BIBLIOMETRIC ANALYSIS OF PROBLEM SOLVING LITERATURE IN NURSING STUDENTS: THE CASE OF TURKEY

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Abstract
The aim of this study was to investigate problem solving literature in nursing students and abilities in terms of bibliometric analysis and to reveal the current situation in Turkey. A retrospective descriptive design was used in this study. Online databases were reviewed for study data. The keywords 'problem solving', 'nursing student', 'Turkey', 'problem solving' were used in Turkish and English. As a result of the review, 45 studies have been reached and 36 of these have been found to meet inclusion criteria. The data were analyzed using Microsoft Excel and UCINET (NetDraw) programs. The studies included in the survey were produced between 2003-2017. It was determined that the majority of the studies were research articles (32 studies) and the most productive journal was Ataturk University Journal of Nursing School.The most commonly used key words in the study were "Problem solving" and "nursing students". It was determined that the most studied variables were "grade", "age", "gender" and "student's location". The study revealed that the studies for problem solving in nursing students were not sufficient and that current studies were mostly about problem solving levels of students.

Keywords: Problem Solving, Student Nurses, Social Network Analysis, Bibliometric Analysis, Turkey.

INTRODUCTION

Bibliometric analysis is a method used to define, analyse and evaluate scientific studies based on specific criteria (Ziegler, 2009). Bibliometric analysis is generally used to classify publication properties (such as subject, author, publisher, date and country), to analyze the focus of studies on a certain subject and to determine qualitative scientific performance (Almeida Filho, Kawachi, Filho and Dachs, 2003; Samiee and Chabowski, 2012; Yaycı et al., 2014). By this method, it is possible to determine subject titles on a particular discipline and in a particular country, authors working on these subjects, cooperation among authors or subject fields with more or less studies (Zan, 2012). In addition, bibliometric analysis is used to measure outputs of individual researchers, research groups, institutions and countries, to determine national and international networks, and to follow developments in the field of science and technology (OECD, 2002).

Training nurses with high levels of problem-solving skill is one of the most important goals of nursing education (Ortabağ et al., 2010). Previous studies in the field of nursing in Turkey have revealed that nurses and student nurses have moderate levels of problem-solving skills and there is a need for improvement (Altun, 2003; Başar 2011; Özyazıcıoğlu et al., 2009; Yıldırım et al., 2014; Yılmaz et al., 2009; Yurttaş and Yetkin, 2003; Yüksel, 2015). Kantek and Kartal (2016), in their meta-analysis, have revealed that nursing education in Turkey is insignificantly effective on the level of students' problem-solving skills. In another meta-analysis, Kantek and Kartal (2016) have concluded that levels of problem-solving skills are similar among nursing students and other undergraduate-level university

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students and suggested that factors affecting students' problem-solving development should be examined in detail to improve students' problem-solving skills at undergraduate-level.

While there are many studies on problem-solving among nursing students in the literature, it can be seen that there are not any studies in which bibliometric analysis of problem-solving studies was conducted with nursing students. Based on such a need, the objective in this study is to identify the current situation of studies conducted on student nurses' problem-solving skills in Turkey by using bibliometric analysis method. In this study, answers to the following questions were sought: (1) What are the characteristics of studies examining student nurses' problem solving skills? (2) What are the variables studied with problem solving? and (3) What are the most frequently used keywords in current studies?. It is considered that results to be obtained from this study will create a knowledge basis for future studies and serve as a guide for new problem-solving studies.

METHOD

Research design and literature review
In this study, retrospective descriptive research model was used. For literature review, Web of Science, Scopus, EBSCOhost, Pubmed, Google Scholar, ULAKBIM, HEC National Thesis Center and Mediterranean University Library online databases were used. In scanning, 'problem-solving', 'student nurse', 'Turkey', 'problem-solving skills keywords were used in both Turkish and English languages. In literature review, the objective was to reach studies conducted until 2018. Consequently, a total of 45 studies including 39 articles and 6 graduate theses were reached. These studies examined separately in terms of compatibility with inclusion criteria by both researchers. 3 of the studies had equal copies, and 6 of them did not have full text. For this reason, it was determined that 36 studies were noted to comply with the inclusion criteria.

Inclusion criteria
The inclusion criteria were that studies should be conducted in Turkey and include an analysis of student nurses' problem-solving skills, they should be published in Turkish or English, and be accessible in full text. Articles and graduate studies were included in the study, conference papers were excluded from the scope.

Data collection
To collect data for the study, data coding form created by researchers was used. In data coding form, title, author/authors, publication date, publication type, publication language, keywords and variables analysed with regard to problem-solving were coded for each study. While analyzing keywords, keywords such as "problem solving", "problem solving skill" and "problem solving abilities" were coded as "problem solving". Data matrix was created from keywords specified for twice or more for Common Work Network. Besides, for variables examined, variables such as "academic achievement", "grade average", "university success status", "academic achievement perception" were combined under "academic achievement" variable. Microsoft Excel software was used for analysis of data. UCINET (NetDraw) software were used for visualization of data.

Ethical Considerations
Since the study is in literature review model, it does not have direct effect on people and/or animals. Therefore, no approval was required from the Board of Ethics.

Limitations of the Research
Since the study aims at revealing the current state of studies analysing nursing students' problem-solving skills in Turkey, it is limited with studies that have been conducted with nursing students in Turkey.

FINDINGS

Analysing the distribution of studies on nursing students' problem-solving skills per years, it was determined that studies were carried out during 2003-2017, and the highest number of studies were conducted in 2009 (n=7) and 2015 (n=5).
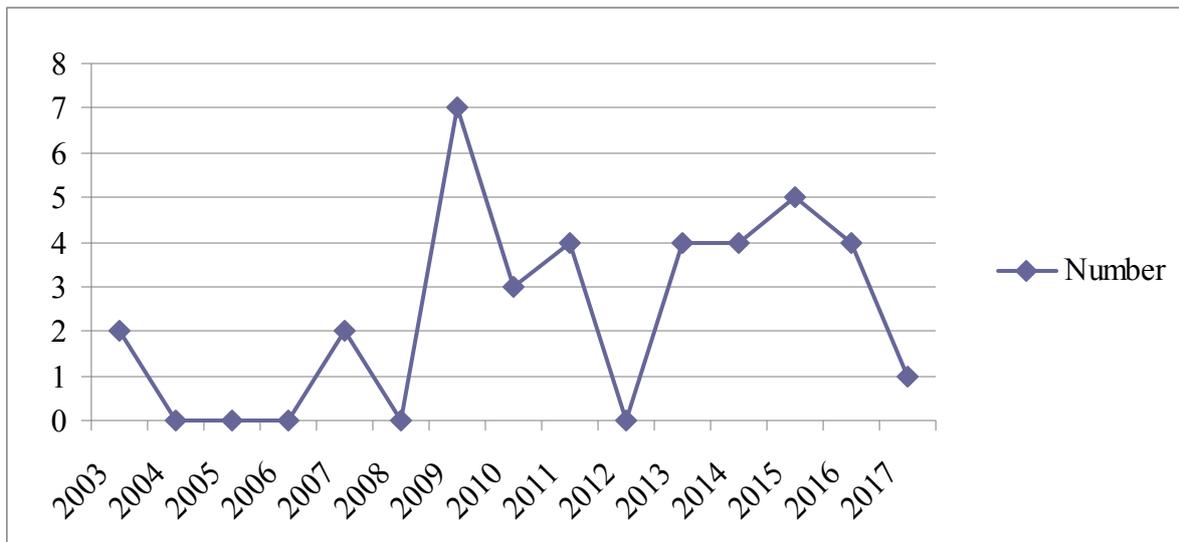

Chart 1: Distrubition of Studies By Years

It was determined that 77.7% of the studies included in the research were published in Turkish language, 88.8% of them were articles, number of authors for these studies varied between one and six, and 27.78% of them were written by three authors.

Table 1:Introductory Properties Related to Studies Included

Publication language	n	%
Turkish	28	77.7
English	8	22.3
Publication type		
Article	32	88.8
Thesis	4	11.2
Number of authors		
1	8	22.3
2	6	16.6
3	10	27.8
4	5	13.9
5	5	13.9
6	2	5.5
Total	**36**	**100.0**

Analysing number of authors in these studies, it was determined that 94 studies were produced by 105 distinct authors. Authors producing two and more studies are given in Table 2. The most prolific authors were determined as Yalçın Kanbay, Afife Yurttaş, Nermin Olgun and Neslihan Partlak Günüşen with two studies published.

Table 2: Most Prolific Authors

Author name	n	%
Afife Yurttaş	2	1.90
Gülsüm Ançel	2	1.90
Nermin Olgun	2	1.90
Neslihan Partlak Günüşen	2	1.90
Yalçın Kanbay	2	1.90

It was determined that studies included in the research were published in 27 different journals. Journals producing two and more publications are given in Table 3. It was determined that the journal with most published studies on problem-solving was Ataturk University Journal of Nursing School.

Table 3: Journals Producing Two and More Publications

Journal title	n	%
Ataturk University Journal of Nursing School	6	16.6
Dokuz Eylül University Nursing School Elektronic Journal (DEUHYO ED)	2	5.5
İstanbul University Florance Nightingale Nursing Journal	2	5.5
Journal of Nursing Education and Research	2	5.5
International Journal of Nursing Knowledge	2	5.5

In studies included in the research, 249 different variables together with problem-solving were determined as analysed. Variables analysed in 10 or more studies can be seen in Table 4. The most commonly studied variables include "grade" (26 studies), "age" (15 studies), "gender" (14 studies), "student's location" (14 studies) and "graduated high school" (13 studies).

Table 4: Variables Analysed in 10 and More Studies

Variables	n	%
Grade	26	10.41
Age	15	6.03
Gender	14	5.62
Student's location	14	5.62
Graduated high school	13	5.22

Common words network of keywords from studies included in the research is given in Figure 1. It was determined that the most frequently used keywords in these studies included "problem-solving" (n=33), "nursing students" (n=15) and "nursing"(n=10).
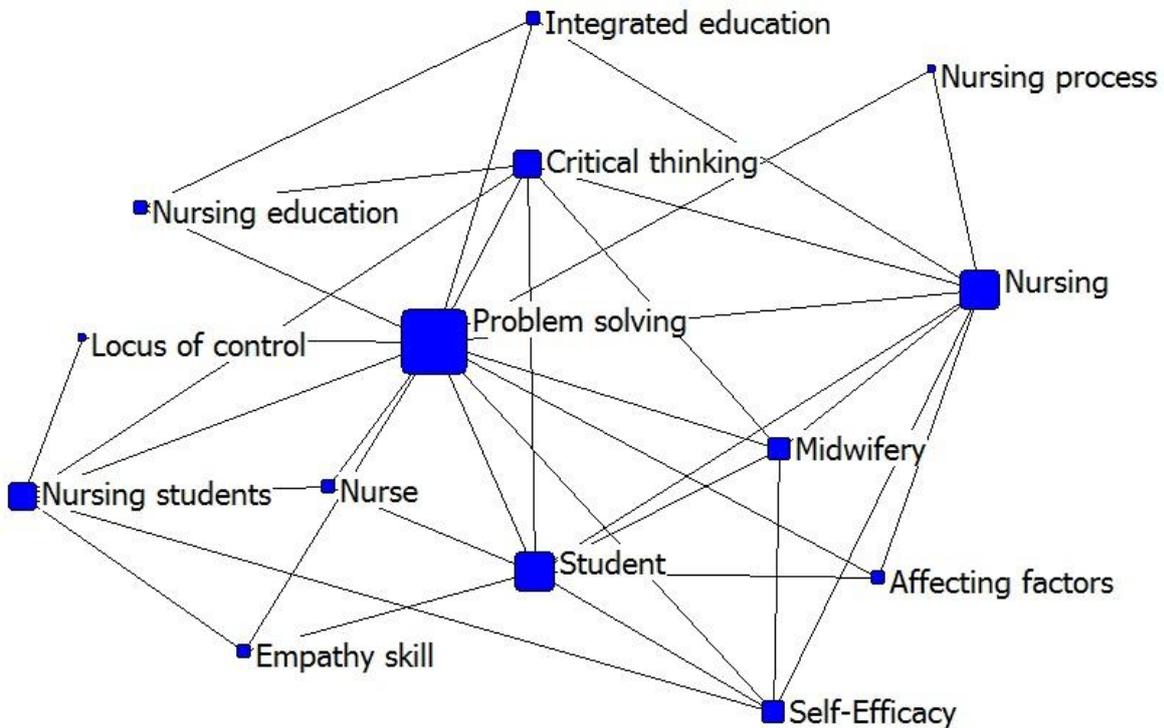
Figure 1: Common Words Network

DISCUSSION AND CONCLUSION

This study examined studies conducted in Turkey on nursing students' problem-solving skills in terms of bibliometric properties. Number of publications is one of the bibliometric properties, and it is a simple descriptive indicator showing productivity (Scott et al., 2010). This indicator allows researchers or readers to evaluate historical process of a field (Al, Sezen and Soydal, 2012). For a literature to be established in a specific area broad and in-depth, it is important that the number of studies increase regularly (Tekneci, 2013). Findings revealed that studies were carried out in a 15-year period covering 2003-2017 and the year with most publications produced was 2009. However, it was also observed that there were no regular increases or decreases occurred in distribution of publications. In accordance with these findings, it can be said that there is limited number of studies discussing nursing students' problem-solving skills and the subject is not yet popular. It was reported that the most frequently analysed variables included grade, age, gender, students' location and graduated high school. This finding has revealed that studies mainly discussed students' levels of problem-solving and examined these levels in terms of demographical variables. The fact that the most frequently used keywords were "problem solving", "nursing students" and "nursing" supports this finding. The majority of the studies analysed consisting of articles and limited number of theses be a factor that has not been examined in detail. As a result, there is clearly a need for in-depth analysis of nursing students' problem-solving skills to improve professional nursing. Planning novel studies by considering these research findings will contribute to improvement of nursing students' problem-solving skills and the field literature in detail.

The fact that the majority of the studies examined are made up of articles and that the theses are limited in number may be a factor that has not been examined in detail.

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REFERENCES

Al, U., Sezen, U., Soydal, İ.(2012). Hacettepe Üniversitesi Bilimsel Yayınlarının Sosyal Ağ Analizi Yöntemiyle Değerlendirilmesi. Hacettepe Üniversitesi Edebiyat Fakültesi Dergisi, 29(1),53-71.

Almeida ‐ Filho, N., Kawachi, I., Filho, A. P., Dachs, J. N. W. (2003). Research on health inequalities in Latin America and the Caribbean: Bibliometric analysis (1971–2000) and descriptive content analysis (1971–1995). American Journal of Public Health, 93(12), 2037–2043.

Altun, I. (2003). The perceived problem solving ability and values of student nurses and midwives. Nurse Education Today, 23(8), 575-584.

Başar, G. (2011). Hemşirelerde ve hemşirelik öğrencilerinde problem çözme ve iletişim becerilerinin değerlendirilmesi. İstanbul Bilim Üniversitesi Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, İstanbul.

Kantek F., Kartal H. , "A meta analysis: The problem solving skills of nursing and other bachelor students", 7th International Congress on New Trends in Education , Antalya, Türkiye, 13-15 Mayıs 2016,75-76.

Kantek F., Kartal H. , "The Effects of Nursing Education on Problem Solving Skills of Students: A Meta Analysis", Proceedings of The 7th MAC 2016, 210-216.

OECD(2002).Frascati Manual. Sixth edition, http://www.tubitak.gov.tr/tubitak_content_files/BTYPD/kilavuzlar/Frascati.pdf 20.03.2018).

Ortabağ, T., Tosun, N., Bebiş, H., Yava, A., Çiçek, H.S., Akbayrak, N. (2010). Yatağın diğer tarafı: hemşirelik yüksekokulu birinci sınıf öğrencilerinin eğitim amaçlı hastaneye yatma deneyimleri. Gülhane Tıp Dergisi, 52, 3, 189-197.

Özyazıcıoğlu, N., Aydınoğlu, N., Aytekin, G. (2009). Sağlık yüksekokulu öğrencilerinin empatik ve problem çözme becerilerinin incelenmesi. Journal of Anatolia Nursing and Health Sciences, 12(3).

Samiee, S., Chabowski, B. R. (2012). Knowledge structure in international marketing: a multi-method bibliometric analysis. Journal of the Academy of Marketing Science, 40(2), 364-386.

Scott, S. D., Profetto- McGrath, J., Estabrooks, C. A., Winther, C., Wallin, L., Lavis, J. N. (2010).Mapping the knowledge utilization field in nursing from 1945 to 2004: A bibliometric analysis. Worldviews on Evidence- Based Nursing, 7(4), 226-237.

Tekneci, P. D. (2013). Türkiye adresli spor alanındaki bilimsel yayınların bibliyometrik analizi. Pamukkale Journal of Sport Sciences, *4*(3), 76-91.

Yaycı, F., Deren, S., Yaycı, E. (2014). A bibliometric analysis of global scientific production on cesarean and anesthesia. Cumhuriyet Medical Journal, 36(2), 214-220.

Yıldırım, B., Koç, Ş. Ö., Karabudak, S.S. (2014). Hemşirelik Ve Ebelik Öğrencilerinin Problem Çözme Becerileri İle Öğrenme Biçemleri Arasındaki İlişkinin İncelenmesi. Gümüşhane University Journal Of Health Sciences,3(3), 859-882.

Yılmaz, E., Karaca, F., Yılmaz, E. (2009). Sağlık yüksekokulu öğrencilerinin problem çözme becerilerinin bazı değişkenler açısından incelenmesi. Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi, 12(1), 38-48.

Yurttaş, A., Yetkin, A. (2003). Sağlık yüksekokulu öğrencilerinin empatik becerileri ile problem çözme becerilerinin karşılaştırılması. Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi, 6(1), 1-13.

Yüksel, A. (2015). Hemşirelik öğrencilerinin problem çözme öz değerlendirme sonuçları ve etkileyen faktörler. Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi, 2(1).

Zan, B.U (2012). Türkiye' de Bilim Dallarında Karşılaştırmalı Bibliyometrik Analiz Çalışması. Ankara Üniversitesi Sosyal Bilimler Enstitüsü, Doktora Tezi, Ankara.

Ziegler, B. (2009). Methods for Bibliometric Analysis of Research: Renewable Energy Case Study, Composite Information Systems Laboratory (CISL) Sloan School of Management Working Paper, Cambridge, Retrieved from 11.01.2018. http://web.mit.edu/smadnick/www/wp/2009-10.pdf