Knowledge Mapping Research of Domestic Nursing Based on CSSCI (2004—2013)

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ABSTRACT: The paper with scientific knowledge mapping tool-Citespace III and content analysis analyze the research of nursing based on the statistical data (2004-2013) in CSSCI (Chinese Social Sciences Citation Index). The study visually displays the research of hot spots, literature co-citation, authors cooperation and authors co-citation about the nursing in the Humanities and Social Science.

1 GENERAL INSTRUCTIONS

1.1 Research status

At present, many scholars achieved some results in nursing research through bibliometric methods. By induction, it can be divided into the following categories: Nursing journal studies; Nursing literature research; Based on nursing journals researching a question; The research of nursing literature based on a question. The literature search (CNKI) indicates that using tool Citespace researchers nursing science (or the humanities and social sciences or medicine) is even few.

1.2 Research overview

It is well known scientific knowledge map drawing tool, Citespace, is developed by Dr. Chen Chao Mei (Drexel University, Philadelphia, PA, USA),[1] which is easy to obtain and based on certain data sets for getting the map of research knowledge and is characterized by dynamic visual images, strong rational information and readability.[2] In this study, between 2004 and 2013, domestic social sciences indexed journals issued and citation data are the subject investigated, and using Citespace analyses keyword co-occurrence maps, document co-citation patterns, the author co-citation patterns and authors co-occurrence maps of the nursing and the study reveals the nursing research in the development of the social sciences humanities.

2 RESEARCH METHODS AND DATA SOURCES

2.1 Data Sources

The study is based on Chinese Social Sciences Citation Index database (http://www.cssci.com.cn/) which includes the national nursing literature (2004-2013) which is the data sources of visualization. The search term is "nursing" to avoid missing the literature search and total articles is 136. Eliminating independent articles of "nursing" and there is ultimately valid 90 documents.

2.2 Research Methods

This study analyzes the articles by CitespaceIII software and Microsoft Excel. Currently, and Citespace software supports only Web of Science database format, CNKI and Wanfang database format and CSSCI RefWork data format for Chinese literature, which can only effectively analyze jargon and keywords converted of RefWork format. By conversion and analysis of CSSCI data format[3], CitespaceIII has drawn keyword co-occurrence, document co-citation, author and co-author cited cooperation patterns to reveal the study of the health care research in the humanities and social sciences.

3 NURSING KEY WORDS CO-OCCURRENCE MAPS AND ANALYSIS

3.1 The drawing of maps

This article’s data published in accordance with (Years Per Slice: 1) is between 2004 and 2013, after selecting the node type "key words", clustering threshold debugging c, cc, ccv: (2,3,15), (4,3,20), (4,3,20) and Pathfinder simplified algorithm, we can obtain the nursing keyword co-occurrence map of 104 nodes and 323 connections, see Figure 1.
In the map, related parameters of Keyword nodes are mainly frequency and centrality. Frequency represents the number of keywords, centrality represents the structural position of the current node in the map, the size of the ring is direct proportion as the frequency of key words, the width of the center of the ring is direct proportion as the size of centrality. 

The year is corresponding with annular layer of each node divided in the figure, the frequency of key words is proportional to the thickness of the ring. The colors of connection between nodes represent year information of keyword co-occurrence. Red outer width of each node is proportional to the its Burst which is the amount which is describing mutation process, indicating such keywords once appeared to have been widely used.

3.2 The analysis of maps

By analyzing the above parameters, you can learn hotspot and frontier about the nursing research in humanities and social sciences. Here are keywords more than three times in the figure, see Table 1.

The keywords, population aging, long-term care, long-term care insurance, nursing journals, nursing, social insurance, nursing, etc, can be seen from the table. We can integrate the information of figures 1 and table 1 and by automatic clustering, five hot areas and the proportion of its documents about nursing research can be summed up: (1) Aged care (28.9%). There are aging population, long-term care, aging and the elderly and so on in the keywords. Most topics derived from literature researcher’s notice on social hot issues. In February 2006, the National Committee on Ageing first release “Chinese Population Aging Tendency Forecast Report" which indicate: In 1999, China has entered the aging society, China is the world's most populous country in the elderly; There are lots of increasing pressure about pension, health care, social services and other needs in old age groups, China's aging population is not only China's own problems, but also the global population aging process. On the one hand, mutations values of aging population (5.03) and long-term care (5.08) describe from 2004 to 2006, the aging population care problems quickly became the focus of attention of researchers, and reports published also reflect outstanding problems of our aged care should be solved on the other side. The "long-term care" mainly refers to the research of long-term care needs, security, mode, services, industry, current situation and trend about the elderly. It shows researchers focused on combining nursing research with social problems; (2) Care insurance (24.4%). The keywords have long-term care insurance, nursing insurance, social insurance, commercial insurance, insurance system and research direction mainly has elderly care insurance, nursing care insurance system at home and abroad, long-term care insurance and nursing insurance system reform and so on. From the time dimension of keyword clustering, nursing insurance has become a hot topic of research in recent years; (3) Education and teaching (11.1%). Nursing and teaching material construction and other keywords show nursing researchers pay attention to nursing disciplines, curriculum and teaching reform in the 2005–2006, which reveals the importance of education in nursing development in China. (4) Investigation (16.7%). Care, interpersonal communication, undergraduate and other keywords showed the theme of surveys and studies on nursing issues nursing students psychological investigation, interpersonal investigation, child care and care for the intervention. (5) Nursing journals (18.9%). The main keywords are nursing journals, scientific and technical journals and papers funds ratio, these hot keywords indicate nursing periodicals are important national nursing research in 2004, which focus on the present situation, the main challenges, the direction of development, problem solving and construction of nursing journals. By analyzing and carding the high frequency keywords, we provided the development context and trends of nursing research in humanities and social sciences.
Table 1. 2004—2013 high frequency for nursing Keywords.

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Frequency</th>
<th>Centrality</th>
<th>Burst</th>
<th>Year</th>
<th>Hotspot / Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population aging</td>
<td>22</td>
<td>0.03</td>
<td>5.03</td>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>Long-term Care</td>
<td>19</td>
<td>0.03</td>
<td>5.08</td>
<td>2005</td>
<td>Aged care</td>
</tr>
<tr>
<td>Aging</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2005</td>
<td>28.9%</td>
</tr>
<tr>
<td>The elderly</td>
<td>3</td>
<td>0</td>
<td>—</td>
<td>2004</td>
<td></td>
</tr>
<tr>
<td>Long-term care insurance</td>
<td>18</td>
<td>0.01</td>
<td>0</td>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>Care Insurance</td>
<td>10</td>
<td>0</td>
<td>2.75</td>
<td>2013</td>
<td>Care insurance</td>
</tr>
<tr>
<td>Social Insurance</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>2006</td>
<td>24.4%</td>
</tr>
<tr>
<td>Commercial insurance</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>Insurance system</td>
<td>4</td>
<td>0</td>
<td>2.4</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>Nursing journals</td>
<td>15</td>
<td>0.03</td>
<td>—</td>
<td>2004</td>
<td></td>
</tr>
<tr>
<td>Scientific and technological periodical</td>
<td>9</td>
<td>0</td>
<td>—</td>
<td>2004</td>
<td>Nursing journal 18.9%</td>
</tr>
<tr>
<td>Funded papers ratio</td>
<td>3</td>
<td>0</td>
<td>—</td>
<td>2004</td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2005</td>
<td>Education and teaching</td>
</tr>
<tr>
<td>material construction</td>
<td>8</td>
<td>0.01</td>
<td>0</td>
<td>2005</td>
<td>11.1%</td>
</tr>
<tr>
<td>Nursing</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2006</td>
<td>Investigation 16.7%</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>9</td>
<td>0.01</td>
<td>3.64</td>
<td>2011</td>
<td></td>
</tr>
</tbody>
</table>

* Burst is descriptive process value, so it is not the beginning of the year 2004.

4 NURSING LITERATURE CO-CITATION MAPS AND ANALYSIS

4.1 The drawing of maps

This section presents literature co-citation maps in 2004—2013 and reveals domestic nursing research knowledge base and its evolution. After time slicing, selecting the type of node and clustering threshold commissioning, you can get the literature co-citation maps which have 82 nodes and 261 connections (see Figure 3).

4.2 The analysis of maps


5 NURSING RESEARCHER MAPS AND ANALYSIS

5.1 Nursing authors co-citation map and analysis

5.1.1 The drawing of maps

By author co-citation maps, you can find the domestic scholars whose study have important influence on nursing care and the trend of the development of the subject in 2003-2014. Through "label clusters with indexing terms", maps are labeled with cluster label automatically (beginning with # label, see Figure 4). The sizes of the nodes in the graph are directly proportional to the frequency of the authors' citation. It can be seen that Tao Jing, Fang Yugui, Tian Xianglan, Li Jianfei, Liu Cao, Qiu Peng, Chen Jie, Liu Xin, Coy, Jacquelyn S., Xiong Jimei and other 18 scholars have great influence.
5.1.2 The analysis of maps

These cited authors can be divided into the following five areas according to the FIG. 3 with the # tag words and the classification of the research hotspots in the first table, combined with the corresponding literature content of the cited authors:

1. Elderly care. The domestic authors in the area whose essays are highly cited are: Tian Xianglan, China Research Center on Aging, etc; the authors abroad in the area whose essays are highly cited are: Coy, Jacquelyn S., Jones Harriett E., BMG and so on.

2. Care insurance. The authors in the area whose essays are highly cited are numerous. The domestic authors are: Jing Tao, Li Jianfei, Tian Xianglan and so on. The authors abroad are: Tharpe, Gene, Stessman J., Schmid H., Sadler, Jeff, Jones, Harriett E. et.

3. Nursing journals. The main highly cited authors: Fang Yugui, Li Yajie, et.

4. Nursing education. The area in which the highly cited authors: Ministry of Health, Chen Xinmin, etc; foreign highly cited authors: Heckman J.J, Becker, G.S etc.

5. Research. The highly cited authors in the field are more. The major domestic key highly cited authors: Yu Xin, China Research Center on Aging, Dai Weidong, the Ministry of Health, etc. The highly cited authors abroad: Solon G., Schmid H., Andrea L.D., Rotter J.B etc.

It can be found that the highly cited authors are in the three areas: elderly care, nursing care insurance and research. They include not only the important domestic scholars, but also the scholars abroad. At the same time these five areas are not isolated. The highly cited authors have a strong cross-cutting research. Some of the high-impact authors make great contributions to multiple fields simultaneously.

5.2 Nursing authors cooperation map and analysis

5.2.1 The drawing of maps

Through the map of authors cooperation, cooperation in scientific research can be found in the case of domestic nursing research among scholars. By node type (Author) and after clustering threshold commissioning, the number of nodes is 178, the number of connections is 496, and the maps are labeled with cluster label automatically. Prolific writers are: Fang Yugui, Dai Weidong, Xia Jiang, Chen Lingli, Li Yajie, Jing Tao, Jian Ruoshan, Wang Juxiang, Zhang Lixin, Zhang Caihong, Liu Sujun and so on. These scholars make great contributions to the combination research of humanities and nursing. (The figure is omitted).

5.2.2 The analysis of maps

The intensity is proportional to the intensity of the cooperation between the authors. The color of the connection indicates the year that the authors cooperated first. From the figure, it can be seen that there are more cooperative research groups:

1. The Prolific writers group such as Fang Yugui, Jiang Xia, Chen Lingli, Li Yajie, Jian Ruoshan, Sun Chao, Lin Chunrong are all from the Southern Medical University. Their research direction is the concept of nursing journals, distribution methods, systems development and application.

2. Dai Weidong and Jing Tao represent the group of the nursing care insurance research and elderly care research. The members included He Guanglin, Chen Tao, Wang Jie, Yan Bo and Wan Lihong. The group has made important contributions to the research of the domestic policy and model of the elderly care, rural pension situation, the long-term care insurance system at home and abroad and the demand and model.

3. There are four groups whose research direction is nursing journals. They are Zhang Lixin, Wang Hongli, Wang Yaxi, Liu Sujun, Wang Juxiang, Song Chunyan etc.

4. There are other authors of the research cooperation, such as Zhang Caihong, Yuan Aihua, Zhang Hongyu, Lu Zhui xiang, etc.

Through the analysis, it can be seen that the study of nursing in the humanities and social sciences is through cooperation. In cooperation every researcher can reach their full potential so that the research results are high level. At the same time research is nothing more than the aged care, nursing care insurance, nursing journals, nursing education and research.
6 CONCLUSION AND REFLECTION

Based on the findings above, the author concludes the following thoughts about the nursing in the humanities and social sciences:

1. The research about humanities and social sciences are less. Because nursing science belongs to the medical science, studies on humanities and social sciences are relatively less. But with the cross-growing and diversified emerging, the research of the combination of nursing and social problems will be the focus. For example, in the increasingly serious problem of aging today, you can carry out the research of the use of information technology and computer networking to solve the problem of the elderly care insurance; researchers can also carry out the research on how to reinforce the students' humanity spiritual training from the aspect of the teaching material construction, teaching methods reform, teaching staff construction, curriculum and humanities care environment; other comparative studies can also be carried out in the fields of home and abroad nursing ethics, laws and regulations, systems, policies, ideas, values, management, personnel training, care model, evaluation methods and. In addition to the methods used frequently, you can also use some quantitative study, qualitative research and visualization software, such as: SPSS, NVivo, VOSviewer, Citespace so as to improve the reliability and effectiveness of research. At the same time, you must continue to improve the sensitivity and prospective of hot issues to explore ways and countermeasures to solve problems.

2. The research focus is unevenly distributed. In Table 1, the five hot areas proportion (28.9%, 24.4%, 18.9%, 11.1%, 16.7%) indicate that the number of nursing education references is few and further study is needed. Research on professional training of nursing disciplines, curriculum and teaching reform can be carried out from the view of the foreign advanced concepts and methods which combine with our facts; the research on the nursing institutions, the improvement of scientific management of institutions and decision-making can promote its rapid development.

3. The research do not catch up with the times. The literature co-citation map (Figure 2) shows that the high-frequency citation mainly focused on 1993-2003 and there are less nursing researchers in recent ten years (2004-2013). The researchers can quote multi-references in recent years at home and abroad that have innovative ideas, advanced methods of research results to meet the research environment and trends in the new era.

7 OTHERS

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