Theoretical Review

DISSEMINATION OF KNOWLEDGE IN NURSING: FROM ELABORATION TO THE PUBLICATION OF A SCIENTIFIC PAPER

DIVULGAÇÃO DO CONHECIMENTO EM ENFERMAGEM: DA ELABORAÇÃO À PUBLICAÇÃO DE UM ARTIGO CIENTÍFICO

DIVULGACIÓN DEL CONOCIMIENTO DE ENFERMERÍA: DE LA ELABORACIÓN A LA PUBLICACIÓN DE UN ARTÍCULO CIENTÍFICO

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ABSTRACT

Currently, the number of scientific papers published in the nursing area has increased significantly. However, the quality of these scientific publications has been discussed. In this text, we examined some of the main problems regarding the textual production in nursing, with emphasis on the structuring of a scientific paper. In addition to the description of components, which form the structure of the scientific text, guidelines for the process of choosing the journal for publication, desirable language characteristics in the construction of the text, procedures for submission for publication, and causes of rejection are presented. Additionally, the authors presented suggestions to stimulate and improve the production of scientific texts in nursing.

Keywords: Nursing; Knowledge; Nursing Research; Scientific and Technical Publications; Publications for Science Diffusion; Scientific Publication Indicators.

RESUMO

Na atualidade, o número de trabalhos científicos publicados na área de enfermagem tem aumentado muito. Contudo, a qualidade dessas publicações científicas vem sendo discutida. Neste texto, examinaram-se alguns dos principais problemas relativos à produção textual em enfermagem, com ênfase para a estruturação de um artigo científico. Além da descrição do conteúdo dos componentes que formam a estrutura do texto científico, foram apresentadas as diretrizes do processo de escolha do periódico para publicação, as características desejáveis da linguagem na construção do texto, os procedimentos para encaminhamento do manuscrito para publicação e as causas de rejeição de um artigo científico. Adicionalmente, foram apresentadas sugestões pelas autoras, no sentido de estimular e melhorar a produção de textos científicos na graduação em Enfermagem.

Palavras-chave: *Enfermagem; Conhecimento; Pesquisa em Enfermagem; Publicações Científicas e Técnicas; Publicações de Divulgação Científica; Indicadores de Produção Científica*

RESUMEN

En la actualidad, el número de trabajos científicos publicados en el área de enfermería ha aumentado mucho. Sin embargo, se discute la calidad de dichas publicaciones. En este trabajo se analizan algunos de los principales problemas relativos a la producción de textos en enfermería, haciendo hincapié en la estructuración de un artículo científico. Además de la descripción del contenido de los componentes que forman la estructura del texto científico, se presentan las directivas del proceso de elección del periódico para publicación, las características deseables del lenguaje en la construcción del texto, los procedimientos para envío del manuscrito para publicación y las causas de rechazo de un artículo científico. También se presentan las sugerencias de las autoras, en el sentido de estimular y mejorar la producción de textos científicos en el grado de enfermería.

Palabras clave*: Enfermería; Conocimiento; Investigación en Enfermería; Publicaciones Científicas y Técnicas; Publicaciones de Divulgación Científica; Indicadores de Producción Científica.*

INTRODUCTION

The process of knowledge production in Brazil has always been linked to the growth of graduate schools. The country seeks to consolidate its scientific basis mainly through graduate courses and have human resources trained to solve regional and national problems.[1]

The Brazilian nursing, through 83 *stricto sensu* graduate programs (45 academic master's degree programs, 11 professional master's, and 27 doctorate degree programs) has increased the production of knowledge from research with more visibility, recognition, and consolidation of the profession as a science, technology, and innovation.[2] This is reflected in improved teaching qualification, at the undergraduate and graduate levels, which is oriented by a practice of responsible care with the life and health of citizens, promoting living in better health.[3]

The increase in knowledge production is concomitant to the increase in scientific production in nursing. We ranked 25th place in the world's nursing production in 2000, and ascended to the 6th place in 2011, only surpassed by the United States of America, United Kingdom, Australia, France, and Canada.[4]

Despite the increase in production of knowledge in nursing and number of scientific articles published in this area, the scientific production is not aligned with the magnitude of the representation of nursing professionals as the largest number of active human resources in the Brazilian public health system (around 60%). It is necessary to increase visibility, communication, and scientific expression in the national and international scope.[5] Therefore, the encouragement towards scientific research and publication of scientific articles in the field of nursing, at the undergraduate and graduate levels, is beneficial for the enhancement of nursing at the social, scientific, and technological level.

The challenges to overcome when publishing in quality journals have been present in the professional life of nurses because the execution of research projects is not enough, and the production of quality knowledge is imperative. Knowledge must be shared to fulfill the purpose of leveraging practices in nursing and society as a whole.[6]

The knowledge on scientific methodology is essential for the execution of scientific research and dissemination of its results in journals and/or periodicals; this knowledge makes the path of knowledge construction, regarded as a difficult and pleasurable challenge, a solid reality for many health professionals.[7]

Therefore, the interest in developing a reflection on how to write a scientific paper suitable to the area of nursing and how to submit it to an indexed journal to encourage the publication of scientific articles among undergraduate students arose based on our experiences as professors at the disciplines of Scientific Methodology, Research Methodology, and Project for Course Conclusion (PCC) for undergraduate students.

MATERIAL AND METHODS

This was a descriptive study based on a literature review with a qualitative approach complemented by the authors' perception on the subject. The data was obtained through research on book chapters and nursing articles in the SciELO (*Scientific Electronic Library Online*) and BDENF (nursing database) databases, between 2002 and 2012. Fifteen studies were selected for analysis.

The inclusion criteria were: written in Portuguese; available text in full at the time of review; suitable to the studied topic; and containing at least two of the following keywords in the title or summary: scientific paper, scientific research, production of knowledge, dissemination of knowledge, and nursing.

RESULTS AND DISCUSSION

Results and discussion were summarized in thematic units namely as:

a. scientific research in nursing;
b. structuring a scientific paper;
c. how to publish in an indexed journal;
d. leading causes for the rejection of a scientific paper.

Scientific research in nursing

Nursing is consolidated as a science based on bold and continuous search for knowledge,[8] which is marked by four phases as highlighted by Gomes *et al.*[9]. In the first phase, considering Florence Nightingale as the precursor, the focus of nursing research was on "what to do?" In the second phase, trying to conquer the technical field, nursing sought to define "how to do". At this phase, the way to execute the technique was more important than caring for the sick. In the third phase, nursing sought to consolidate actions. Therefore, scientific principles became the platform, and the investigation became based on "why do it?" In this phase, nursing approached the medical knowledge, seeking to operate on a scientific basis. Thus, the scientific principles of Anatomy, Physiology, Microbiology, Physics, and Chemistry began to support actions in the nursing research. Currently, nursing is dedicated to scientific research in an attempt to obtain an answer to the question "what is the nursing knowledge?"

Research in nursing resides between two major approaches: the quantitative and qualitative. The quantitative research is undoubtedly the one with more historic weight. However, because of the link between nursing and Human Sciences, qualitative research has gained weight.[10] The qualitative research seeks to interpret and understand the meanings of phenomena, beliefs, values, and habits for the individual and collectively. Data collection involves dialogue between individuals, data analysis, and writing, i.e. the words that depict speeches.[11] Thus, when changing the focus

from quantitative to qualitative research, nurses no longer value the technical aspects of the care only and turn into understanding the subject being cared for.[12]

In the 70s, relevant facts emerged incentivizing and incorporating research in the nursing activity; the creation of nursing graduate schools to grant Master's degrees and of doctoral courses in nursing in the early 80s was remarkable.[13, 14]

Prior to the 90s, the scientific production in nursing occurred individually or in the relationship student-advisor, similarly to that of other areas of knowledge. It is observed that, in the 90s, another strategy for knowledge production emerged – the constitution of research groups and centers of studies in a subject area – bringing together elements with different levels of scientific background (scientific initiation students, more advanced students, Master's and PhD degree students, and researchers).[15]

Currently, the increase in knowledge production is concomitant to the increase in scientific production in nursing. The scientific production in nursing in the 2004-2006 triennium accounted for 3,563 published articles in 373 journals whereas the 2007-2009 triennium accounted for 5,194 published articles in 595 journals, showing numbers that almost doubled in three years.[2]

The dissemination of scientific research in the form of an article published in an indexed journal must be thought through since undergraduate studies because the economic globalization requires nurses with a professional profile that allows them to build their own culture, body of knowledge, and skills by disseminating results and breaking through theoretical paradigms, imprinting a humanist and social character and not just a technical front to the profession.[16]

The process of training nurses must be incorporated into research as an activity that this professional will consume with a view on the development of health and nursing practice.[8] We agree with Aguiar[17] on:

> *Much more than thinking, research as a function to be developed by the nurse alongside his assistive, administrative, teaching, and education functions, the research is one dimension of the teaching, assisting, managing nursing practices that are intricate in the everyday work that makes and gives visibility to its participation in the social-historical process of knowledge construction.*

Furthermore, the practice of scientific investigation should be encouraged among nursing students since the first undergraduate year based on scientific initiation scholarships, scholarships for the tutorial education program (TEP), insertion in groups or research projects, participation in scientific events, as listeners or presenters, or proposers of a scientific article as an evaluative method in the discipline of Scientific Methodology. We adopt this practice in the nursing courses from our institution because the expansion of the scientific horizon is fundamental for our students.

These training strategies not only allow learning the steps of the research process but provide the formation of a new generation of nurses who, in addition to conducting the first assays in research, will incorporate scientific methods in the elaboration of concepts, ideas, and the formulation of questions with a critical stance of production and consumption of acquired knowledge by observing and applying the results from conducted research into their practices.[8]

During the undergraduate program, few strategies are used to stimulate the development of research, construction of new knowledge, and promotion of an overlap between theoretical and practical knowledge. Conversely, it seems that the priority remains in the development of motor skills for performing techniques, procedures, and behavioral attributes that are inherent of a good nurse.[18]

It is worth noting the opinion of Oliveira[19] about the importance of research in the formation of a nurse:

> *The research itself stems from a practice that is founded on the day-to-day assistance, investigation, and problem-solving. The formation of a researcher starts during undergraduate courses, when the student is inserted in scientific initiation projects and, consequently, in research groups from a researcher-advisor where the student has the opportunity to start thinking, practicing, and reflecting on problems for which the research seeks solution.*

According to Stedile,[20] it is through research that nurses develop skills to deal more consistently and systemically with problems in their practice.

Therefore, the development of scientific papers, since the early formation years, can bring students closer to real problems in society, to which they apply acquired knowledge and skills to form a scientific attitude extensive to their professional activity.

Moreover, teachers should make use of facts that provide the elaboration of scientific research since the first year of undergraduate studies in the Scientific Methodology discipline and encourage students to recognize scientific research as something challenging of practical learning and not associate to the mere achievement of grades according to the opinion of an interviewed student in the study of Palmeira and Rodriguéz:[16]

> *[...] I don't think it is important [the scientific research] because if it was, the teachers would teach us from the early years. What they request are projects to search in the library, which should have a cover, introduction, development, conclusion, and bibliography. It's good because the grade is guaranteed, it is sufficient just to present it [...]*

The research practice is not perceived as an integral part of the everyday professional life by nurses who are developing their professional practice linked to direct assistance to patients as re-

ported by a nurse in the study of Daher *et al.*[18:148] "the practice of care is too cold and technical… few are those who think about doing some scientific work".

Authors of this study, as teachers of investigative methods in nursing and responsible, to a certain extent, for the formation of these professionals, were mobilized against the need to understand how the formation of investigative skills in the course of nursing was being processed, when noting the shortcomings of students during the preparation of their PCCs, scientific articles, or research projects manifested in difficulties to inquire, describe, interpret, and discuss the reality.

Therefore, this study aims to indicate step-by-step instructions in the preparation of a scientific paper and how to submit it to an indexed journal in an attempt to assist and encourage potential researchers in the area of nursing, beginning in the undergraduate years, so that graduates do not have the same conception of the interviewee in the study of Palmeira & Rodriguéz.:[16]

> *The nursing course prepared us to be nurses and provide assistance. The research, before this semester, was seen only in the theoretical form in two disciplines (Scientific and Research Methodology). How can I be motivated by something that I don't know and is enforced in the last graduating year?*

Teachers should stress that research is inserted into the academic life at various times, from disciplines' interrelated contents, starting with the reflection on the need for nursing research, continuing with the presentation of the scientific methodology, and culminating in the elaboration of a project under faculty guidance. Thus, it is essential to include the development of skills that enable nurses to produce new knowledge during their process of training and not just to consume knowledge produced by others.[20]

One could even say that nurses can be involved in scientific research at three different levels: as investigators, coordinating the study or being part of the research team; as caregivers to a sick patient about whom the research is conducted; as users of research results.[10]

Considering that the scientific research is very present in the academic and professional life of nurses and that nurses need to disseminate knowledge production, the organization of this article arose from the desire to facilitate the understanding about the writing of a scientific article and its publication, describing in detail the elements that compose it in support to beginners in this craft.

The importance of the title, methodology, text development, and bibliographical references is highlighted in scientific research with the purpose of publication, as described below.

Structuring a scientific paper

According to the Brazilian Association of Technical Standards[21:2], "a scientific article is part of a publication with declared authorship, presenting and discussing ideas, methods, techniques, processes, and results in different areas of knowledge".

The scientific paper should not be extensive, typically totaling between 5 and 10 pages, or up to 20 pages depending on the type of publication, nature of research, or journal guidelines. The thematic approach should be ensured in all cases as the most complete possible, with the exposure of methodological procedures and discussion of results.[22]

The publication of a study requires accuracy in the writing of the constituent elements of a scientific paper. The analysis of such elements is indispensable to the journals, which need to fulfill a series of requirements to obtain indexation in different databases and guarantee their quality. The standardization and presentation impact the credibility of the scientific paper, not only highlighting the scientific text but bringing recognition to the researcher.

Observations will be made on each of the items that make up a scientific paper aiming at improving article preparation:

Title

The skilled writer knows the great importance of the title of his work. It is an expression that indicates the text content and exercises the function of enticing the reader to be interested about the theme developed in the study, thus, it should be informative and precise.[7] The advisable is that it does not exceed 10 to 12 words. The title must be elaborated at the end of the study when the authors would be well rounded about the article. However, a provisional designation for identification purposes can be assigned at the beginning.[23]

Authors

Authors are all who effectively contributed with ideas to the study, participated in its conception, and know enough to take public responsibility for its content. According to the *International Committee of Medical Journal Editors* (ICMJE)[24], the recognition of authorship should be based on substantial contribution related to the following aspects: study conception and design or analysis and interpretation of data; article writing or relevant critical review of the intellectual content; and final approval of the version to be published. In addition to names, home institutions and qualifications of authors must be explicit; the inclusion of contact information such as *email* or phone is suggested.

The order of authors is another very frequent question among authors of a scientific paper. Marques[25] points out that the rules involving the position of authors vary between areas of knowledge; however, the most widely used convention places the most important positions for the first name on the list (in general, the person responsible for the experimental work) and the last name on the list (those with supervision, leadership, and advisory roles).

Table 1 provides an ethical basis for the order of names of authors considering the study of Petroianu,[26]. Authorship should be granted to those who score at least 7 points; the sequence of authors will be in descending order of scores.

Table 1 - Authorship scoring according to participation in the study

Participation	Points
Created the idea that originated the study and elaborated hypotheses	6
Structured the working method	6
Directed or coordinated the study	5
Wrote the manuscript	5
Coordinated the group that performed the study	4
Reviewed the literature	4
Presented important suggestions incorporated in the study	4
Resolved fundamental problems in the study	4
Created devices for completion of the study	3
Collected data	3
Analyzed results statistically	3
Guided the writing of the manuscript	3
Prepared the study presentation for a scientific event	3
Presented the study in a scientific event	2
Is in charge of the institution where the study was performed	2
Provided patients or material for the study	2
Obtained resources for the performance of the study	2
Presented minor suggestions incorporated in the study	1
Worked on a routine function, without intellectual contribution	1
Participated based on a specific fee	5

Source: Petroianu (2002).

An example of co-authorship is the case of the advisor, especially in medical research, because all researchers need, in certain stages of their work, the assistance of someone more knowledgeable on the subject, especially when the study covers a scientific field in which the investigator is less prepared. Thus, because the advisor participates in the entire research, his name is highlighted among authors.[27]

In the case of a researcher who translates a scientific article to English for the internationalization of the publication, he deserves to score for inclusion as an author.[28] Moreover, a professional who performed the statistical analysis of the study, which is essential for the interpretation of results, should also be included among authors.

The subject of authorship in scientific papers and periodicals covering the description of contributions from each author, similarly as done by editors of international journals, is not discussed enough, and the related information is not sufficiently disseminated in our field.

Monteiro *et al.*[29] carried out a survey over the instructions to authors from 40 journals that make up the health sector on the SciELO database and verified that the ICMJE standards were adopted by only 50% of these journals; 17.5% adopted the policy of restricting the number of authors allowed per article as a mean to contain abuse; 17.5% explained the criteria defining authorship in the guidelines to authors; 10% adopted the practice of requiring approval from people whose names were listed in the acknowledgement session; and 12.5% requested a statement of conflict of interest.

One can assume that authorship issues and difficulties in the allocation of responsibilities will be increasingly present among us, with very similar risks to those seen abroad, with the increasingly encouragement and value placed on scientific productivity measured by the number and quality of scientific articles in Brazil.[27]

Abstract

Aims to assist the bibliographic search because it gives the idea of the study in a nutshell and the interested reader can quickly select the article. It must include objectives, main items of the method, results, and main conclusions.[23] Nursing journals define the abstract extension by the number of words which, in general, oscillates between 200 and 250 words. The main Brazilian nursing journals require title and abstract in English (*abstract*) and, sometimes, in Spanish too (*resumen*).

Keywords or descriptors

These are the expressions that identify the subject of the article with a view to cataloguing. The definition of descriptors is an important item that authors should look when submitting a paper for publication. Such terms are of great indexing value because many health researchers delimit a field of science by using descriptors when searching for information on diseases, surgical techniques, or even to write a paper. If the descriptors do not comply with the nomenclature of databases, the article runs the risk of not being found, and, therefore, not cited.[30]

It is advisable to avoid the repetition of words from the title in the list of descriptors. Some nursing journals only accept up to five descriptors and require the use of those available in the DeCS-Health Sciences Descriptors (http://decs.bvs.br) and MeSH-*Medical Subject Headings* from the *Index Medicus* (http://www.nlm.nih.gov/mesh/). The DeCS contains a dynamic vocabulary, totaling 30,895 descriptors, among these, 26,664 from MeSH and 4,658 exclusively from DeCS.[31]

Introduction

The introduction should present the issues to be resolved in the study, justifications for the study, theoretical structure and

review of literature, objectives, hypotheses, and variables that will be worked out.[23]

One of the big mistakes made by authors is the presentation of extensive introductions, however, generic and vague. The introduction is not meant to show erudition or to teach on the subject. According to the opinion of a scientific journal editor, authors elaborate very confusing introductions: "it seems as the author does not know where he wants to get. He does not address the issue that has guided the investigation "[32:293]

An introduction with five paragraphs is suggested to beginners when developing scientific articles; the first paragraph presenting the panorama of intended study; the second and third presenting what is known in the literature on the subject; the fourth, the justification of the study; and the fifth, the objectives of the study.

Methodology

When writing the methodology used in a scientific study, also called – *methods*, all the steps or pathways used by the researcher to respond the research hypothesis are explained in detail. The methodology must contain the type of study and methodological approach, location, population and sample, instruments and equipment used for data collection, studied variables, and statistical methods used in the analysis of results. It must also show the number of the research protocol approved by the Committee of Ethics in Research (CER) when it comes to research with human beings. Sometimes, some nursing journals require a copy of the CER's approval document along with the manuscript. The methodology must describe that the procedures were performed in accordance with resolution n° 196/96 from the National Health Council (NHC).[33]

Every scientific research represents a human activity of great ethical responsibility through its inherent characteristics; always associated with the search for truth, it requires rigor, impartiality, persistence, and humility. Research in nursing does not dismiss these demands and requirements and must comply with the ethical principles that are nationally and internationally established.[10]

The methodology must contain the typification for the study, namely: the temporal dimension of data collection (cross-sectional, longitudinal, prospective, retrospective, and its variations), the purposes (comparative, correlational, surveys, and others), and the type of design used (quasi-experimental, experimental, from results, and others). If necessary, the approach chosen should be referred, whether quantitative or qualitative, and its methodological variations. In the case of methodologies less frequently used, their procedures and designs must be substantiated.[23]

Results

The presentation of results should be limited to their description and may be complemented with the use of tables, graphs, figures, or charts with their respective numbers and titles. The results must expose the findings in a simple way and without repetitions or comments. Data showing central tendency must be presented such as means and standard deviation, standard error or median, or modal and separatrices with the corresponding values of statistical tests.[34]

Discussion

The findings should be discussed and interpreted in the light of the existing knowledge, in other words, compared to results from other investigations to confirm or not the answers or solutions presented. The elaboration of the discussion is the most difficult part in the article for a novice researcher and requires discussion of the subject with other more experienced researchers who are knowledgeable in the theme.[23]

The authors observed that the vast majority of students attending nursing courses at the institution where they teach showed difficulties to develop this item in the scientific paper. This is a crucial moment in which the advisor should use all its pedagogical and methodological experience for guidance, inquiring his student: "What were your results?" And: "Are there similar or different results in the literature?" Based on the responses, the student mentally delimits the discussion of his study by making an outline of topics to be discussed, obviously considering the results found. Therefore, the connection between results and the literature is made in the discussion.

Conclusions

The conclusions of a scientific study constitute the final part of the report and are directly related to the proposed objectives, they present the answers to the study's questions and generate solutions to the problems that led to the investigation. The conclusions are not the summary of results but their interpretation in the context of that specific case.

This part of the article may also include recommendations for future research, the limitations of the study, and the authors' final thoughts.

References

Currently, references are no longer only from bibliographical sources; they include those from electronic support, which is increasingly common. Such documents must be indicated in compliance to the format adopted by the journal in which the article will be published. In the case of dissertations or theses, reference formats must comply with the standards indicated by the legislation in the country.[23]

The adoption of a standard of norms defined by technical standards is required for the preparation of references. There are

several nationally and internationally defined standards; the most commonly used in the area of nursing in Brazil is the ABNT reference standard[21] and, internationally, the norm from the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals*, published by the ICMJE,[24] also known as Vancouver standard or style.

The choice of the reference standard to be adopted will depend on the purpose of each periodical. This information is in the instructions to authors from each journal. We recommend the use of updated references, i. e. published in the last five years; 70% of the references should be for national articles and 30% for international. At present, approximately 84% of nursing journals adopt the Vancouver style according to a survey (not yet published) carried out by the authors in 41 Brazilian nursing journals.

Finally, the scientific writing presses for clarity, conciseness, and structuring of the study parts. Simplicity in presentation and author's style (s) must provide an enjoyable reading for the academic-scientific audience.

How to publish in an indexed journal

According to Severino,[35:198] "[...] the role of scientific journals is fundamentally the communication of research results to the scientific community and society as a whole. " (p. 198). It aims to record, preserve, and disseminate information provided in articles following specific time intervals.

Thus, once the path of writing a scientific article is covered, the article should be submitted, preferably the one indexed journal, at the national or international level.

We must overcome a cultural habit ingrained in our society of just presenting studies in the form of free themes in scientific meetings; it is essential to publish in scientific journals even considering that publishing is not an easy task, which however, is not impossible.

Izquierdo[36] stresses the importance of the scientific publication:

> *The findings that are only presented in meetings have very limited exposure: they only become known to those who attended the lecture or seen the "poster" and the record that can be saved from this is too succinct: a vague hearing or visual memory, a brief summary in the annals.*

When a manuscript is submitted to a journal, the reviewers examine it in terms of quality as a product of disclosure considering content aspects and how it was elaborated, either being a research study or not. In addition, they check also if the study is appropriate to the mission of the journal and profile of its readers.[22] Thus, the evaluation of studies by reviewers, who are not part of the editorial team, is impartial, independent, and critical.

The submission of a manuscript to a journal generates great anxiety in authors because not all articles are accepted after the first submission. Even those authors who systematically publish large volumes of work run this risk.

The choice of the journal to publish is very important and should consider the following aspects: the prestige of the journal, which is related to the quality of arbitration (journals that have a body of reviewers), critical peer review process (*peer-review*); the quality of published articles (rigor and originality of the articles); and the visibility of the publication (achieved by the journal's indexation in databases and impact factor).[37]

In Brazil, scientific journals can be selected according to the Qualis classification, which is a model created by CAPES to classify scientific journals and used in the dissemination of the intellectual production of *stricto sensu* graduate programs (Master and PhD) in the country. CAPES established the classification of periodicals in 2007 in strata as: A1, A2, B1, B2, B3, B4, B5, and C; the highest score is assigned to the A1 stratum (100) and the lowest to (zero) to the C stratum.[34]

The scientific articles submitted to nursing journals must conform to requirements for manuscripts submitted to biomedical journals[24] and instructions to authors, which are journal-specific.

Currently, the electronic submission and publication of scientific articles are accepted universally as an inexorable phenomenon by most of the actors in the process of scientific communication. Thus, the Brazilian nursing journals have received manuscripts submitted electronically on their *sites*.

In a study (not published yet) on the analysis of scientific nursing journals, the authors found that the process of evaluation of papers submitted by pairs (*peer-review*) was adopted by all 41 surveyed journals. The transfer of copyrights by means of documents or agreements during the electronic submission of papers was required in 73% (n = 30) of these journals, whereas 27% (n = 11) did not require transfer of copyrights.

Main causes of the rejection of a scientific paper

The publishing of a scientific paper means respectability; ethicality; innovation; ability to express ideas in a simple and concise way; and journal appropriate choice according to the specificity of the study and acceptance by the scientific community. The choice of research theme and its presentation are very important according to the opinion of editors from scientific journals:[39] "[...] While I agree that a bad presentation can 'bury' a good study, I do not think that an excellent presentation can save one that is fatally flawed."

According to Kirchhof and Lacerda[6], editors take into account articles that are susceptible of being frequently cited and could positively influence the journal's impact factor. Authors know that readers are always a hostile audience that wants to be convinced that what is written is logical, reasonable, well justified, and consistent with the theme or research question.

In the study by Marziale and Mendes[37], consultants from a scientific nursing journal analyzed 58 scientific papers submitted to the journal and highlighted the following thematic issues: lack of originality; outdated theme; inadequate titles; unclear explanation about the research problem; outdated references, insufficient and restricted to Brazilian authors; disarticulation between the theoretical referential and the obtained data; incomplete description of material and methods (population, sampling criteria procedures, data collection, and method used); absence of information about the validation of used instruments; and non-observance of ethical procedures.

The following problems have been detected in papers submitted to journals: lack of use of available methods for statistical analysis; authors did not provide the context for their findings; lack of contribution to production of knowledge; and unacceptable language with many spelling and grammatical errors.[32, 37]

The rejection can hurt the author who feels some level of suffering, which can become fatal for him or the manuscript.[22] Therefore, it is useful to consider the following in this process: rejected manuscripts still have great chances of being published provided that the changes suggested by reviewers are made.

CONCLUSIONS

The present study shows the growth in production of knowledge by nurses and recognizes undergraduate studies in nursing as the locus of training with formal quality for the production and dissemination of knowledge through the preparation of scientific articles.

It is noteworthy that the process of producing and disseminating research pass through the proper formulation of the title and exact understanding of the wording used in the methodology. In addition, the scientific writing must adhere to the methodological and grammatical rigor as essential features that contribute to the advancement of knowledge and appreciation of the work performed by the researcher.

With the examination of the constituent elements of a scientific paper and guidelines and instructions for submission of papers to nursing journals, the support of other nurses-researchers in reviewing articles to be submitted for publication is expected.

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