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## Original article

A study on clinical nursing research trends and hotspots based on bibliometric analysis<sup>☆</sup>Shi-Fan Han <sup>a,\*</sup>, Rui-Fang Zhu <sup>a,b</sup>, Ting-Ting Qin <sup>c</sup><sup>a</sup> First Hospital of Shanxi Medical University, Taiyuan, Shanxi 030001, China<sup>b</sup> College of Nursing, Shanxi Medical University, Taiyuan, Shanxi 030001, China<sup>c</sup> Shanxi Medical University, Taiyuan, Shanxi 030001, China

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## ABSTRACT

**Objective:** This study was conducted to understand the trends and research hotspots of clinical nursing in China and abroad, thereby to provide guidance for nursing practice and studies.

**Methods:** We retrieved clinical nursing literature (excluding literature related to psychological nursing and traditional Chinese medicine nursing) cited in Wanfang Data ([www.wanfangdata.com.cn](http://www.wanfangdata.com.cn)) and PubMed between 2007 and 2015 and subsequently performed bibliometric analyses on article volume, journal, clustering of high-frequency keywords, and co-occurrence of keywords.

**Results:** A total of 10374 publications, excluding those related to psychological nursing, were retrieved via a PubMed search. The literature displayed a rising trend in terms of annual publication volume. The journal distribution of clinical nursing publications overall was consistent with Bradford's Law. The main contents of clinical nursing literature between 2007 and 2009 included: (1) studies on effects of the midwife and midwifery methods for natural childbirth; (2) studies on emergency nursing care; (3) studies on dementia care; (4) studies on bandage dressing in trauma nursing; and (5) studies on quality of life in cancer patients nursing. The main contents of clinical nursing literature between 2010 and 2012 included: (1) studies on obstetric nurse–patient relationships; (2) studies on patients' medical team in stroke nursing; (3) studies on cancer nursing methods; (4) studies on nursing patients with trauma related to urinary incontinence; and (5) studies on the quality of life of caregivers of dementia patients. The main contents of clinical nursing literature between 2013 and 2015 included (1) studies on skin care and bandaging in trauma nursing; (2) studies on evidence-based nursing in AIDS care; (3) studies on nurses' role in obstetric nurse–patient relationships; studies on cancer nursing methods; (4) studies on nursing for Alzheimer's disease and dementia; and (5) studies on caregivers and nursing of stroke patients. A Wanfang Data search retrieved a total of 85570 publications, whose volume also exhibited an annual rising trend, in particular with regard to those in core journals. However, percentage of total publication volume, mean cited frequency per article, and total ranking of clinical nursing publications overall displayed a decreasing trend. The main contents of clinical nursing literature between 2007 and 2009 included: (1) diabetes nursing; (2) nursing for cancer; (3) nursing for senility-related diseases; (4) nursing in the event of complications; (5) nursing for hypertension; (6) studies on quality of life after nursing interventions; (7) chemotherapy nursing; (8) studies on compliance after nursing interventions; (9) constipation nursing; and (10) nursing for stroke patients. The main contents of clinical nursing literature between 2010 and 2012 included: (1) diabetes nursing; (2) nursing for cancer; (3) nursing for senility-related diseases; (4) studies on quality of life after nursing interventions; (5) nursing in the event of complications; (6) nursing for hypertension; (7) prevention nursing; (8) perioperative nursing; (9) pain nursing; and (10) studies on compliance after nursing interventions. The main contents of clinical nursing literature between 2013 and 2015 included: (1) diabetes nursing; (2) nursing in the event of complications; (3) cancer nursing; (4) studies on quality of life after nursing interventions; (5) nursing for stroke patients; (6) nursing for the elderly; (7) studies on compliance after nursing interventions; (8) nursing for hypertension; (9) constipation nursing; and (10) prevention nursing.

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**Conclusions:** Clinical nursing research in China is in a rapid development stage as defined by Price's law whereby there is a rapid growth in publication volume. By comparison, clinical nursing research in developed countries is in the stable development stage or maturation phase, which is characterized by a flat curve of publication volume and stable development rate. There is a gap of 25–30 years between China and these countries in terms of the growth phases of clinical nursing literature.

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## 1. Introduction

As society is undergoing a substantial transition in medical models from biological to psychological and social, the concept of holistic nursing is increasingly valued. Psychological nursing and traditional Chinese medicine (TCM) nursing are thus attracting increased attention from clinical nursing workers. In addition, clinical nursing is witnessing continuous horizontal and longitudinal development, whereby the discipline is gradually becoming a knowledge system network that is multi-level and comprehensive.<sup>1–3</sup> Nursing literature summarizes nursing research, application success, and clinical practices and to a certain degree reflects the discipline's developmental status and research level in terms of its quantity and quality.<sup>4</sup> In this study, we not only examined the clinical nursing literature, excluding psychological nursing and TCM nursing, but also attempted to understand the discipline's developmental trends and research hotspots. Our study may provide reference points for clinical nursing practices and research.

## 2. Objects and methods

### 2.1. Study objectives

#### 2.1.1. Study objectives in the international literature

We used the search terms (nursing [MeSH Subheading]) NOT (psychology [MeSH Subheading]) NOT (“organization and administration” [MeSH Terms]) NOT (education [MeSH Terms]) NOT (economics [MeSH Terms]) NOT (history [MeSH Terms]) NOT (ethics [MeSH Terms]) NOT (nursing theory [MeSH Terms]) NOT (Legislation [MeSH Terms]) NOT (nursing process [MeSH Terms]) NOT (Chinese [Language]) and the filters Publication date from January 1st 2007 to December 31st 2015 and Humans to search the publications in PubMed between 2007 and 2015 and obtained 10374 publications.

#### 2.1.2. Study objects in the Chinese literature

We searched Wanfang Data using the following entries: “subject: nursing intervention; title or keywords: psychology, traditional Chinese medicine, Chinese and Western medicine, traditional Chinese medicine nursing, massage nursing, nursing management, nursing ethics, nursing education, and \* Date: 2007–2015.” We obtained 85570 publications in clinical nursing.

### 2.2. Methods

#### 2.2.1. Methods for international literature

The data derived from the PubMed search were analyzed via frequency analyses for publication volume, journals, and keywords and sub-keywords using the BICOMB software. In addition, graphic clustering software gCluto was used to perform visualized cluster analysis for high-frequency keywords.

#### 2.2.2. Methods for Chinese literature

The Wanfang Data-derived reports were analyzed via frequency analyses for publication volume, journals, and keywords using statistical software in Wanfang Data. In addition, Netdraw was employed to perform social network analysis for high-frequency co-occurrence keywords, thereby generating a visualized network.

## 3. Results

### 3.1. Analysis of publication volume

#### 3.1.1. Analysis of publication volume abroad

For the period of 2007–2015, we retrieved a total of 10374 clinical nursing (excluding psychological nursing) articles from the PubMed database. There were 14982 clinical nursing articles if psychological nursing was included, and the total number of nursing publications was 34839 (Table 1). In addition, the number of clinical nursing publications between 1964 and 2014 in PubMed was used to plot the annual accumulated publications (Fig. 1).

#### 3.1.2. Analysis of publication volume in China

For the period of 2007–2015, we retrieved a total of 85570 publications in clinical nursing, excluding those related to psychological nursing, from Wanfang Data. The total number of clinical nursing publications was 98313 including those related to psychological nursing, and the total number of nursing publications was 625298 (Table 2). The data between 1998 and 2014 were collected from Wanfang Data to plot annual accumulated publications (Fig. 2).

### 3.2. Journal distribution of the publications

#### 3.2.1. Analysis of international journal distribution

Our results reveal that the journal distribution of clinical nursing literature in PubMed between 2007 and 2015 overall was consistent with Bradford's Law. There were 10374 publications during this period, published in 954 journals. Among these publications, 3440 nursing articles, accounting for 33.15% of all the clinical nursing

**Table 1**

Statistics of clinical nursing literature retrieved from PubMed between 2007 and 2015.

| Year | Clinical nursing publications (excl. psychological nursing) | Clinical nursing publications (incl. psychological nursing) | Nursing publications |
|------|---|---|----------------------|
| 2007 | 921   | 1299  | 3819                 |
| 2008 | 940   | 1337  | 3847                 |
| 2009 | 1166  | 1596  | 3845                 |
| 2010 | 1191  | 1676  | 4248                 |
| 2011 | 1367  | 1953  | 4485                 |
| 2012 | 1370  | 1955  | 4423                 |
| 2013 | 1563  | 2148  | 4532                 |
| 2014 | 1240  | 1884  | 3681                 |
| 2015 | 616   | 1134  | 1959                 |

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