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Original article

A study of clinical psychological nursing research hotspots in China and variation trends based on word frequency analysis and visualization analysis[☆]

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ABSTRACT

Objective: To analyze clinical psychological nursing research hotspots in China and variation trends in order to provide reference points on the current state of development of clinical psychological nursing and future research hotspots.

Method: Clinical psychological nursing research literature sourced from Wanfang Data for the three periods of 2007–2009, 2010–2012, and 2013–2015 were selected as the research sample. A bibliographic co-occurrence analysis system (BICOMB software) was used to perform keyword word frequency analysis and generate a keyword co-occurrence matrix. In addition, Ucinet software's Netdraw tool was used to create visualized network diagrams.

Results: A total of 27890 articles were retrieved, and word frequency analysis revealed that the highest-frequency keywords consisted of anxiety, depression, the elderly, expectant women, coronary heart disease, diabetes, breast cancer, perioperative period, quality of life, and psychological intervention. Research hotspot analysis revealed that consistent hotspots comprised anxiety, depression, health education, and perioperative period; expectant women became a hotspot during 2010–2012, and quality of life and efficacy became hotspots during 2013–2015.

Conclusions: In addition to the care process, clinical psychological nursing research hotspots in China have increasingly included the effectiveness of psychological nursing and impact on patient quality of life. In addition, research hotspots have been influenced by the incidence of illnesses and people's health consciousness.

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1. Introduction

Changes in medical models have caused a shift in nursing toward the biological-psychological-social nursing model. Clinical psychological nursing not only focuses on the patient's illness but is also involved in the entire clinical nursing process. Word frequency analysis arranges subject words or keywords concerning research topics on the basis of their frequency of appearance, and visualized network diagrams enable direct observation and formal

presentation of the results of co-word analysis. This study used clinical psychological nursing research literature from Wanfang Data for the period of 2007–2015, dividing the data into the three periods of 2007–2009, 2010–2012, and 2013–2015. This study's word frequency analysis and visualization analysis sheds light on the state of development of clinical psychological nursing research in China and changes in hotspot research, and its results have reference and predictive value regarding future research hotspots.

2. Data and methods

2.1. Data source

The main goal of this study was to employ bibliometric methods to investigate clinical psychological nursing research hotspots and

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their variation trends in China, and Wanfang Data were chosen as a data source. After reviewing a large number of studies, it was found that papers containing “psychological nursing” in their titles or keywords generally related to clinical psychological nursing and largely focused on psychological nursing in connection with a certain disease or certain type of patient. Furthermore, because titles or keywords tended to provide a highly concise summary of the papers' content, a search approach of “title or keyword = psychological nursing (exact)” was employed. The type of literature was defined as journal paper, and the search period was set as 2007–2015. A total of 27,890 papers were returned up to the ending date of January 10, 2016. The Notefirst format was used to store bibliographic information, including paper titles, authors, author affiliations, abstracts, keywords, and journals. This study mainly analyzed and discussed keywords, and stored bibliographic information in the Notefirst format in three-year units.

2.2. Method and software

Word frequency analysis is a bibliometric method relying on the frequency with which key content keywords or subject words used in the literature appear in a certain research domain to determine research hotspots and their development trends. This study used a co-word matrix discovery tool—the bibliographic co-occurrence analysis system BICOMB 2.0—to perform word frequency analysis of keywords in bibliographic information. The information stored in the Notefirst format was divided among the three time periods 2007–2009, 2010–2012, and 2013–2015 (referred to below as the “three periods”). Bibliographic information from the three periods was entered into BICOMB 2.0, and word frequency analysis performed for keywords during each time period. After combination of the data, only the 20 leading keywords extracted for each time period were retained, as shown in Table 1, due to manuscript space constraints.

The co-occurrence of keywords was found by determining the frequency with which pairs of keywords appeared in the same paper, and BICOMB was used to establish a co-occurrence matrix for keywords. Subsequently, the integrated analytical software Ucinet 6.0's two-dimensional data analysis tool Netdraw was used to draw visualized network diagrams based on the important keyword co-occurrence matrix.¹ The visualized network diagrams were drawn on the basis of keyword co-occurrence, and the

number of co-occurring keywords to be extracted was generally determined by the default extraction number. While this default number was generally set as 50, because word frequencies tended to be low in the 2007–2009 time period, the default value for co-occurring keywords was changed to 25. The default value for co-occurring keywords remained set as 50 for the periods 2010–2012 and 2013–2015, however. A total of 39 keywords were shown as co-occurring in 2007–2009, 48 were shown as co-occurring in 2010–2012, and 66 were shown as co-occurring in 2013–2015. The resulting visualized network diagrams had the following characteristics: (1) the closer the network nodes were to the center in each diagram, the closer they tended to be to the center of the connection network as a whole; (2) the distance between network nodes reflects the closeness of keywords; and (3) the thickness of the lines connecting the nodes expresses the strength of the relationship, where the thicker the line, the stronger the mutual relationship.²

3. Results

3.1. Distribution of clinical psychological nursing research literature in China

Using Wanfang Data as a data source, this study collected clinical psychological nursing research literature in China during the period of 2007–2015, retrieving a total of 27890 papers. Because 2015 papers had not been fully accepted for publication at the time of this search, significantly fewer papers were collected for 2015 than for other years (Fig. 1).

3.2. Table of high-frequency keywords for the three time periods

Due to limitations to the length of this paper, after performing word frequency analysis using BICOMB, only the top 20 keywords were retrieved for each period of time (Table 1).

3.3. Visualized network diagrams for high-frequency co-occurring keywords during the three time periods

After the selection of default values, 39 high-frequency co-occurring keywords were found for 2007–2009, 48 high-frequency co-occurring keywords were found for 2010–2012, and 66 high-

Table 1
High-frequency keywords in clinical psychological nursing research literature from 2007 to 2015 in China.

Rank	2007–2009		2010–2012		2013–2015	
	Keyword	Keyword count	Keyword	Keyword count	Keyword	Keyword count
1	Psychological nursing	3458	Psychological nursing	7683	Psychological nursing	8879
2	Nursing	341	Nursing	678	Psychological nursing intervention	709
3	Psychology	162	Anxiety	420	Nursing	583
4	Anxiety	162	Health education	328	Anxiety	577
5	Depression	124	Psychology	314	Depression	448
6	Surgery	99	Depression	305	Health education	428
7	Perioperative period	98	Psychological nursing intervention	264	Quality of life	332
8	Health education	88	Perioperative period	220	Perioperative period	282
9	Elderly	86	Breast cancer	174	Efficacy	267
10	Elderly patients	75	Surgery	170	Psychology	260
11	Breast cancer	73	Expectant women	163	Nursing intervention	250
12	Stroke	70	Psychological intervention	154	Breast cancer	222
13	Psychological characteristics	62	Elderly patients	154	Effect	210
14	Expectant women	61	Nursing intervention	152	Psychological state	179
15	Psychological features	59	Delivery	150	Psychological intervention	170
16	Delivery	59	Psychological problems	148	Clinical efficacy	169
17	Psychological problems	58	Quality of life	147	Coronary heart disease	162
18	Diabetes	57	Elderly	147	Surgery	153
19	Psychological intervention	56	Stroke	146	Elderly	153
20	Geriatric	54	Diabetes	141	Elderly patients	150

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