

# Explore Nursing Informatics Research Theme Using Co-Word Analysis

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**Abstract.** This study aims to identify research themes and hotspots in nursing informatics over the past decade. We retrieved literature published from the Web of Science Core Collection (WoSCC) between 2009 and 2018. The study identified four research themes by co-word analysis. Four clusters of keyword reflect four research themes in the field. The results will help researchers understanding the research themes of nursing informatics.

**Keywords.** Co-word analysis, nursing informatics, research

## 1. Introduction

With the development of nursing informatics, it is important to analyze new emerging literature to identify the research status and future trends in this field. Co-word analysis is designed to measure the correlation strength between words in different documents by visualizing the results into groups, or clusters [1]. This study uses the co-word analysis method to analyze the field of nursing informatics to identify future research field and direction.

## 2. Methods

The two authors independently completed the literature search published in WoSCC from January 1, 2009, to December 31, 2018, and used “nursing informatics” as the search theme. Only articles, reviews, meeting abstracts, and proceeding papers in the English language were included. VOSviewer v.1.6.8 (a software tool for constructing and visualizing networks) was used to construct a knowledge map.

## 3. Results

Initial searches identified 982 articles from WoSCC for review. From the reading of the titles and abstracts, we discarded 480 unrelated articles, 15 non-English articles, and 32

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other document type articles (editorial material, book review, letter). Finally, 455 articles were identified for analysis. In the co-word analysis, the minimum number of occurrences of a keyword was five, and of the 1395 keywords, 114 keywords met the threshold. For each of the 114 keywords, the main topics will be described in nursing informatics and included in four clusters (Table 1). Common keywords are divided into four different clusters and displayed in different colors by the VOSviewer software. Figure 1 shows the network visualization of the keywords. The colors are used to distinguish between different clusters. The overlay visualization is a timeline view of the keywords (Figure 2). The color of a keyword indicates the term’s average publication year (the keywords with yellow represent more recent publications).

Table 1. Descriptions of co-word clusters.

Cluster	Theme	keywords
1	Nursing informatics (39)	Nursing process, outcomes, nursing education, decision-making, terminology, standard, data collection, telemedicine, ehealth, et al
2	Electronic health record (35)	Care, implementation, documentation, management, quality, usability, systems, patient safety, meaningful use, unintended consequences, et al
3	Education (31)	Nurses, student, informatics, competences, knowledge, curriculum, skills, computer literacy, e-learning, attitudes, measurement, et al
4	Health-care (9)	Physician order entry, decision-support, big data, data science, et al

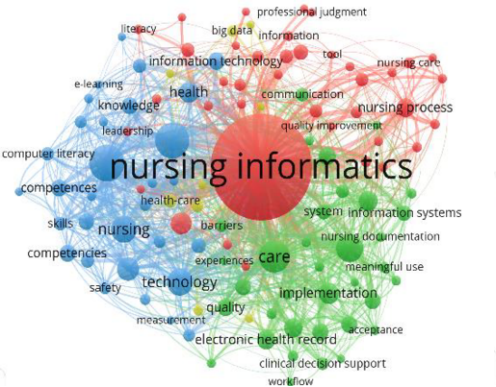


Figure 1. Network visualization of the keywords.

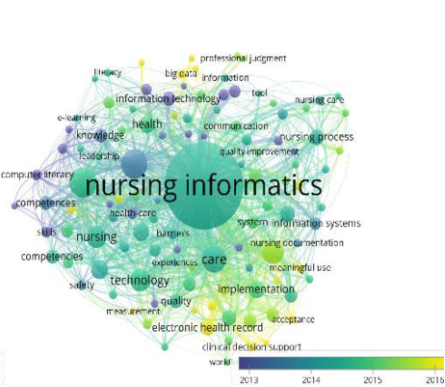


Figure 2. Overlay visualization of the keywords.

4. Conclusion

We found four research hotspots (nursing informatics, electronic health record, education, health-care) and common keywords related to nursing informatics. These findings may be helpful for researchers to track the path and trend of future scientific activities in the field of nursing informatics.

References

[1] Khaled A. Mapping the literature structure of ‘quality in higher education’ using co-word analysis. Quality in Higher Education 23(2017), 264-2.