

Analysis of Research Papers in the Field of Nursing Competence and Competence-based Education

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Abstract

Background & Aims: When nurse education has moved away from hospital based apprenticeship to a higher education Institutions and new EU legislature enabled nurse workforce mobility, the term “competence” became an important concept in nurse education and practice. However, there is still a lot of confusion about its definition, how it should be assessed and implemented and which competences does a contemporary nurse need.

Objectives: To find publishing patterns in the nursing competence research literature production, focusing on publishing dynamics, identifying prolific research entities, and most cited papers, and visualizing the content of the research.

Design and Data Sources: A bibliometric analysis of 400 information sources (300 original papers and 100 review articles) found in the Scopus database using the search string “nursing competence*” for the period 1980–2016 was conducted. The SciMago database was used to identify country and source title ranks.

Methods: Common elements of bibliometric data were extracted from each information source. Descriptive, correspondence and text analyses were used on the retrieved bibliometric data.

Results: The production of research literature has a positive trend. The research on nursing competences is being performed on all five continents, however is not yet published in top journals. Most prolific countries are the United States of America, the United Kingdom and Australasia, and most prolific source titles are the Journal of clinical nursing, the Journal of nursing education and Public health nursing. The results confirmed the still persisting confusion in the definition of the competence and the emergence of the need for defining new nursing competences.

Conclusions: Study confirmed that there are still open questions in the nursing competence research that will require actions on different levels including policy makers, educators and practicing nurses.

Key words: Competence, Nursing research Competency-based education Bibliometric analysis

INTRODUCTION

After many important events, the word “qualified” become one of the most common words in nursing. The First event was the end of the SLIM project (Simpler Legislation for the Internal Market), the (Commission of the European Communities, 1997). Second one was the decision that

the Advisory Committee of the Europe Commission (EC) adopted on Nursing Education which based of it the Europe Union rules should be rewritten to include the concept of qualification (Advisory Committee on Nursing Education, 1998). (1)

In addition, competence-based approach has become key policies in the world, and the training of nursing education in the hospital has moved to institutions of higher education. It is based on this fact that the competency based approach causes reduction in the conflict between educational institutions and health. In fact, basic competence-based approach becomes a base to the dynamics of the nursing workforce and to the main part of nursing education programs in the Union of Europe and divided countries.

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According to the above-mentioned problems, more research is needed, on the sphere of competence of nursing. We decided to overview the latest research achievements in the history of nursing competence. (2)

RESEARCH METHOD

Bibliometric methods were used for this purpose. The clinical investigators, in taking care nurses, teachers, and policy makers can use this detailed review of the research for finding related researches in the most important journals or use in order to help them with publishing their own articles. It also can be used to identify countries, institutions and researchers who study in this area as well as finding information, resources, important research results or special research partners.

It can also help to identify the most important research topics or be a starting point for studying systematic and integrated analyses. Hawkyms (2001) defines bibliometric as “quantitative analysis and features of essay’s collection. (3)

Bibliometric assessments are based on the assumption that most scientific discoveries and research results are published in the international journals, through which other scholars can read them and refer to them (4).

The aim of this bibliometric is mapping the production of articles in a certain field and determining the structure of research field. Few methods are used to analysis the books, magazines and other published works. Researchers can identify different patterns in the literature through this analysis (5).

They can also recognize the authors, institutions, countries and journals with the highest impact in this area, the types of work referred to, in terms of the production of articles over time, and communication and collaboration patterns between authors (6). The bibliometric studies to examine the history and structure of this area, the flow of information in this area, journals impact, and the impact of a long-term basis are also used (7).

It can be learned a lot about nursing in general and specifically about nursing specialties, through analyzing the published data sources and citing them in nursing and other resources.

Bibliometric techniques which are used in Nursing articles can convey a lot of information about how to do research and transfer obtained results to nurses in clinical and non-clinical contexts.

The knowledge of how do we interpret the results of research and evaluate the practical application in this field can help the development of evidence-based research (8). Therefore, it is wondering that little bibliometric studies have been conducted in nursing articles (9)

According to Davidson, who did a search on the following words “bibliometric”, “nursing” and “midwife” and found 387 Articles in CINAHL, Medline, Scopus, in recent years many changes have occurred. Our research in this area showed that bibliometric in nursing has been used for different purposes.

Pardo and his colleagues conducted a bibliometric studies which have previously shown what changes the bibliometric research papers in Spain nursing have had during decades. Armin and his colleagues (10) describe the research rate, clinical care and evidence-based care articles that have been published in mother and child nursing and magazines, and information resources that are used to create studies using citation analysis.

Yuka and colleagues (11) applied Bibliometric research methodology for evaluating the characteristics of quantitative research of 133 articles in nursing education that have been published Between July 2006 and December 2007. Wales and colleagues analyzed seven Australia’s nursing and health nursing professional magazines from 1985 to 2012 to assess the different health professions. In other articles other bibliometric methods have been proposed such as identifying milestones of nursing research, “brief overview of” clinical care and nursing research (12).

The Purpose and Scope

The aim of this study is analyzing the research papers production in the field of nursing competence. The next section presents materials and methods that are based on research questions, research strategies to obtain bibliometric data and methods of analysis. In The results section, the comparison and interpretation of the results are presented. In the conclusion part, implications for future research and guidance are provided.

MATERIALS AND METHODS

Research Questions

In this study, we aim to answer the following questions:

Question 1: What is the dynamics of production research studies on nursing competence?

Question 2: what countries, institutions and authors (published by a number of sources of information) and articles (according to number of citations) have

the greatest effect in the investigation of nursing competence?

Question 3: how is the content of research in qualified nursing that is reflected in word clusters and in the relationship between publishing years and words with the highest frequency?

Analysis

Countries, institutions and authors who had more effect on the number of sources of published information and articles were identified with the most citations. (13).

Rank magazine and the Institute of SciMago downloaded (Elsevier, 2014) is a website that aims to check the status of the country's scientific publications.

It can be said that the analysis of the database offers superior impact over the analysis that ISI Institute presents, based on multiple ratio of impact.

First, SciMago do its analysis on the basis of publications indexed in the Scopus which is more widespread than that ISI. Second, instead of considering the impact factor (IF) as comparing criteria (No scientific backing for the measure is not considered), acts that are based on Google PageRank algorithm are proven to be superior in practice, and have been used in scientific publications specifically. (14)

Third, despite the impact factor in many cases, which is available only to institutions that have paid membership fees to macro ISI database, SciMago holds all the results freely available to enthusiasts as well. Finally, the use of SciMago is much easier than ISI.

For any country that had the greatest influence, we determined the rank in nursing research, nursing education research, and scientific activities of the country. For each source with the greatest influence, we have identified its ranking in nursing and education, as well as among all the resource categories on the Web site of SciMago. In addition, we adopted the effect of the source categories with the list of top 10 nursing education magazines (15).

RESULTS

Searching bibliometric database of Scopus data 400 sources (300 original articles and 82 review articles and 18 abstracts) were obtained from 1981 to 2016 in 140 different titles published by 870 authors. The number of citations ranged from zero to 69.

The Dynamics Of The Production Of Research Papers.

The numbers of published sources of information are shown in Figure 1. We can see that the first paper was

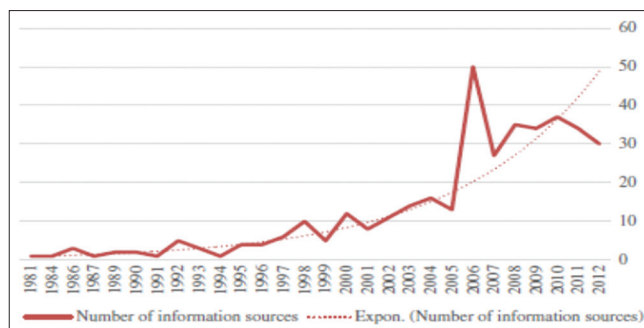


Figure 1: Number of published information sources

published in 1981 in the Journal of Nursing Research and the question is “whether the structure of nursing staff, improves the quality of care? (Shukla, 1981).

During the 13 years, his produced papers are low. A steady rise since 1994 and the number of resources increases exponentially in 2003, and then again in 2008 to be uniform and drops two years later.

The high point comes in 2006. Our impression is: the reason was that a large number of published information sources were with two information titles including: the magazine Nursing (10 references) and public health nursing (6 source). The other reason is also, due to the increase in published information titles in the field of qualified nurses

Figure 1 and above-mentioned text, responds to the question: What is the dynamics of production research studies on qualified nursing?

Research topics in which more articles have been created. Authors from 41 countries have published sources of information. Eleven countries with a lot of work have been shown in Table 1. These 11 countries produce more than 78% in relation to research in the field of qualified nursing, and the first three countries have accounted for more than half of the research. Interestingly, the countries from the five continents were among the countries with a lot of work.

SciMago rankings show that the conducted researches by these countries, rank high in the vast field of nursing as (the lowest rank 29), education (the lowest rank 21) and total are scientific work (the lowest rank 35). 124 titles have been published in various sources of information.

Eleven title with the higher effect are shown in Table 2. These 11 topics show Slightly more than 43% of research production in the field of nursing.

SciMago magazine ranking among the nursing categories, education and all information categories shows that data sources within the qualified nursing, in higher level of

Table 1: Countries with scientific production on nursing competence and their place in the ranking SciMago Country

| Country | Number of information sources | % of scientific production on nursing competences | Nursing | Education | Total scientific activity |
|----------------|-------------------------------|---|---------|-----------|---------------------------|
| United States | 161 | 43.51% | 1 | 1 | 1 |
| United Kingdom | 40 | 10/81 | 2 | 2 | 3 |
| Australia | 24 | 6/49 | 3 | 3 | 11 |
| Sweden | 15 | 4 | 8 | 17 | 18 |
| Taiwan | 13 | 3/50 | 15 | 11 | 16 |
| Canada | 24 | 2/15 | 4 | 4 | 7 |
| China | 7 | 2 | 13 | 10 | 2 |
| Norway | 7 | 2 | 16 | 20 | 30 |
| Brazil | 5 | 1/35 | 7 | 8 | 15 |
| Finland | 5 | 1/35 | 20 | 18 | 26 |
| South Africa | 5 | 1/35 | 30 | 15 | 35 |
| Total | 290 | 78/38 | | | |

Table 2: Journal with scientific c production on nursing competence and their place in the ranking SciMago Country

| Country | Number of information sources | % of scientific production on nursing competence | Nursing | Education | All information titles |
|-----------------------------------|-------------------------------|--|---------|-----------|------------------------|
| Journal of clinical nursing | 24 | 6.49 | 55 | | 5161 |
| Journal of nursing education | 21 | 5.68 | 51 | | 3908 |
| Public health nursing | 20 | 5.41 | 135 | | 9270 |
| Nursing and health sciences | 16 | 4.32 | 124 | | 8888 |
| Journal of advanced nursing | 15 | 4.05 | 35 | | 3670 |
| Nurse education today | 14 | 3.78 | 39 | 80 | 3944 |
| Journal of nursing administration | 22 | 3.24 | 44 | | 4194 |
| Critical care nursing quarterly | 11 | 2.97 | 129 | | 9056 |
| Nursing outlook | 9 | 2.43 | 33 | | 3528 |
| Journal of professional nursing | 9 | 2.43 | 69 | | 6312 |
| Journal of nursing | 9 | 2.43 | 261 | | 1478 |
| Total | 160 | 43.24 | | | |

nursing categories or information (the highest rank of 33), education (only one of the magazines has more works in the field of education) or in the midst of all the categories of information (the highest rank of the magazine is 3528) have not been published.

Only 4-information title with high production effect on nursing education by Hunt et al (2013) have been identified - the last column of Table 2.

In total 841 different authors wrote 370 sources (2.89 ± 2.15 authors per source). In other words, 759 authors, each created an information source.

Seventy-four authors created two sources of information, six authors created three sources of information, and two authors created four sources of information. Authors who worked more include Bradshaw, and Jane Jen Keynes Brad Shaw and, Jenkins Jean with 4 source of published information, and turquoise Ahmadi, Kwan David T. Cowan David, Marls terror, Tizeng Hui-Ming, Van Leuven Rantz Reynolds and 3 published source of information.

The institutions that had more published works include the United States, Great Britain, Hong Kong and Iran. Hong Kong Institute College London first on the list with 9 published source of information, then the information was published by the University of Hong Kong with 5 sources.

Seven next institute on the list, include the University of Texas at Houston School of Nursing, Duke University, the University of Washington-Seattle, Gytvn Georgetown University, University of North Carolina, Tehran University of Medical Sciences, and the university system Tegzas, each published 4 works.

Total resources of the collected works were cited 1666 times (5.16 ± 9.73 citations per source).

Three sources that have been cited more than other sources include journal-Nursing scholarships, No. 33, Series 2, June 2001, p. 151-147. Do nurses have been prepared for end of life care? White, K.R., Coyne, P.J., Patel, U.B.; 69 citations.

International Journal of Nursing Studies, Shmadh 39, Series 2, 2002, p. 145-133, validity and reliability of the

methods based on conformity assessment for care nursing and midwifery students. Norman, I.J., Watson, R., Murrells, T., Calman, L., Redfern, 63 citations.

Journal of Intensive Care, No. 33, Series 4, February 2001, p. 474-467, nursing competencies: effective personal profile in nursing practice Zhang, Z.-X., Luk, W., Arthur, D., Wong; 51 citations.

The above explanations were the answer to question2: what countries, institutions and authors (published by a number of sources of information) and articles (according to number of citations) have had the greatest effect in the investigation of qualified nursing?

Text and Word Analysis

Figure 2 shows the cluster terms of the abstract and title papers. Common English words such as “for”, “or”, “where”, “how”, “the” and the like were removed.

As can be seen in Figure 2, words formed three clusters or categories and phrases. It is interesting to note that “qualified nurse” “nursing competency” and “nursing competence” belong to two different categories. The first category relates to the word nursing, health care, nursing care, and health – so these categories are more job-related. The second category includes the word student, skills, professors, and evaluation, so this category is related to teaching and learning. The third category include terms such as hospitals, impact, and patient, and focused more on nursing care and care for the environment.

Figure 3 shows a double chart of the relationship between word and year which is obtained from the equivalent analysis for a period that literature had most production. It means from 1991 to 2012.

The relationship with the dynamics of the production of research papers and review articles in the introduction is briefly summarized in Table 3.

Figures 2 and 3 with Table 4 responded to question4 .how is the content of research in qualified nursing that is reflected in the clusters of words And in the relations between the publishing years and words with the highest frequency?

Analysis with Nursing Specialties

With expertise in specific analysis indicated that three sub-components including: the nursing community health, public health nursing and psychiatric nursing, respectively, had 49, 18, 15 papers. The dynamics form of research articles production is similar with qualified nursing field that is shown in Figure 1, it starts with a steady rise, followed by increased exponentially, in 2006, reaches a

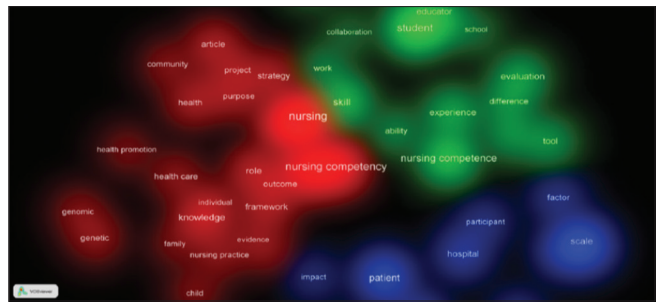


Figure 2: The categories of words derived from abstracts of articles

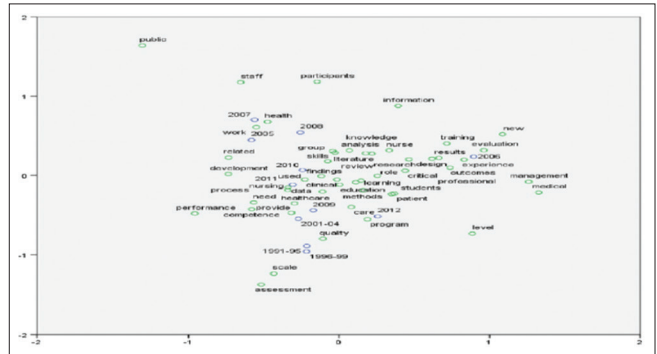


Figure 3: Relation between words and year of publication

peak and then slowly decline is seen in the production of publications

A country that has the greatest influence on all three fields is still the United States (26 source of information, 53%), followed by Great Britain in community health nursing (7 source of information, 14%), followed by Australia in two specialties (2 source of information, 11% and 13%). Most sources of information have been published as a public health nurse (20 source of information on community health nursing 14 %).

DISCUSSION

Our research has shown the growth of article production in the area of qualifications of nurses. Increased attention on this topic in general, and the most fruitful sub-directories it means community health nurse, public health nurse and Psych-nursing were identified.

Steady growth started in the production of articles with the SLIM’s project report (Commission of the European Communities, 1997) and recommendation of Europe Union by ACTN (Advisory Committee on Nursing Education, 1998) is consistent.

From the other side, the exponential growth of the operational Bologna process (Wikipedia, 2014) coincides with the implementation of project activities of education

(University Groening, 2014). All the above actions have changed and revolutionized the nursing education and nursing care as well as researches within the qualification of nursing.

A slight reduction in the growth of articles in 2011 and 2012 could reflect the fact that the Union Bologna reforms have been in Europe. New challenges for nursing Bologna reforms, such as cross-border and global standardization, global control (Collins and Hur, 2014), and distribution of Bologna process and the project to adjust other countries (Zams, 2014) show that investigating about the qualification of nursing is still necessary. This issue is not reflected in the published literatures yet.

The equivalent analysis showed that the period of steady growth of research papers (1999-1991) was related to the “assessment”, “scale” and “quality” words.

Perhaps the growing interest in research on qualified nursing, improves evaluating them and assessing their implications for improving quality in education and possible care repercussions. The next period (2004-2001), strong relationship with the word “jurisdiction” was seen that Most likely caused by the operation of Bologna reforms, implementation of the outcome of the project configuration, and integration of qualified nursing in the educational process. The next period (2004-2001) strong relationship with the word “jurisdiction” was observed, likely due to the operation of Bologna reforms, implementation of the outcome of the project configuration, and integration of nursing competence in the educational process. The relationship between the words “health”, “impact” and “experiences” in the next period (2008-2005) may change according to the outcome of the investigation of using the concept of competence in education and health care experiences.

The final period (2012-2009) was related to the words “health care”, “provide”, “findings”, “process” and “data”, which shows a new trend in relation to the jurisdiction of nursing and encompasses researches in nursing qualifications in relation to the data / information technology . The qualifications that are related to nursing research and evidence-based nursing are also included.

Cluster analysis revealed an interesting fact, which states that the words including “merit” and “competence” belong to two different categories, and implies that these two words have a different meaning. As can be seen from the cluster context the term “jurisdiction” may work in nursing and the word “decent” is more focused on education.

Kwan and colleagues (2005) have also noticed this distinction and described it in details, but distinct definition

of them has left. On the contrary, Mostard (2002) defines qualified as potential ability to perform a job and defines authority as actual performance in standards of care which generally corresponds with the above result. It is also interesting to note that in the category of nursing competence , words like “genomics” and “genetics” can be seen that show that genomic and genetic might be necessary for successful doing of the job by qualified nurses.

In fact, this need has already been discussed (20). In addition, it has been investigated recently. The analysis of institutions and countries that have the most affective production, indicated that qualified nursing research is distributed in the five continents which reflects its global importance.

Many researches had been carried out by countries on nursing education, training and research activities that are significant to the overall research activities.

This means that research will follow the usual patterns of qualified nursing and has found a place in research programs of the research institutes. Patterns of duplicating articles indicate that the authors publish articles that are related to qualified nursing in more general journals not in education journals. It also can be seen that their authors do not publish their articles in top nursing magazines.

Perhaps this is due to the fact that the editors of these journals would not publish articles about qualified nursing, or because they are outside the scope, or the research quality is still not enough. Because of the importance of the issue, this fact may have implications for intensified research.

Because of educational aspect, it should be focused on the definition of qualified and competent and on educational principles and inferential implementation of the meaning of in educational fields. This study confirms that there are still unanswered questions in the definition of qualification.

The difference between competence and merit still is not been resolved, and the emergence of ICT, biomedical/ Bioinformatics and globalization in nursing show the necessity of new competencies for qualified nurses. This requires action on several levels.

More research needs to be done at the source (journals and conferences) that publish their results with the highest impact.

Transfer of research results into public and political institutions to standardize the definition of qualification and the authority of qualification the adoption of new

requirements would be the result of regulatory changes.

This change also should implement in nurses training program and curriculum, and finally implemented in nursing.

Strengths and Limitations

The main strengths of this study is that it shows the bibliometric study of qualified nursing and shows the characteristics of the production of research papers in this area. The limitation of this study was the use of proprietary database Scopes.

CONCLUSION

In the last two decades, many authors have considered the field of qualified nursing for research in this area, especially after the change in the dynamics of working, in conjunction with the Europe Union legislation, reform of Europe operations and implementing project results set. However, the results have not been published in top journals. Research conducted in nursing on the five continents in countries with strong research, but it is conducted mostly in the United States, Great Britain and Australia.

Text analysis showed that notice to research topic have changed in different eras. This change began with research on the definition of qualified nursing and continued with acceptance of the general definition of the nursing from councils in various countries and implementation of the concept in the field of training and practice.

Finally indicate that much research is still needed. Especially in Standardization of the adopted definition, especially in the competence and qualification framework, that is the result of globalization, demographic changes and the development of information and communication technology and biomedical informatics respectively.

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