Visual Analysis of the Subjective Well-Being of the Elderly Based on Citespace

Fangjiao Song, Dongmei Zhu*

Jianghan University, Wuhan, China
*Corresponding author

Abstract: Objective: To analyze the hotspots and trends of the elderly's subjective well-being research from 2010 to 2021, and hope to provide new research ideas for domestic researchers. Methods: Using CiteSpace software, based on CNKI database, 678 literatures from 2010 to 2021 were visually analyzed. Results the number of published papers showed an overall upward trend, and research hotspots focused on social support, loneliness, pension institutions, mental health, and physical exercise. Conclusion: More and more scholars pay attention to the subjective well-being of the elderly. With the progress of society, new research directions will be born in the future. After nearly ten years of visualization research, the research direction of the elderly's subjective well-being has shifted from happiness, square dancing, death attitude, etc. to the elderly's social support and social capital. The status quo, influencing factors and coping strategies of the elderly's subjective well-being were identified, which provided theoretical support for the scientific construction of the social service security system for the elderly in my country.

1. Introduction

According to "China Development Report 2020: Development Trends and Policies of China's Population Aging", the number of elderly people in my country will exceed 300 million during the "14th Five-Year Plan" period, and it will move from mild aging to moderate aging [1]. By the middle of the 21st century, China's population aging will reach its peak, and the proportion of the population aged 65 and above will be close to 30%. According to the data of the seventh national census released on May 11, 2021, by the end of 2020, the proportion of my country's population aged 65 and above to the total population will be 13.5%. Taking 14% as the dividing line, the ageing society at the end of 2020 is only 0% away. . 5%, the countdown to officially entering the aging society has begun. Subjective well-being (Subjective well-being, referred to as SWB), refers to the experience generated by the evaluator's overall assessment of the quality of life based on self-defined standards [2]. Studying the subjective well-being of the elderly will help to explore the methods and ways to maintain the mental health of the elderly, help the society to pay attention to and improve the quality of life of the elderly, and be conducive to family harmony, health and the harmony, stability and development of my country's economy and society. rapid development [3]. Based on the analysis of Citespace software, this paper conducts a visual analysis of the literature on the subjective well-being of the elderly, in order to provide new research ideas for domestic

researchers.

2. Data and Results Analysis

2.1. Research methods and data sources

2.1.1. Research methods

In this paper, Citespace software is used for visualization research. Citespace is an information visualization analysis software based on Java software invented by Professor Chen Chaomei of Drexel University and her team. It explores the knowledge paths and scientific frontiers in a certain scientific field through co-citation analysis theory and pathfinding network algorithm. Researchers can change the way they see the world through the generation, evolution and analysis of knowledge graphs [4].

2.1.2. Data sources

Relevant literature was searched in China National Knowledge Infrastructure (CNKI) with the subject words "subjective well-being" and "elderly people", and the retrieval time range was nearly ten years (2010-2021). The literature sources include a total of 761 papers, and 678 valid papers were obtained by screening out the literature outside the research field.

2.2. Research result

2.2.1. Time zone distribution of the study

As can be seen from Figure 1, the number of publications in the past ten years has shown an overall upward trend. In 2010, the number of journal publications was about 30, and in 2013, there were nearly 65 papers. From 2015 to 2021, the number of publications was relatively stable, basically maintaining around 70-80 papers per year.
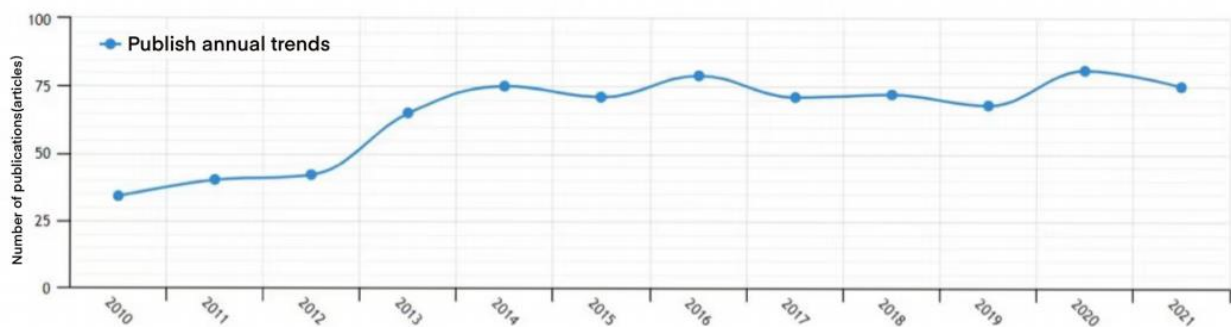

Figure 1: Trend chart of the number of published papers in the field of subjective well-being of the elderly from 2010 to 2021

2.2.2. Co-occurrence analysis and basic situation of authors and institutions

Figure 2 shows the number of articles published by authors, showing that a total of 271 nodes and 136 connections are generated, and the author density is 0.0037. Figure 3 shows the number of papers published by institutions, showing a total of 271 nodes and 10 connections, and the author density is 0.0003, indicating that the cooperative relationship structure between authors or institutions is relatively loose. The changes in the color of nodes and connections represent the time of publication. It can be seen from the figure that the research time period of each author and each

institution is relatively short. Taking the top ten authors and institutions, it can be seen that each author published a relatively small number of papers. He Jiali, Ding Xing, and Leng Hong all published 12 papers, and Wu Yufeng and others published 8 papers. It can be seen from the issuing institution that the School of Political Science and Public Administration of East China University of Political Science and Law published the most papers with 12 papers, followed by the School of Public Administration of Northwest University with 10 papers.

Figure 2: Co-occurrence knowledge graph of research authors

Figure 3: Co-occurrence knowledge map of research institutions

2.2.3. Keyword co-occurrence analysis

Keyword co-occurrence can reflect the current and past research hotspots of the elderly's subjective well-being research. Open Citespace and select keywords to run. After removing meaningless words and merging synonyms, a high-frequency keyword map of elderly subjective well-being can be obtained (Figure 4). There are 53 keywords in the co-occurrence map. Centrality refers to the importance of nodes in the network, plays a pivotal role, and can reflect the hotspots of research fields. Generally, the importance of the network node is evaluated under the condition of centrality value ≥ 0.1 [5]. The key word with the greatest centrality is loneliness (0.50), indicating

that a series of studies have been carried out around this key word, followed by the nodes with high centrality are happiness (0.45), the elderly (0.44), influencing factors (0.45), Empty-nest elderly (0.40), physical exercise (0.35), and mental health (0.26). It can be seen that the research hotspots of the elderly's subjective well-being mainly focus on well-being, influencing factors, empty-nest elderly, physical exercise, and mental health. See Table 1.
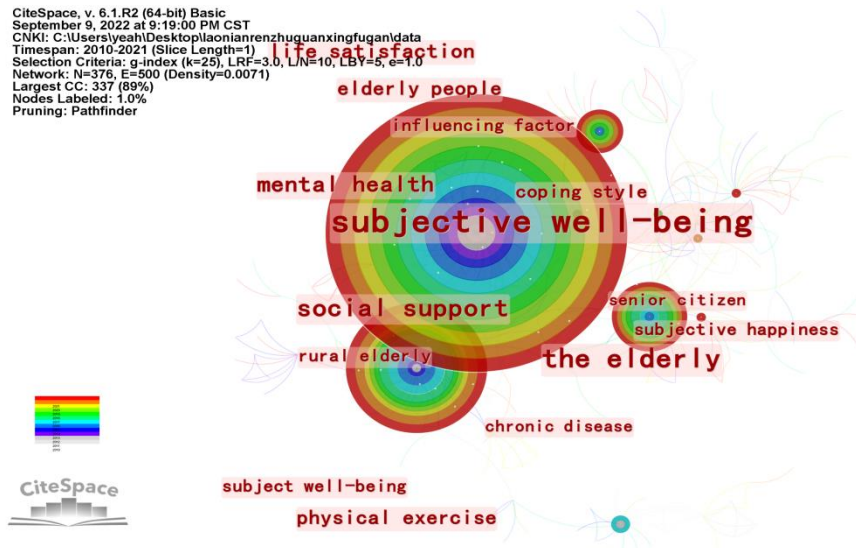

Figure 4: Keyword co-occurrence knowledge graph

Table 1: Top ten high-frequency keywords in the field of elderly subjective well-being

Keywords	Frequency	Centrality
Elderly	302	0.44
Social support	71	0.10
Influencing factors	64	0.45
Pension agency	35	0.08
loneliness	32	0.50
Physical exercise	29	0.35
Mental health	27	0.26
Happiness	24	0.45
Rural elderly	18	0.08
Empty nester	16	0.40

In the co-occurrence graph (Fig. 4), a total of 376 nodes and 500 connections are generated. The 376 nodes represent 376 keywords. The size of the node represents the number of posts, and the thickness of the connection represents the co-occurrence strength of the keywords. The co-occurrence map can not only see keywords with high frequency, but also find keywords with strong co-occurrence such as social support and happiness, loneliness and social support, mental health and physical exercise. The co-occurrence analysis of keywords in Table 1 and Figure 4 reflects the current hot issues of social pensions, and it is also a hot field of research by related scholars.

2.2.4. Research Frontiers

The analysis of research fronts is realized by the algorithm of burst detection (Burst Detection), mainly by examining the time distribution of word frequency to detect the burst words with faster frequency growth, so as to analyze the frontier fields of the discipline. The emergent bars behind each keyword in the figure represent the year, and the duration of the keyword emergence is

represented by the length of the bars [6]. As shown in Figure 5, the research hotspots of the elderly's subjective well-being from 2010 to 2021 are constantly changing, among which the research on the impact of intergenerational support and chronic disease on the elderly's subjective well-being is more prominent.

Top 9 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2010 - 2021
older people	2010	2.19	**2011**	2013	
subjective well-being(swb)	2010	1.41	**2011**	2015	
old people	2010	1.34	**2011**	2014	
subjective happiness	2010	2.13	**2012**	2013	
senior citizen	2010	1.56	**2012**	2015	
intergenerational support	2010	1.73	**2018**	2021	
rural elderly	2010	1.61	**2018**	2021	
factor analysis	2010	1.52	**2018**	2019	
chronic disease	2010	1.34	**2018**	2019	

Figure 5: Analysis of research fronts from 2010 to 2021

2.3. Discussion

2.3.1. Development of research in the field of subjective well-being of the elderly

In 1978 Wilkening proposed that subjective satisfaction stems from the difference between an individual's wishes and expectations and his ability to meet expectations in the environment [7]. An earlier study on subjective well-being in my country was the "Overview of Subjective Well-being of the Elderly" published by Liu Rengang in 1998, which proposed that subjective well-being consists of three dimensions, namely life satisfaction, positive emotions and negative emotions, which affect the elderly. The factors of subjective well-being include subjective factors such as personality, control source tendency, self-esteem, wisdom and other objective factors such as economic status, health status, social support and various life events [8]. Based on the Citespace software, this paper conducts a visual analysis of the number of papers published in the field of subjective well-being of the elderly from 2010 to 2021. According to the research results, the number of papers published in the past ten years has shown an overall upward trend, and the number of papers published in each of the past five years is around 70. The "Proposal of the Central Committee of the Communist Party of China on Formulating the Fourteenth Five-Year Plan for National Economic and Social Development and the Vision for 2035" issued on November 3, 2020 proposed for the first time the implementation of a national strategy to actively respond to population aging, it can be seen that the degree of aging is deepening, so it is necessary to study the subjective well-being of the elderly.

2.3.2. Hotspots in the research field of subjective well-being of the elderly

In the analysis, high-frequency words such as social support, loneliness, pension institutions, mental health, physical exercise, etc. were obtained, reflecting the hotspots in the field of subjective well-being of the elderly. Bao Miqing et al. pointed out that there is a significant correlation between the subjective well-being level of the elderly and the level of social support. The security

of life, a stable residence, worry-free clothing and food, and a comfortable environment are all material foundations that restrict the level of well-being of the elderly. Establishing and improving the living security system for the elderly is the most basic condition for improving the subjective well-being of the elderly [9]. Mental health, the status of elderly care institutions, and the quality of life are important factors that affect the subjective well-being of the elderly. The corresponding improvement in the subjective well-being of the elderly will make the elderly feel happy, their psychological conditions will improve, and their quality of life will improve accordingly. Promote the development of my country's pension industry [10-14].

2.3.3. Discussion on the future research trend of subjective well-being of the elderly

With the progress of society, new research directions will be born in the future. After nearly ten years of visualization research, the research direction of the elderly's subjective well-being has shifted from chronic disease to the intergenerational support. The status quo, influencing factors and coping strategies of the elderly's subjective well-being were identified, which provided theoretical support for the scientific construction of the social service security system for the elderly in my country. However, through literature review, it can be seen that most of the theories on which domestic subjective well-being research tools rely are derived from Western cultural backgrounds, and some are not applicable to China. Therefore, it is necessary to strengthen the scientific nature of sampling methods and the representativeness of research samples, and the formulation of research tools must In line with my country's national conditions. my country has entered an aging society, which requires the joint efforts of the whole society and the joint research of psychology, sociology, health care, social services and other fields and disciplines to effectively improve the subjective well-being of the elderly[3].

3. Conclusions

This study uses the bibliometric research method, uses Citespace software to draw a visual knowledge map, analyzes the literature on the field of subjective well-being of the elderly from 2010 to 2021, and draws the research hotspots and development trends in the field of subjective well-being of the elderly in the past ten years. Provide new ideas for domestic researchers. The limitation is that the bibliometric analysis is biased towards quantitative research and lacks the process of qualitative text analysis; secondly, the literature is only included in CNKI literature, which may cause the loss of some studies, which may cause certain biases, and limit the depth and breadth of the research. Therefore, the research results need to be further verified.

References

[1] People's Daily Online. During the "14th Five-Year Plan" period, the national elderly population will exceed 300 million [EB]. https://baijiahao.baidu.com/s?id=1681383604459501790&wfr=spider&for=pc.2020-10-24/2021-4-17.
[2] Zhao Huaijuan. (2020). A study on the influencing factors of subjective well-being of the elderly in my country: a systematic review. Journal of Xinyang Normal University (Philosophy and Social Sciences Edition) (02), 59-63.
[3] Answer Huiming. (2019). Ten years of research on subjective well-being of the elderly in China: Retrospect and prospect. Chinese Journal of Gerontology (09), 2288-2294.
[4] Li Yan, Fan Yuxia & Lu Lihua. (2020). Visual analysis of self-efficacy of cancer patients based on Citespace. China Medical Science (18), 233-238+248.
[5] Liu Zeyuan. (2008). The method and application of scientific knowledge graph. People's Publishing House.
[6] Liu Huaxue, Yu Wenjing, Liu Taifang & Zhang Aihua. (2018). Visual analysis of frailty research on the elderly in the community. Contemporary Nurses (Mid-Journal) (08), 1-4.
[7] E. A. Wilkening and David McGranahan. (1978). Correlates of Subjective Well-Being in Northern Wisconsin. Social Indicators Research, 5(2), pp. 211-234.
[8] Liu Rengang, Gong Yaoxian. (1998). An overview of the subjective well-being of the elderly. Chinese Journal of

Clinical Psychology (03).

[9] Bao Miqing & Ruan Haiying. (2014). Correlation between subjective well-being and social support in the elderly. Chinese Journal of Gerontology (19), 5531-5533.

[10] Zhao Lina. (2016). Analysis of the status quo of the quality of life and subjective well-being of the elderly in new rural areas. Tomorrow Fashion (09), 279+24.

[11] Chen Ruiyun, Lv Xiuxia & Dai Fumin. (2018). Factors influencing the subjective well-being and quality of life of the elderly in nursing institutions. Chinese Journal of Gerontology (07), 1781-1783.

[12] You Xueqin, Yin Shanyan, Guo Cheng & Teng Zhaojun. (2018). Mediating role of subjective well-being and mental health of the elderly in apartment. Chinese Journal of Gerontology (06), 1484-1486.

[13] Wei Fengying & Quan Xian. (2020). Research on the current situation of mental health and subjective well-being of the elderly in Tibetan areas of Qinghai. Journal of Qinghai University for Nationalities (Social Science Edition) (01), 68-78.

[14] Liu Linfeng, Yang Lingna, Wang Hongyan, Liu Qin, Lin Qin & Zhang Xiangeng. (2020). The correlation between mental health and subjective well-being of the elderly in nursing homes. Chinese Journal of Gerontology (24), 5277-5280.