

# PRODUÇÃO CIENTÍFICA SOBRE CENTRO CIRÚRGICO EM TESES E DISSERTAÇÕES: ESTUDO BIBLIOMÉTRICO

*Scientific production about surgical center in theses and dissertations: a bibliometric study*

*Producción científica sobre centro quirúrgico en tesis y disertaciones: estudio bibliométrico*

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**ABSTRACT: Objective:** To identify the academic production coming from dissertations and theses about surgical centers by nurses who have completed master's degrees and doctorates in Brazil. **Method:** Bibliometric, descriptive and retrospective study, with documentary research in three Brazilian databases, using the publications of 11 higher education institutions, from 2005 to 2016. **Results:** A total of 40 academic productions were identified. Of these, 13 are theses (32.5%) and 27 are dissertations (67.5%). The years with the most publications (17.5%) were 2009 and 2013. The University of São Paulo and the University of São Paulo — Ribeirão Preto are the institutions with the highest number of studies, with 32.5 and 25.0%, respectively. The methodological approach most adopted by the researchers was the quantitative one (40.0%) and the main theme dealt with perioperative care (60.0%). **Conclusion:** The scientific production in this area has presented incipient, when compared to the total number of post-graduation publications *stricto sensu* on nursing in the national scenario. However, what has been published is aimed at hospital care, showing correlation of the studies with the practice of perioperative nursing. **Keywords:** Surgicenters. Intraoperative period. Operating room nursing. Bibliometrics.

**RESUMO: Objetivo:** Identificar a produção acadêmica advinda de dissertações e teses sobre centro cirúrgico de enfermeiros que concluíram mestrados acadêmicos e doutorados no Brasil. **Método:** Estudo bibliométrico, descritivo e retrospectivo, com pesquisa documental em três bases de dados brasileiras, recorrendo às publicações de 11 instituições de ensino superior, no período de 2005 a 2016. **Resultados:** Identificou-se um total de 40 produções acadêmicas. Dessas, 13 são teses (32,5%) e 27 são dissertações (67,5%). Os anos com maior publicação (17,5%) foram 2009 e 2013. A Universidade de São Paulo e a Universidade de São Paulo — Ribeirão Preto são as instituições com maior representatividade de estudos, com 32,5 e 25,0%, respectivamente. A abordagem metodológica mais adotada pelos pesquisadores foi a quantitativa (40,0%) e a temática principal tratou da assistência perioperatória (60,0%). **Conclusão:** A produção científica nessa área tem se apresentado incipiente, quando comparada ao número total de publicações de pós-graduação *stricto sensu* de enfermagem no cenário nacional. Entretanto, o que se tem publicado está voltado para assistência hospitalar, demonstrando correlação dos estudos com a prática de enfermagem perioperatória.

**Palavras-chave:** Centros cirúrgicos. Período intraoperatório. Enfermagem de centro cirúrgico. Bibliometria.

**RESUMEN: Objetivo:** Identificar la producción académica proveniente de disertaciones y tesis sobre centros quirúrgicos por enfermeras que hayan completado maestrías y doctorados en Brasil. **Método:** estudio bibliométrico, descriptivo y retrospectivo, con investigación documental en tres bases de datos brasileñas, utilizando las publicaciones de 11 instituciones de educación superior, de 2005 a 2016. **Resultados:** Se identificaron un total de 40 producciones académicas. De estas, 13 son tesis (32,5%) y 27 son disertaciones (67,5%). Los años con la mayor cantidad de publicaciones (17,5%) fueron 2009 y 2013. La Universidad de São Paulo y la Universidad de São Paulo – Ribeirão Preto son las instituciones con mayor número de estudios, con 32,5 y 25,0%, respectivamente. El enfoque metodológico más adoptado por los investigadores fue el cuantitativo (40,0%) y el tema principal fue el cuidado perioperatorio (60,0%). **Conclusión:** La producción científica en esta área ha presentado incipientes, en comparación con el número total de publicaciones de postgrado en *stricto sensu* sobre enfermería en el escenario nacional. Sin embargo, lo que se ha publicado está dirigido a la atención hospitalaria y muestra la correlación de los estudios con la práctica de la enfermería perioperatoria.

**Palabras-clave:** Centros quirúrgicos. Periodo intraoperatorio. Enfermería de quirófano. Bibliometría.

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## INTRODUCTION

The surgical center (SC) is a complex field with a large interface in the hospital context, consisting of several interdependent areas to allow optimal conditions to perform the anesthetic-surgical procedure. In ideal aseptic circumstances, the SC aims to promote patient safety and structure and comfort for the team assisting them<sup>1,2</sup>.

In order for the SC to become a complex sector, a history of great changes, technological innovations and acquisition of professional competence was traversed. At the beginning of the nineteenth century, many factors hampered the event and the course of surgeries: precarious instruments, improper raw material and inadequate physical plant. Throughout the 21st century, with the advancement of anesthesia, surgical procedures became more and more specialized and precise<sup>3</sup>.

With the historical evolution of surgeries, it was necessary the development of specialized human resources inserted in this scenario. Nursing, as part of the SC team, is essential for the development of integral care, quality and is also responsible for maintaining a safe, comfortable and clean environment<sup>4</sup>.

Perioperative nursing began informally, with the professional acting with the "barber-surgeons", in the cleaning of material and in the stabilization of patients. The consolidation of surgical nurse performance was strongly influenced by the creation of the current Association of Perioperative Registered Nurses (AORN), whose mission is to unify perioperative nurses, provide education and recommend standards for the care of surgical patients<sup>5</sup>.

In Brazil, this mission is carried out by the Brazilian Association of Nurses of Surgical Center, Anesthetic Recovery and Material and Sterilization Center (SOBECC). With the advancement of these associations, some concepts were developed, as well as the concern with the nurses' scientific performance<sup>5</sup>.

To consolidate quality nursing care, scientific evidence is indispensable. One of the ways of identifying the available scientific productions and obtaining an informative consensus is bibliometric research. This enables relevant counts, such as production by region, publication time, search by area of knowledge, literature related to the study citation, and impact factor of a scientific publication<sup>6,7</sup>.

Bibliometrics is characterized as the metric that works with documents, articles, authors, among other events. It is not only concerned with their quantitative aspect; it is also important to verify the relevance and impact of authors, journals, institutions, groups or countries in the most various areas of knowledge<sup>8</sup>.

Bibliometric studies are based on a set of empirical laws and principles, derived from information science, whose purpose is to investigate the quantitative aspects of the production, dissemination and use of available and recorded information, thus contributing to the evaluation of the current state of science, as well as research management. It is through its bibliometric indicators that the researcher has the possibility to draw a profile of the scientific world<sup>8,9</sup>.

Given the importance of nursing care to the surgical patient and the increase in surgical procedures due to illness, trauma and life expectancy, it was considered necessary to know the scientific productions about SC in this context, since it is still seen as an unknown area. In addition, it is considered that the production of knowledge disseminated by academic master's dissertations (AMD) and doctoral theses (DT) can contribute to the development of the qualification of teaching and nursing practice.

In this sense, it is questioned: what is the academic scientific production about SC from dissertations and theses of nurses who have completed academic masters and doctorates in Brazil? What are the main objects of studies addressed by nurses in SC who have completed an academic and doctoral degree in Brazil? What are the types of studies most used by these nurses who have completed masters and doctorates in Brazil?

## OBJECTIVES

### Overall objective

To identify the academic production on SC from the dissertations and theses of nurses who concluded master's degrees and doctorates in Brazil.

### Specific objective

To identify the main objects of study contemplated in master's dissertations and doctoral theses, the methodology used, as well as the universities that produced these studies.

## METHOD

It is a bibliometric, descriptive and retrospective study, carried out through documentary research. This method allows objective evaluation of scientific production, being used in several areas of scientific knowledge. Bibliometric research, as a technique,

involves the reading, selection and archiving of topics of interest to the research in question, with the purpose of knowing the scientific contributions that have been produced on a certain subject<sup>9</sup>. The research sources were produced with the SC theme, performed by nurses and registered in three Brazilian databases. These were the theses and dissertations database of the Coordination of Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível – CAPES*), in the Sucupira Platform, the Brazilian Digital Library of Digital Theses and Dissertations (*Biblioteca Digital Brasileira de Teses e Dissertações Digitais – BDTD*), the Brazilian Institute of Information in Science and Technology (*Instituto Brasileiro de Informação em Ciência e Tecnologia – IBICT*), and the Nursing Studies and Research Center of the Brazilian Nursing Association (*Centro de Estudos e Pesquisas em Enfermagem da Associação Brasileira de Enfermagem – CEPEN-ABEn*).

The following Descriptors in Health Sciences (*Descritores em Ciências da Saúde – DeCS*) were used: surgicenters, intraoperative period, bibliometrics and nursing for the first two bases. At CEPEN-ABEn, individual readings of the available catalogs per year were carried out, being done by a single researcher.

The research covered completed AMD and DT in the period from 2005 to 2016, coming from universities with a minimum grade of 5. Such period delimitation was based on CAPES's four-year evaluation of Qualis, which aims to follow up and improve the evaluation processes of graduate programs *stricto sensu* (master's and doctorate). Thus, all these programs are subject to a careful periodic evaluation, receiving scores in the following scale: 1 and 2 indicate minimum scores – those who receive these grades have their license to operate and the recognition of the masters and doctorate courses offered by them canceled; 3 indicates regular performance, meeting the minimum quality standard; 4 is considered a good performance; and 5 is the maximum grade, only for masters programs with good performance. Scores 6 and 7 indicate performance equivalent to the high international standard, attributed exclusively to doctorate courses. The Ministry of Education, through the National Education Council (*Conselho Nacional de Educação – CNE*), recognizes the results of the evaluation of the new courses and the recurrent analysis of CAPES.

In order to search the databases, inclusion criteria were AMD and DT productions with themes related to the transoperative period, studies produced by university nurses with CAPES scores from 5 and publications from 2005 to 2016. Exclusion parameters used were DT and AMD that were not available in full for reading, professional master's dissertations and subjects associated with the obstetric center.

The present study was carried out through the following steps: identification of the theme and guiding question; establishment of predefined criteria; search and selection of scientific production in the database from March to July, 2017; and tabulation of the data in a spreadsheet using the Microsoft Office Excel 2016 software. The variables delimited in the study were treated through quantitative descriptive analysis.

## RESULTS

The following quantitative information were identified in relation to academic production: 3,720 in the CAPES platform, 4,103 in CEPEN and 839 in the BDTD platform, totaling 8,662 AMD and DT academic productions.

8,622 productions were excluded because they did not meet the pre-established inclusion criteria. At the end, 40 academic productions that met the inclusion criteria adopted for the present study were analyzed (Table 1). Of these productions, 13 are DT (32.5%) and 27 are AMD (67.5%).

The higher education institutions with DT and AMD that fit the inclusion criteria of the present study were: Federal University of Minas Gerais (*Universidade Federal de Minas Gerais – UFMG*), Federal University of Rio Grande do Sul (*Universidade Federal do Rio Grande do Sul – UFRGS*), Federal University of Santa Catarina (*Universidade Federal de Santa Catarina – UFSC*), Federal University of Rio de Janeiro (*Universidade Federal do Rio de Janeiro – UFRJ*), Federal University of Rio Grande (*Universidade Federal do Rio Grande – UFRG*), Federal University of Ceará (*Universidade Federal do Ceará – UFC*), State University of Campinas (*Universidade Estadual de Campinas – UNICAMP*), University of São Paulo (*Universidade de São Paulo – USP*), University of São Paulo - Ribeirão Preto (*Universidade de São Paulo – Ribeirão Preto – USP-RP*), Federal University of São Paulo (*Universidade Federal de São Paulo – UNIFESP*) and Rio de Janeiro State University (*Universidade do Estado do Rio de Janeiro – UERJ*). We highlight a predominance of publications of educational institutions in the Southeast region (Table 2).

As for the type of methodological approach, it is verified that the quantitative academic productions are the most common (40.0%), followed by the qualitative ones (30.0%), according to Table 3. Five studies present quantitative-qualitative approach, four used the method of integrative review of literature and one approached the research with the systematic review of literature.

When the studies did not explicitly inform in their abstract the type of methodological approach, the relationship

between objective, data collection instrument, analysis and results was used to understand the treatment used; this occurred mainly in productions with quantitative-qualitative approaches.

Regarding the objects of study approached by the scientific productions in DT and AMD, after individual analysis of each production, four areas were categorized:

1. Transoperative assistance;
2. Workers' health;
3. Costs;
4. Nursing management (Table 4).

**Table 1.** Scientific production of doctorate theses and academic master's dissertations on surgical centers per year.

Ano	Theses		Dissertations		Total	
	N	%	N	%	N	%
2016	1	2.5	1	2.5	2	5.0
2015	1	2.5	1	2.5	2	5.0
2014	3	7.5	2	5.0	5	12.5
2013	1	2.5	6	15.0	7	17.5
2012	1	2.5	1	2.5	2	5.0
2011	2	5.0	3	7.5	5	12.5
2010	0	0.0	2	5.0	2	5.0
2009	2	5.0	5	12.5	7	17.5
2008	1	2.5	3	7.5	4	10.0
2007	0	0.0	1	2.5	1	2.5
2006	0	0.0	1	2.5	1	2.0
2005	1	2.5	1	2.5	2	5.0
Total	13	32.5	27	67.5	40	100

**Table 2.** Regions and institutions most represented in theses and dissertations from 2005 to 2016.

Region	Institution	Theses		Dissertations		Total	
		N	%	N	%	N	%
Sudeste	USP	5	12.5	8	20.0	13	32.5
	USP-RP	5	12.5	5	12.5	10	25.0
	UFMG	1	2.5	2	5.0	03	7.5
	UFRJ	1	2.5	3	7.5	04	10.0
	UNICAMP	1	2.5	0	0.0	01	2.5
	UNIFESP	0	0.0	2	5.0	02	5.0
	UERJ	0	0.0	4	10.0	04	10.0
South	UFRGS	0	0.0	2	5.0	02	5.0
	UFSC	0	0.0	1	2.5	01	2.5
Total		13	32.5	27	67.5	40	100

USP: University of São Paulo; USP-RP: University of São Paulo *campus* Ribeirão Preto; UFMG: Federal University of Minas Gerais; UFRJ: Federal University of Rio de Janeiro; UNICAMP: State University of Campinas; UNIFESP: Federal University of São Paulo; UERJ: University of the State of Rio de Janeiro; UFRGS: Federal University of Rio Grande do Sul; UFSC: Federal University of Santa Catarina.

**Table 3.** Scientific production of doctorate theses and academic master's dissertations on surgical centers, according to research methods.

Variables	N	%
Qualitative studies		
Descriptive, exploratory	8	20.0
Case study with semi-structured interview	1	2.5
Ethnomethodological	1	2.5
Clinical study	1	2.5
Data grounded theory	1	2.5
Quantitative studies		
Cross-sectional, descriptive, exploratory	7	17.5
Retrospective	1	2.5
Observational	2	5.0
Non-experimental, correlational, prospective	2	5.0
Comparative	1	2.5
Experimental	2	5.0
Case study, descriptive, exploratory, correlational, longitudinal	1	2.5
Quanti- and qualitative studies		
Epidemiological, cross-sectional study	1	2.5
Observational	2	5.0
Transversal, descriptive and exploratory	1	2.5
Retrospective	1	2.5
Prospective	2	5.0
Reviews: integrative and systematic	5	12.5
Total	40	100.0

**Table 4.** Scientific production of surgical center, by object of study.

Object of study	Total	
	N	%
Transoperative assistance		60.0
Worker's health	10	25.0
Costs	03	7.5
Management	03	7.5
Total	40	100.0

## DISCUSSION

In the period from 2005 to 2016, there were 13 DT publications, representing 32.5% of the scientific productions of the total of that period, specially the year 2014, with the largest number of publications (7.5%). As for AMD, during the whole period, there were publications on the SC theme, highlighting the years 2009 and 2013, with 12.5 and 15.0%, respectively.

When compared to the number of academic productions between AMD and DT, a predominance of publications on SC of master's degree programs (67.5%) is evident. This fact can be explained both by the expressive quantity of master's degree courses in Brazil and by the time of preparation and defense of the dissertations being inferior to those of theses, thus favoring publications in a shorter period. This result corroborates another bibliometric study, in which the prevalence of AMD production was observed in relation to DT productions<sup>10</sup>.

Among the educational institutions represented by the sample analyzed in this bibliometric study, most universities are located in the Southeast region<sup>10</sup>. This result can be justified by the fact that all universities with significant or expressive scientific production compose the ranking of the 50 best universities in Brazil, except USP, since this institution does not participate in the National Examination of Student Performance (*Exame Nacional de Desempenho dos Estudantes – Enade*), a test used as basis for the score system<sup>11</sup>.

However, the scientific production of USP (32.5%) and USP-RP (25.0%) is predominant. USP is a public institution, maintained by the state of São Paulo and linked to the Secretariat of Economic Development, Science, Technology and Innovation (*Secretaria de Desenvolvimento Econômico, Ciência, Tecnologia e Inovação – SDECTI*). Among the Brazilian public universities, it is the one with the largest number of undergraduate and postgraduate positions, being also responsible for training the largest number of masters and doctors in the world, as well as responsible for half of all scientific production in the state of São Paulo and more than 25.0% of the Brazilian production<sup>12</sup>.

As for the methodological approaches found in the academic productions studied, the most frequent was the quantitative (45%), followed by the qualitative one (30%), corroborating another bibliometric investigation. It is noticed that there is a tendency to carry out studies with the first, since it allows statistical verification between variables and possible generalization; on the other hand, qualitative methods are more focused on patterns that give meaning to the

phenomena and that contribute to the understanding of the experience as a whole<sup>9</sup>.

The prevalence of qualitative studies in bibliometrics is also observed. Thus, there is a certain division between the two methodologies, because if, on the one hand, there is a need to quantify certain phenomena by means of statistics, on the other hand, it is fundamental to have an understanding of non-quantifiable aspects that allow the understanding of the experience in a more humanized way, allowed only by the qualitative methodology<sup>9,10,13</sup>.

It is understood, however, that the technological advances in surgery, the complexity of the care and the vulnerable state of the surgical patient require that the nurse's role in the SC be backed up in clear knowledge of one's work and conception that the target is the performing of perioperative care for the success of the anesthetic-surgical procedure with safety<sup>14</sup>. When considering the percentage of publications on transoperative care (60%), it is possible to infer that this topic is of paramount importance in the search for improved surgical patient care.

Analyzing the objects of study of each production selected for the present work, we highlight the theme involving transoperative assistance, with subjects on humanization in the practice of nursing care, prevention of surgical site infection, patient safety, dynamics of transoperative nursing care, hypothermia, nursing diagnosis, systematization of nursing care, surgical positioning, antibiotic prophylaxis and transoperative complications.

Understanding the greater representativeness of the thematic category "patient care", according to the results found, this one has to focus on questions about nursing care practice, aiming at patient safety, correlating it with the concern of the second worldwide challenge by the World Health Organization (WHO), "Safe surgeries save lives". This program aims to improve the safety of surgical care in the world by defining a central set of safety standards that can be applied in all countries and scenarios<sup>15,16</sup>.

Thus, surgical care has been an essential component of health care, and its need has been increased with the also increasing demand for surgical interventions, due to cardiovascular diseases, neoplasias and trauma, resulted from increased life expectancy and violence<sup>1,15</sup>.

Despite the stimulation of production in this area by some international and national agencies and the increasing number of surgical procedures in the Brazilian population, the present study evidenced a low scientific production with SC by nurses, especially in the intraoperative period, an area of extreme relevance for the performance of the nurse.

The use of the available resources in the databases contributed to the accomplishment of this study, an important fact for the nursing profession, since it collaborates to disseminate the knowledge and development of the category. However, data collection on the basis of CEPEn was limited as it was not possible to carry out the search in the years 2006 and 2007 due to unavailability of the catalogs. In addition, another factor that made it difficult to perform the research was the fact that theses and dissertations are grouped into available catalogs per year, which does not allow the filtering by descriptors.

## CONCLUSION

This study allowed to identify the academic scientific production about SC by nurses who completed academic masters

and doctorates, in addition to describing the types of methodological approaches and their main objects studied. In the last 11 years, it has been observed that nurses are producing inconsistently on this subject.

The research also contributed to the identification of the objects of study and methodologies most used by nurses in the SC area, which may be significant in guiding the choice of future scientific productions. It is considered that there is still a need for greater investment in quantity and quality in scientific production, so as to emphasize the importance of transoperative nursing care.

With this bibliometric analysis, it will be possible to configure a relevant panorama for nursing, demonstrating patterns of research and identification of trends for future academic scientific production.

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