Brief Report

Content Analysis of Articles Published in Iranian Scientific Nursing Journals From 2009 Through 2011

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Background: Little is known about the features of Iranian nursing journals, specifically the subject areas used in articles, study designs, sampling methods, international collaboration of Iranian nursing scholars, specialty and academic rank of authors, and the most frequently contributing academic institutions in articles.

Objectives: The aim of this study was to analyze the content of the articles published in Iranian scientific nursing journals.

Materials and Methods: Quantitative content analysis was implemented to study Iranian nursing journals, which were approved by the commission for accreditation and improvement of Iranian medical journals in 2011. Thus, 763 articles from six journals, published from 2009 through 2011, were investigated. Data were extracted from the abstracts and when necessary, from the full-text of articles by visiting the websites of these journals. Descriptive statistics were used to analyze the data.

Results: The main subjects of published articles in Iranian scientific nursing journals were consecutively renal dialysis (n = 21), intensive care unit (n = 16), nursing education (n = 15), patient satisfaction (n = 13), quality of life (n = 12), health education (n = 11), patient education (n = 11), pain (n = 10), and education (n = 9). The majority of authors had nursing and midwifery specialty (52.59%) followed by epidemiology/biostatistics specialty (7.72%). Isfahan, Tehran, Shahid Beheshti, Iran, Baqiyatallah, and Urmia universities of medical sciences had consecutively the largest number of publications in the studied journals. Only three papers (0.39%) were published by the international collaboration.

Conclusions: Iranian nursing journals should publish special issues in the neglected subject areas. These journals should encourage authors to publish research evidence with higher quality.

Keywords: Bibliometrics; Publications; Periodicals; Iran

1. Background

Analyzing the content of scientific journals is an important step in tracking research trends of scientific fields (1). Content analysis of published articles indicates a growth in a specific field and determines the interests and beliefs of researchers, editors, the discipline, and perhaps readers and practitioners. Moreover, it provides a way to gain insight into possible neglected areas of exploration, supposed important areas, shows authors with more publications and the institutions that these authors are affiliated to and helps professional development (2).

As nurse researchers are inclined to know more about what and where they publish, understanding the characteristics of journals in this field is important, specifically for selecting a journal to submit their work. Evaluating the content of journals is valuable to researchers who want to understand the scope of the literature in their field to direct their research (3). A number of studies have investigated nursing journals in different countries. For instance, one study analyzed the international content of nursing journals in 2005 and indicated that more articles were published in international journals than in local ones (3). In a previous study, we analyzed the content of nursing and midwifery journals from 2005 to 2007 and showed that nursing education, geriatric nursing, nursing care, and pregnancy were the most commonly used subjects in Iranian nursing journals (4). However, with the increase in the number of nursing journals approved by the national commission of scientific journals, a new study in this regard seems to be needed. This study may not only help scholars to direct their research, but also would help editors of Iranian scientific nursing journal to acquire more knowledge about the features, strengths, and weaknesses of

their journals. This might lead to the improvement of their journals' quality by changing the policy of papers' acceptance for publication.

2. Objectives

In this study, we analyzed the content of Iranian nursing journals in terms of the subject areas of published articles (core interests) and the most frequently contributing academic institutions, study designs, sampling methods, specialty and academic rank of authors, and the international collaboration of Iranian nursing scholars in articles.

3. Materials and Methods

In this descriptive study, we used a quantitative content analysis approach to analyze the content of Iranian nursing journals.

3.1. Samples

Among the list of journals approved by the national commission for accreditation and improvement of Iranian medical journals in 2011, six nursing journals were identified: 1) Iranian Journal of Critical Care Nursing (IJCCN), published by Baqiyatallah University of Medical Sciences (UMSs); 2) Iranian Journal of Nursing and Midwifery Research (IJNMR), published by Isfahan UMSs; 3) Journal of Urmia Nursing and Midwifery Faculty (JUNMF), published by Urmia UMSs; 4) Iran Journal of Nursing (IJN), published by Iran UMSs; 5) Journal of Nursing and Midwifery (JNM), published by Shahid Beheshti UMSs; and 6) Journal of Hayat (JH), published by Tehran UMSs. All articles published in these journals over a three-year period (2009-2011) were analyzed.

3.2. Data Collection

All articles were retrieved from the journals' websites during a three-year period, which yielded 763 articles. Journal-related information was extracted from the abstracts of articles. This information included title of articles, keywords, number of authors, the specialty of authors, authors' institution affiliation, study designs, and the sampling methods. The abstract of each article was carefully read and if necessary, the full-text of the article was investigated.

One goal of the study was to identify subject areas and their frequencies in Iranian scientific nursing journals. To do this, authors gave one subject to each article by investigating the title, abstract, keywords, and sometimes, the full-text of articles. Subjects were identified by using a controlled vocabulary, namely, Medical Subject Headings (MeSH)/online version. If the main subject of the article was questionable, it was discussed among the authors (two librarians and one with nursing specialty) to reach consensus. Finally, one subject was chosen according to the mutual agreement of all three authors.

3.3. Data Analysis

Extracted data from these articles was entered into Microsoft Excel spreadsheets. The data were analyzed using descriptive statistics including frequency and percentage.

4. Results

In the current analysis, 763 articles were analyzed. A total of 2888 authors had contributed to writing these articles. On average, the contribution of authors per article was 3.78. Regarding the average number of authors per article, IJCCN ranked first among all six journals (4.21).

Totally, 27 articles had only one author. JNM had no article with one author. Moreover, 313 articles were written by the contribution of one to three authors, 427 had four to six authors, and 23 were published by the contribution of more than seven authors (Table 1).

4.1. Core Interests

Totally, 402 subjects were identified through content analysis of those 763 articles. Subjects with higher frequencies were defined as core interests. The subject areas with frequency of greater than five are mentioned in Table 2. Among the 21 articles that were classified under renal dialysis category, 16 were published in IJCCN.

Table 1. Published Articles in Iranian Nursing Journals Along with the Number of Authors and Average Number of Authors per Article

Journal	Articles, No.	Authors, No. (%)	Authors With Nursing and Midwifery Specialty, No. (%)	Authors With Other Specialties, No. (%)	Average Number of Authors per Article, Mean
IJCCN [a]	103	434 (15.02)	Unspecified	Unspecified	4.21
IJNMR	129	499 (17.27)	352 (23.17)	146 (15.68)	3.86
JUNMF	139	487 (16.86)	217 (14.28)	270 (29.00)	3.50
IJN	184	658 (22.78)	468 (30.80)	190 (20.40)	3.57
JNM	92	348 (12.04)	191 (12.57)	157 (16.86)	3.78
JH	116	459 (17.13)	291 (19.15)	168 (18.04)	3.95
Total	763	2888	1519	931	22.87

[a] Abbreviations: IJCCN, Iranian Journal of Critical Care Nursing; IJNMR, Iranian Journal of Nursing and Midwifery Research; JH, Journal of Hayat; JUNMF, Journal of Urmia Nursing and Midwifery Faculty; JNM, Journal of Nursing and Midwifery; and IJN, Iran Journal of Nursing.

Table 2. Frequency of Core Interests (Subjects) in Iranian Scientific Nursing Journals During 2009-2011

Subjects	No.
Renal Dialysis	21
Intensive Care Unit	16
Nursing Education	15
Patient Satisfaction	13
Quality of Life	12
Health Education	11
Patient Education	11
Pain	10
Education	9
Cardiovascular Disease	8
Massage	8
Myocardial Infarction	7
Coronary Artery Disease, Exertion, Lactation, Occupational health, Osteoporosis	6
Attitude of Health Personnel, Breast Feeding, Coronary Artery Bypass, Sexuality, Self-care, Pregnancy Complications, Patient Advocacy, Kidney Transplant, Episiotomy	5 [a]

[a] Number in each area.

4.2. Authors' Specialty

In, IJCCN, the specialty of 267 authors was not specified; thus, this journal was omitted from analysis for identifying authors' specialties. Moreover, the specialty of 129 authors was not specified in other studied journals. The majority of authors (1519 [52.59%]) had "nursing and midwifery specialty". Authors who were affiliated to nursing and midwifery schools were classified in this category. Furthermore, 931 authors had "specialties other than nursing and midwifery". As indicated in Table 3, authors with epidemiology/biostatistics specialty had the highest frequency (223), followed by authors with health specialty (including health education, environmental health, public health, occupational health, etc.) (n = 104), psychology with related fields (psychiatry, mental health, consultation, etc.) (n = 55), and nutrition (n = 30). Moreover, 76 authors had "specialties not related to the medical and biomedical fields". Statistics and math were classified in the category of epidemiology/biostatistics.

4.3. Core Institutions

Core institutions were institutions that had published more articles than others in a specific period. Our analysis

Table 3. Frequency of Authors with specialties other than nursing and midwifery and Non-Medical Specialties [a]

Specialties other than Nursing and Midwifery	No. (%)	Non-Medical Specialties	No.
Epidemiology/Biostatistics/Statistics/Math	223 (24.39)	Educational Management	12
Not specified	129 (14.11)	Education and Training	11
Health-Related Fields	104 (11.37)	Curriculum Planning and Education	6
Psychology and Related Fields	55 (6.04)	Physical Education	5
Nutrition	30 (3.28)	English Literature	5
Social Medicine	27 (2.95)	Social Sciences	5
Medicine and Medical Student	33 (3.61)	Management	4
Obstetrics and Gynecology	26 (2.84)	Theology	4
Pharmacology	17 (1.85)	Public Administration	4
Anesthesia	17 (1.85)	Information Technology Management	3
Pediatrics	16 (1.75)	Social Welfare	2
Operating Rooms	16 (1.75)	Industrial Engineering	2
Health Information Management	12 (1.31)	Environmental Science, Anthropology, Bioelectric Engineering, Economic Sciences, Information Management, Entrepreneurial Management, Financial Management, Islamic Education, Colonel, Social Work, Executive Management, Business Administration, Information System Management	1
Educational Management	12 (1.31)		
Training Sciences	9 (0.98)		
Physiology	9 (0.98)		
Surgery	8 (0.87)		
Cardiovascular	8 (0.87)		
Medical Education	7 (0.76)		
Microbiology, Parasitology, and Mycology	7 (0.76)		

[a] Specialties with frequency of > 7 are mentioned.

Table 4. Core Institutions in Each Iranian Nursing Journal During 2009-2011 [a,b]

IJCCN (No.)	IJNMR (No.)	JUNMF (No.)	IJN (No.)	JNM (No.)	JH (No.)
Baqiyatallah (209)	Isfahan (374)	Urmia (142)	Iran (137)	Shahid Beheshti (180)	Tehran (178)
Kerman (31)	Tabriz (17)	Tehran (28)	Tehran (105)	Tehran (20)	Iran (75)
Babol (14)	Tehran (11)	Shahid Beheshti (19)	Tabriz (32)	University of Social Welfare and Rehabilitation Science (7)	Zanjan (18)
Shahid Beheshti (13)	Kerman (8)	Kashan (13)	Shahid Beheshti (30)	Iran (6)	Arak (12)
Iran (12)	Ahvaz (7)	Babol (16)	Qom (21)	Qom (5)	Shiraz (11)

[a] In this table, the first part of the name of medical university is mentioned. All universities in this table are medical universities. For instance, "Babol" refers to "Babol University of Medical Sciences.

[b] Abbreviations: IJCCN, Iranian Journal of Critical Care Nursing; IJNMR, Iranian Journal of Nursing and Midwifery Research; JUNMF, Journal of Urmia Nursing and Midwifery Faculty; IJN, Iran Journal of Nursing; JNM, Journal of Nursing and Midwifery; and JH, Journal of Hayat.

indicated that the majority of articles in the studied journals were published by researchers affiliated to Isfahan (402 [13.91%]), Tehran (351 [12.11%]), Shahid Beheshti (248 [8.54%]), Iran (241 [8.34%]), Baqiyatallah (221 [7.65%]), and Urmia UMSs (157 [5.43%]), consecutively. In all journals, the majority of articles were published by researchers who were affiliated with the universities that had published those journals. Moreover, the least publication frequency belonged to Hamadan UMSs (n = 11), Mazandaran UMSs (n = 12), Jahrom, Yasouj, Hormozgan, Lorestan, and Golestan UMSs (each with 13 articles), Kermanshah (n = 14), and Qazvin UMSs (n = 15), consecutively. Among the nonmedical universities, Azad University (medical and nonmedical branches) (n = 161), Tarbiat Modares University (n = 126), Isfahan University (n = 11), and Tehran University (n = 10) had consecutively the highest ranks based on the frequency of authors. Additionally, the affiliations of 42 authors in the category of "nonmedical universities" were not mentioned in articles.

Table 4 indicates the five core institutions in each Iranian nursing journals during 2009-2011. The international cooperation in the studied journals was very low and only three papers had international affiliations (0.39%). One article was published in IJCCN with the collaboration of one researcher from the International Medical University of Singapore. IJN had one article with the collaboration of one researcher from the University of Oslo, and JNM had published one article with the cooperation of three scholars from University College of London.

4.4. The Academic Ranks of Authors With Nursing and Midwifery Specialty

Among 1519 authors with nursing and midwifery specialty, 325 had PhD degree or were PhD students, 1077 had MSc or were Master's degree students, and 79 had BSc or lower degrees or were Bachelor students. In addition, the academic ranks of 38 authors were not specified. For instance, some authors were labeled as supervisors or faculty members. Only in JH and JNM the academic ranks of all authors was mentioned in articles.

4.5. Research Designs

Descriptive-analytic design had the highest frequency (n = 152), followed by descriptive (n = 147), clinical trials (n = 112), cross-sectional (n = 86), semi-experimental/experimental (n = 60), case-control (n = 54), qualitative and qualitative/quantitative studies (n = 53), reviews (n = 26), retrospective studies (n = 16), multiphases (n = 7), pre-test/post-test (n = 7), and cohort studies (n = 7). Although some research designs could be merged in to one, we just mentioned them as was reported in the articles.

4.6. Sampling Methods

The sampling methods in the studied journals included simple random sampling (n = 154), census (n = 120), purposive (n = 95), accessible population (n = 81), non-specified (n = 37), continuous sampling (n = 28), clustering (n = 22), and stratified (n = 15). Moreover, 26 articles were review articles.

5. Discussion

The subjects of the majority of nursing articles were related to education (nursing education, health education, patient education, and education). Only three articles were published with international collaboration in the studied journals. Among the study designs, descriptive-analytic design and among the sampling methods, simple random sampling had the highest frequency in the Iranian scientific nursing journals during 2009-2011.

Renal dialysis had the highest frequency among all subject areas. Education and related subjects had the highest frequency among other subjects in the studied journals. Janani et al. (2012) also showed that "nursing education" had the highest frequency in Iranian nursing journals during 2005-2007 (4). While, some subjects had a higher frequency than others did, less attention had been paid to some subjects areas. Conducting research according to each setting's research priorities might lead to the publications in the neglected subject areas.

Overall, statistics and epidemiology and health experts were the most active researchers in writing nursing pa-

pers. Statisticians and epidemiologists usually participate in the data analysis of research; thus, their contribution in publications is usually higher than other experts. The divergence of sub-fields might be one reason for the high contribution rate of authors with health specialty in the studied journals. Moreover, the similarity of subjects in these two fields, ie, nursing and health-related fields, might be another reason for the high contribution rate of the health experts in nursing journals.

A tendency toward publishing the papers of authors who were affiliated with the same university that published the journal was seen. One reason is that the editors of journals might tend to publish papers from researchers affiliated to their universities. Second, researchers tend to submit and publish articles in journals, which are published by their institutions. It could be concluded that researchers believe that they can publish articles easier and more quickly in journals published by their institution. This finding was consistent with other studies in Iran. For instance one study indicated that the majority of corresponding authors were affiliated to the institution that published that journal (5).

Journals with international audiences more frequently publish articles with international authors. International collaboration is a factor for journal prestige. However, the international collaboration in Iranian nursing journals was very little. Although IJNMR was published in English language, no international collaboration was seen in this journal. Only three papers were published with the collaboration of international scholars in the studied journals, while some studies have indicated a reasonable number of international content and international readership in nursing journals (6, 7). Language limitation is a major reason for the low international publications in Iranian journals. As the majority of Iranian nursing journals are published in Farsi language, these journals cannot attract international readership and international scholars rarely choose to publish articles in these journals. Moreover, this might be due to low collaboration of Iranian nursing researchers with international scholars and institutions.

A few reviews were published in the six Iranian nursing journals (3.40%). A number of studies also indicated that Iranian journals usually publish original papers rather than reviews (5, 8). Scholars have a specific attention to review papers since these papers refer to a great body of previous research and therefore, readers can obtain a great deal of information by just perusing one review article (9). As findings indicated, Iranian scholars in the field of nursing and midwifery usually preferred to publish original articles than reviews. Editors of many international and prestigious journals usually invite experts to write reviews in a distinct subject for a special issue of their journals. Regarding the low frequency of review papers in the studied journals, it seems that editors of Iranian nursing journals have little attention to this approach.

A number of studies have indicated a rise in meta-analysis, systematic literature reviews (10), and methodologic studies over time in nursing journals (11), while in our study only 0.65% of articles were methodologic studies and there was no systematic review or meta-analysis in the six studied journals. As Yarcheski et al. mentioned, methodologic studies reflect a growth in instrument development studies (11). Moreover, meta-analyses studies provide information for evidence-based practice. Systematic review and meta-analysis projects are of high importance in clinical decision-makings. If nursing journals publish these types of studies, they can have more influence over the scientific community. These types of studies improve the impact factor and prestige of journals (12). Lack of education and knowledge about systematic reviews and meta-analysis studies among Iranian scholars might be a reason for the lack of these types of studies in Iranian nursing journals. Moreover, scholars rarely conduct systematic reviews and meta-analysis studies due to the time-consuming process of preparing and high costs of conducting such studies.

The number of multi-authored studies was higher than single author studies in the studied journals. Estabrooks et al. showed that the majority of articles in nursing were single-authored and no tendency was seen toward increased collaboration over time (13), while another study indicated that multi-authored publications had increased in scientific nursing journals from 1985 to 2010 (11). Coauthored papers might have fewer mistakes and/or might alter a common paradigm due to interdisciplinary collaboration, which might be more attractive (14). According to our study, this might be concluded that Iranian nursing scholars have paid enough attention to team working, since they have become informed that papers with more authors are usually of higher quality and prestige.

5.1. Study Limitations

This study had some limitations. Since we aimed to analyze the content of journals that were approved by the commission for accreditation and improvement of Iranian medical journals in 2011, only six journals were studied. Further studies are necessary to investigate the newly approved journals to provide a better insight into the Iranian scientific nursing journals. Furthermore, through our investigation, some defects in the websites of journals were seen that limited our study. For instance, when researchers tried to download articles, some of them were mistakenly uploaded in the pages of others and the full-texts of articles in PDF format were not the articles that were mentioned in the table of content pages. Thus, evaluating the websites of Iranian nursing journals is recommended in further research.

Further research is needed to investigate the research trends of Iranian nursing journals over time. We suggest the citation analysis of nursing journals, content analysis of nursing books, which are published in Iran,

to know the research areas that need more attention, and evaluation of articles in Iranian nursing journals with standard checklists such as CONSORT and STROBE to know weaknesses and improve the reporting quality of these articles.

To conclude, Iranian nursing journals are encouraged to publish special issues (supplement issues) in the neglected subject areas according to the results of this study. Iranian nursing journals should encourage more high-quality research evidence and publication of studies that implement reviews, systematic reviews, and meta-analysis methodologies. Editors of journals can invite core experts in the field of nursing and midwifery and related fields to write reviews for their journals. Since some articles in nursing journals had unclear methodology, lack of information about sampling method or study design, or lack of information about affiliations and authors' specialties, editors should publish articles with higher qualities along with articles that had clearer and more complete methodologies. Moreover, more journals should be published in English language by Iranian nursing schools and institutions to attract more international studies.

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