 valid documents met the requirements of this study. CiteSpace software was used to generate and analyze co-occurrence maps, clustering maps, and timeline maps for the 331 selected documents, helping to clarify the development trajectory of the tourism-based elderly care industry, explore research hotspots, and reveal its development trends and research frontiers.[8]

## 2. Overview of Research on China's Smart Elderly Care Industry

### 2.1 Annual Publication Volume Statistics

The volume of publications can, to some extent, reflect the development status of a research field. Figure 1 shows the annual publication volume and trend for literature related to the tourism-based elderly care industry on CNKI. From the figure, we can see that research on the tourism-based elderly care industry started in 2004. Further reading of relevant literature reveals that the term "elderly tourism" first appeared in a 2004 article published in *Today's Science Park*, while the term "tourism-based elderly care" first appeared in 2006. In addition, Figure 1 also shows that scholars' interest in research related to the tourism-based elderly care industry has generally been on an upward trend, which can roughly be divided into three development phases. The first phase, from 2004 to 2015, saw a growing trend in the annual publication volume, indicating that research in this period was in its infancy, and scholars gradually became interested in this field. Especially after 2013, the publication volume increased rapidly, likely due to factors such as population aging and policy support. The second phase, from 2016 to 2020, was a period of stability. During this time, publication volume peaked and remained at a high level, reflecting that research in this field had entered a mature stage. During this period, scholars accumulated a significant amount of research and conducted in-depth discussions on various aspects of the tourism-based elderly care industry, such as market demand, service models, and policy support. The third phase, from 2021 to 2024, saw a yearly decline in the volume of publications. This decline may be due to the saturation of research in this field or shifts in scholars' focus caused by changes in related policies and market demand. However, this decrease might also suggest that new research directions or areas have yet to fully emerge, awaiting further exploration.

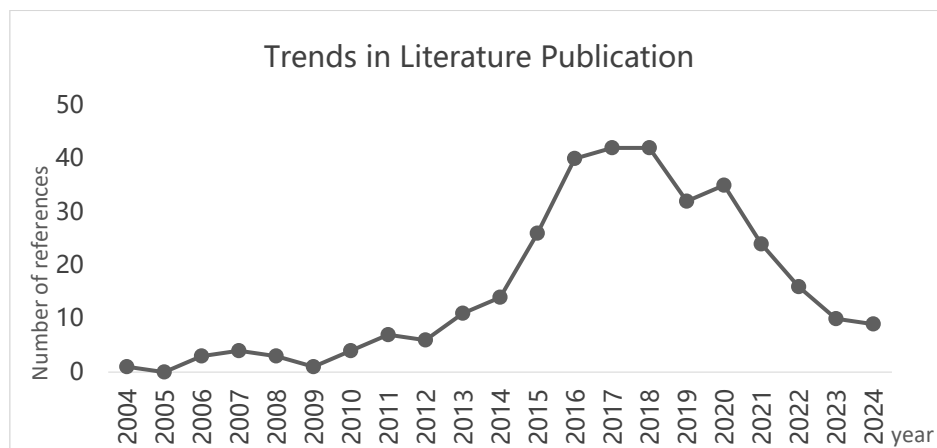


Figure 1: Publication Trends of Domestic Literature on the Tourism-Based Elderly Care Industry

### 2.2 Keyword Co-occurrence Analysis

Keywords clearly reflect the main research content of a paper, so the statistics and analysis of high-frequency keywords can, to some extent, reveal the hot topics in a given field. The keyword co-occurrence map visually shows the frequency and centrality of each keyword. Therefore, the map can help us understand the research hotspots in the tourism-based elderly care industry in recent years. As shown in Figure 2, the knowledge map contains 261 nodes and 499 links, with a network density of 0.0147. This indicates that the literature related to the tourism-based elderly care industry contains a total of 261 keywords, and there are 499 co-occurrence relationships among these keywords. The connections between the keywords are relatively tight.

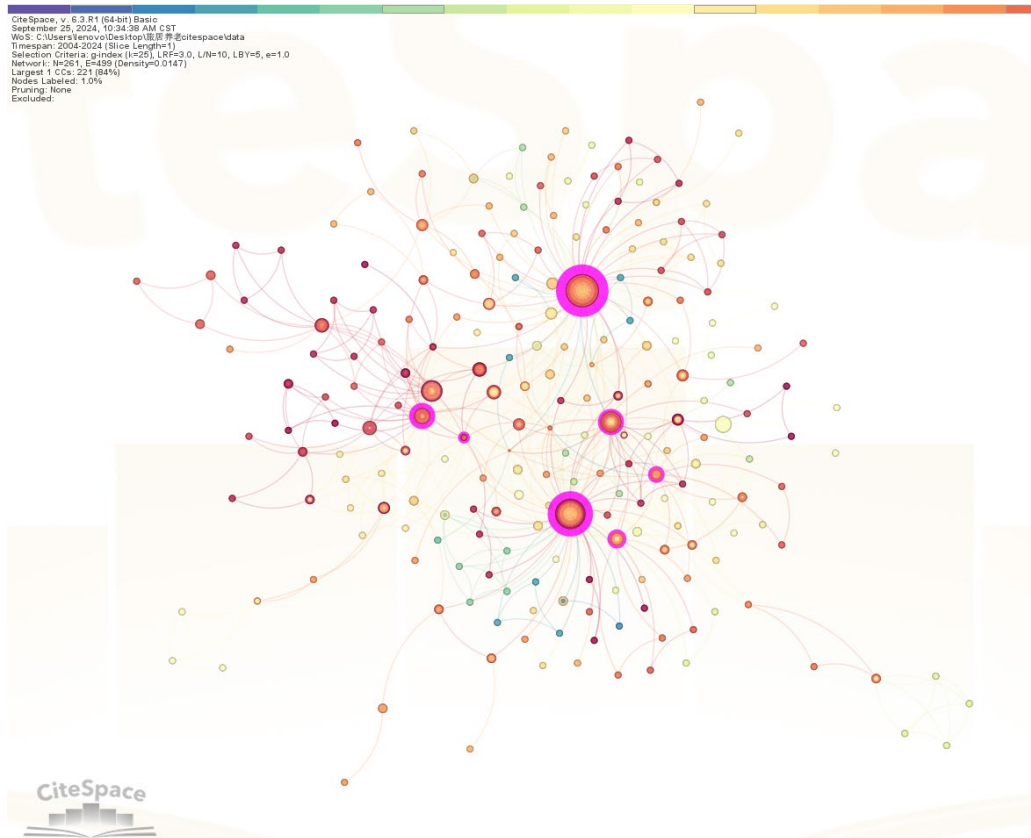


Figure 2: Co-occurrence of keywords

To more clearly reflect the popularity of the keywords and their interconnections, as shown in Table 1, the authors have organized the 10 main keywords by frequency. The larger the area of the corresponding node in the map, the more frequently the keyword is cited, indicating that it reflects a hotspot in the research field. The higher the centrality, the more important and influential the keyword is in the research. From Table 1, it is evident that keywords such as "tourism-based elderly care," "elderly tourism," "aging," and "elderly care industry" have high citation frequencies and centrality. This shows that these keywords are strongly associated with the tourism-based elderly care industry, and most of the related research revolves around them.

Table 1: Frequency and Centrality Statistics of Keywords in the Tourism-Based Elderly Care Industry

Rank	Keyword	Frequency	Centrality	First Appearance Year
1	Tourism-based elderly care	58	0.69	2006
2	Elderly tourism	51	0.58	2006
3	Aging	19	0.15	2010
4	Elderly care industry	16	0.21	2012
5	Elderly care	15	0.10	2006
6	Industrial integration	12	0.13	2015
7	Tourism	12	0.10	2012
8	Elderly care models	10	0.06	2007
9	Countermeasures	10	0.03	2007
10	Cross-region elderly care	10	0.04	2006

### 2.3 Keyword Clustering Analysis

The keyword co-occurrence analysis in the previous section helped clarify the current research hotspots in the field of the tourism-based elderly care industry. To further identify key research themes in this area, keyword clustering analysis was conducted. As shown in Figure 3, the network modularity index (Q-value) of this clustering analysis is 0.6543, and the network homogeneity (S-value) is 0.916. The Q-value and S-value reflect the effectiveness of the knowledge map. If the Q-value is greater than

0.5, it indicates that the network structure is significant, and if the S-value is greater than 0.7, it shows that the network clustering is reasonable. Therefore, the network structure of this keyword clustering map is significant, and the clustering is reasonable. The generated clustering map contains 10 clusters, which are: #0 Tourism-based elderly care, #1 Elderly tourism, #2 Elderly care, #3 Elderly care industry, #4 Industrial integration, #5 Rural revitalization, #6 Residential elderly care, #7 Willingness, #8 Historical context, and #9 Hainan. These 10 clusters reflect the main research hotspots in the field of the tourism-based elderly care industry to some extent.

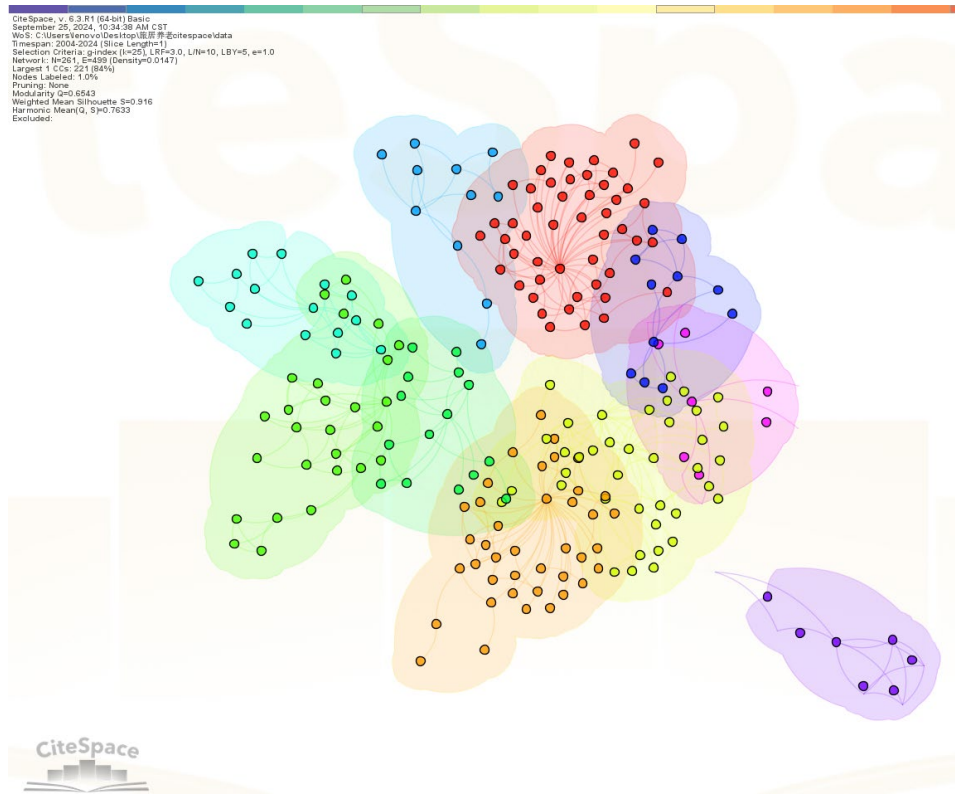


Figure 3: Keyword Clustering

To clarify the research themes further, based on the results of the keyword co-occurrence and clustering analyses, the research on the tourism-based elderly care industry can be divided into three main aspects: innovation in the combined model of tourism and elderly care, industrial integration and regional development, and analysis of demand and behavior.

1) Innovation in the Combined Model of Tourism and Elderly Care. Clusters #0 "Tourism-based elderly care," #1 "Elderly tourism," and #6 "Residential elderly care" fall into this category. The focus of research in this area is on how to develop new service models by integrating the tourism industry with the elderly care industry. Researchers explore how older adults can achieve a better elderly care experience through tourism or long-term stays, as well as how to design innovative products and services to meet this demand.

2) Industrial Integration and Regional Development. Clusters #3 "Elderly care industry," #4 "Industrial integration," and #5 "Rural revitalization" reflect the trend of integration between the tourism-based elderly care industry and other sectors. Research in this area looks at how the integration of the elderly care industry with tourism, agriculture, healthcare, and other sectors can promote regional economic development. Particularly in the context of rural revitalization, tourism-based elderly care has become an important factor driving economic growth. The research explores the synergistic effects between industries and the support of local policies for the regional elderly tourism industry.

3) Demand and Behavior Analysis. Clusters #2 "Elderly care," #7 "Willingness," and #8 "Historical context" represent research on the tourism and elderly care needs and behaviors of older adults. This area of research focuses on analyzing the willingness, consumption behavior, and health needs of older adults regarding elderly tourism. It delves into the preferences and demands of the elderly in different contexts, helping businesses and governments develop more targeted services and policies.

## 2.4 Timeline Map Analysis

To further investigate the development history of the smart elderly care industry and the changing trends of research hotspots, this paper created a timeline map of keyword clusters based on the keyword clustering analysis (see Figure 4). Based on the analysis of the timeline map, the research related to China's tourism-based elderly care industry can be roughly divided into the following three stages.

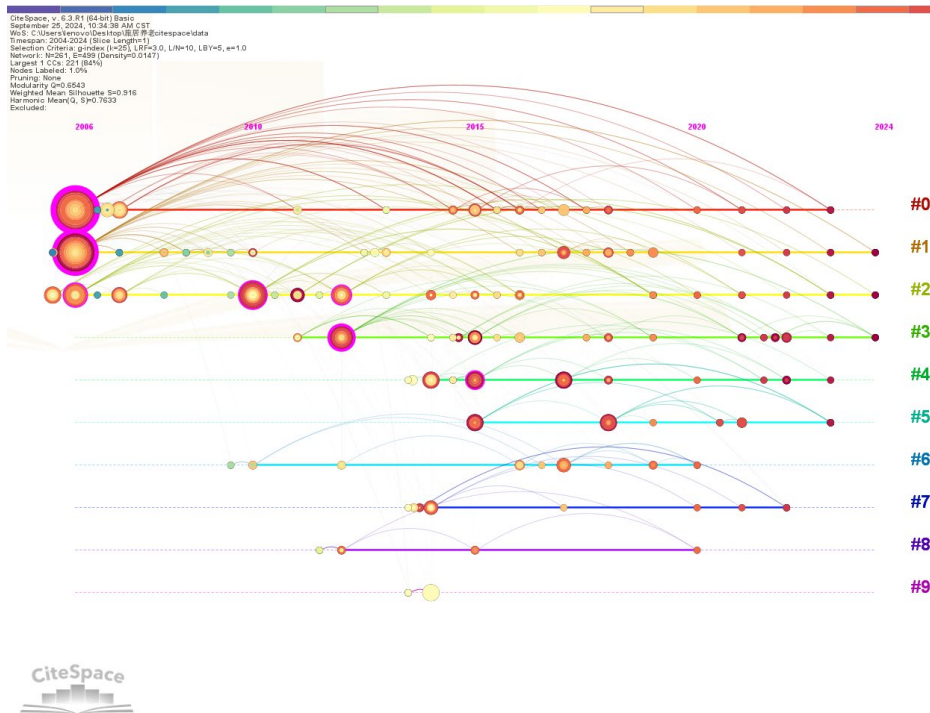


Figure 4: Keyword Timeline Map

From 2006 to 2010 is the initial stage, during which research primarily focused on the concept of tourism-based elderly care and preliminary explorations. Keywords such as "tourism-based elderly care" and "health tourism" dominated this period, indicating that research was mainly centered around the integration of elderly care and tourism, with growing academic interest in this emerging field.

From 2011 to 2015 is the exploratory stage, where research hotspots gradually shifted toward the elderly care industry and industrial integration. Keywords such as "elderly care industry" and "industrial integration" indicate that scholars began to focus on how the combination of tourism and elderly care could fit into a broader elderly care service system and industry chain. During this time, support from policy and industry demand propelled deeper research in this field.

From 2016 to the present is the development stage, during which the diversification and intelligent development of elderly care needs further expanded the focus of research to areas such as smart elderly care and the integration of urban and rural elderly care. Keywords like "rural revitalization" and "residential elderly care" reflect that research in this stage has started to explore how to drive innovation and development in the tourism-based elderly care industry by integrating national strategies and smart technologies.

## 3. Conclusion

With the advancement of technology and the intensification of social aging, the tourism-based elderly care industry has emerged and is receiving increasing attention and importance. Through a visual analysis of recent literature on China's tourism-based elderly care industry, the following conclusions can be drawn.

First, regarding the trend of annual publication volume, research on tourism-based elderly care has gradually increased since 2004, reaching a relatively stable peak in 2015, indicating that research in this field has matured over time. However, in recent years, the publication volume has declined, which

may suggest that research in this area is becoming saturated or that changes in market demand are affecting scholars' research focus.

Second, in terms of research hotspots and themes, keywords mainly concentrate on "tourism-based elderly care," "elderly tourism," and "aging," covering three primary aspects: first, innovation in the combined model of tourism and elderly care; second, industrial integration and regional development; and third, demand and behavior analysis of the elderly population. The close connections between the keywords indicate that research topics in this field have strong relevance and synergy.

Third, in terms of research development stages, the study of China's tourism-based elderly care industry has gone through three phases: initial, exploratory, and developmental. Research has gradually transitioned from preliminary explorations of the integration of tourism and elderly care to in-depth discussions of industrial integration and innovation, ultimately focusing on cutting-edge areas that combine national strategies and smart technologies to drive industry development.

In the future, the development of the tourism-based elderly care industry should strengthen the following aspects: first, improve infrastructure construction and service systems to enhance service quality and coverage; second, reinforce policy support and guidance, particularly regarding regional coordinated development and urban-rural integration; third, enhance the intelligence level of the tourism-based elderly care industry through technological innovation, leveraging big data, blockchain, and other technologies to provide more personalized and precise elderly care services.

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