

Review

## **Bibliometrics of the theses of the Postgraduate Programs in Physiotherapy in Brazil**

*Bibliometria das teses dos Programas de Pós-Graduação em Fisioterapia no Brasil*

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### **Abstract**

**Objective:** performing a bibliometric review of the theses linked to PGP in PT with doctorate in Brazil. **Data sources:** the search for the PGP took place through the evaluation area “Physical Education” and subarea “Physiotherapy and Occupational Therapy” of the courses evaluated and recognized by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) between 2015 and 2019. The search for theses and classification of the authors' training area occurred in two stages. First, aspects of the productions were identified, such as the year of the defense, the author's genre, the PT specialty in which the work fits, the keywords of the abstracts and the study design. Second, a search was made in the authors' curricula, through the Plataforma Lattes to verify their academic background. **Summary of the data:** 251 theses were analyzed, most of which had quantitative design (79.28%), had as main authors women (66.55%), were classified in Trauma-Orthopedic area (17.13%) and contained as keywords “elderly”, “muscular” and “aging”. Regarding the area of training of the authors, most (78.48%) had training only in PT. **Conclusion:** the Traumatology-Orthopedic area is still the most sought after by researchers and most studied in PGP with doctorate degrees in Brazil. In addition, studies have focused on the elderly and aging issues, reflecting the social transformation that is taking place worldwide.

**Keywords:** bibliometrics; physical therapy specialty; health education.

### **Resumo**

**Objetivo:** realizar uma revisão bibliométrica das teses vinculadas aos PPG em fisioterapia com doutorado no Brasil. **Fonte de dados:** a busca pelos PPG deu-se por meio da área de avaliação “Educação Física” e subárea “Fisioterapia e Terapia Ocupacional” dos cursos avaliados e reconhecidos pela Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) entre 2015 e 2019. A busca pelas teses e classificação da área de formação dos autores ocorreu em duas etapas. Em primeiro momento foram identificados aspectos das produções como ano da defesa, gênero do autor, especialidade da fisioterapia em que se enquadra o trabalho, palavras-chave dos resumos e delineamento do estudo. Na segunda etapa foi realizada uma busca nos currículos dos autores dos trabalhos, por meio da Plataforma Lattes, para verificar a formação acadêmica deles. **Síntese dos dados:** foram analisadas 251 teses, sendo que a maioria possuía delineamento quantitativo (79,28%), possuíam como autores principais mulheres (66,55%), foram classificadas na área Traumatologia-Ortopédica (17,13%) e continham como palavras-chave “idoso”, “muscular” e “envelhecimento”. Em relação à área de formação dos autores, a maioria (78,48%) tinha formação apenas em Fisioterapia. **Conclusão:** a área Traumatologia-Ortopédica ainda é a mais procurada pelos pesquisadores e mais estudada nos PPG com doutorado do Brasil. Além disso, os estudos têm se concentrado na população idosa e nas questões relacionadas ao envelhecimento, refletindo a transformação social que está acontecendo a nível mundial.

**Palavras-chave:** bibliometria; fisioterapia; educação em saúde.

## Introduction

In Brazil, physiotherapy is still a relatively new profession, compared to other areas of health since it was only in 1969 recognized by the Ministry of Education and Culture (MEC) as a higher education course. With this new training, together with the Occupational Therapy course, the Federal Council of Physiotherapy and Occupational Therapy (COFFITO) was created to administer the code of ethics of these professions. In addition to governing professional conduct, this body regulates the specialties in which the physiotherapist can act<sup>1</sup>.

With the recognition of physiotherapy as a higher education course, there was an increase in the creation of undergraduate courses in this profession and, consequently, of specific graduate programs (PPG) in the rehabilitation area. Such programs aim, above all, at the production of new knowledge through the elaboration of theses and dissertations<sup>2</sup>. However, because they are more extensive and contain less objective information than scientific articles, most theses do not receive much attention such as studies published in journals, which hinders their visibility<sup>3</sup>. Therefore, the inclusion of the content of theses and dissertations in the scientific environment and analysis of the aspects of its production can be done through bibliometric reviews.

The bibliometric study aims to analyze the scientific production of a given subject or area of knowledge quantitatively<sup>4</sup>, elucidating the main themes and lines of research of the PPG. In addition, Bibliometry can present data on higher education institutions (HEIs), publications, authors and social advances built in each scientific environment<sup>5</sup>. This can generate greater visibility to productions, authors and HEIs and contribute to the dissemination of certain subjects of the scientific environment.

Despite the increase in national publications related to physiotherapy, the literature is still scarce regarding the analysis of PPG productions. This analysis is necessary to know the profile of publications, as well as the social direction of studies related to physiotherapy. For this, it is necessary to use the Bibliometry of the studies that have been produced in recent years, because they can guide the professional practice and the realization of future research. In addition, bibliometric studies can also contribute to the dissemination of PPG productions and give more visibility on certain rehabilitation issues produced in these programs. Therefore, the aim of this study was to perform a bibliometric analysis of the theses linked to PPG in physiotherapy in Brazil.

## Materials and Methods

This is a bibliometric review study with descriptive and quantitative method carried out between April and May 2019. The search for PPG took place through the evaluation area "Physical Education" and subarea "Physiotherapy and Occupational Therapy" of the courses evaluated and recognized by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) between 2015 and 2019.

PPG with doctorates were included in the search. Based on this criterion, the following programs (n=10) were selected: Ciências da Reabilitação do Centro Universitário Augusto Motta (UNISUAM), Ciências da Reabilitação da Fundação Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA), Physiotherapy of the Universidade Cidade de São Paulo (UNICID), Ciências da Reabilitação da Universidade Estadual de Londrina (UEL), Physiotherapy of the Universidade Estadual Paulista "Júlio de Mesquita Filho" (UNESP), Ciências da Reabilitação da Universidade de Minas Gerais (UFMG), Physiotherapy of the Universidade Federal de São Carlos (UFSCar), Physiotherapy of the Universidade Federal do Rio Grande do Norte (UFRN), Ciências da Reabilitação da Universidade de São Paulo (USP) and Ciências da Reabilitação da Universidade Nove de Julho (UNINOVE). Theses not fully available by the program sites or repositories of theses and dissertations of the HEI were excluded.

At first, the following aspects of the productions available online on the websites of the programs or repositories of theses and dissertations of the HEI were identified: year of defense; author's gender; physiotherapy specialty in which the work is included; keywords of abstracts; and study design - quantitative, qualitative, quantitative-qualitative and/or

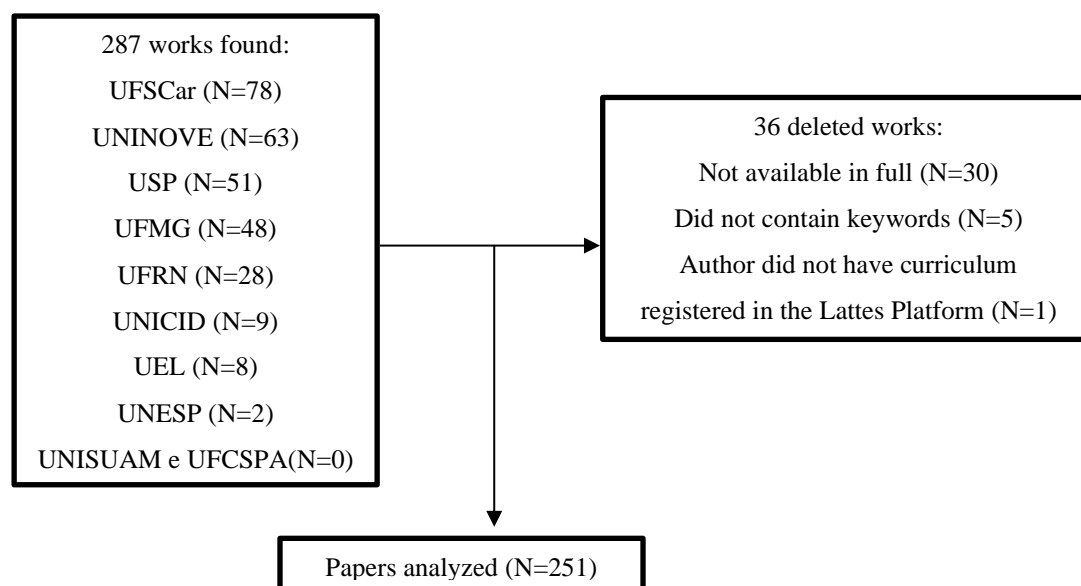
with systematic review. The classification of the specialty of physiotherapy in which the studies are included was defined according to the COFFITO until April 2019 – Acupuncture, Aquatic, Cardiovascular, Dermatofunctional, Sports, Gerontology, Work, Neurofunctional, Oncology, Respiratory, Traumato-Orthopedics, Osteopathy, Chiropractic, Women's Health and Intensive Care<sup>1</sup>. The works linked to other areas of knowledge were classified as "others". The following criteria were adopted to define the specialty of each study: 1<sup>st</sup> pathology or dysfunction of the subjects studied; 2<sup>nd</sup> population; 3<sup>rd</sup> variables or outcomes. Studies that did not fit any specialty were classified as "general physiotherapy". In the second stage, a search was carried out in the curricula of the authors of the studies, through the Lattes Platform, to verify their academic training.

The theses search was performed independently by two evaluators. The data were recorded in the Excel program and presented in absolute numbers, absolute frequency, average, standard deviation, and word cloud.

## Results

A total of 287 papers were found. Of these, 78 (27.17%) were produced at UFSCar, 63 (21.95%) at UNINOVE, 51 (17.77%) at USP, 48 (16.72%) at UFMG, 28 (9.76%) at UFRN, 9 (3.14%) at UNICID, 8 (2.79%) at UFMG and 2 (0.70%) came from UNESP. No papers published were found on the PPG or repositories of UNISUAM and UFCSPA. Of the total number of studies found, 251 (87.46%) were selected for the analysis, according to the flowchart of Figure 1.

**Figure 1.** Study selection flowchart.



**Source:** Prepared by the authors.

Among the studies selected for the analysis, 191 (66.55%) belonged to female authors. Most of the work had as defense date the years 2017 (N = 57; 22.71%), 2016 (N = 51; 20.32%), 2018 (N = 45; 17.93%) and 2015 (N = 45; 17.93%). Regarding the area of training of the authors, 197 (78.48%) only had training in Physiotherapy, 18 (7.17%) in Speech Therapy, 12 (4.78%) had a bachelor's degree or a degree in Physical Education, 6 (2.39%) had a background in Occupational Therapy, 3 (1.19%) in Biological Sciences, 2 (0.80%) in Medicine, 2 (0.80%) Dentistry, 1 (0.40%) in Nursing and 10 (3.99%) had more than one background, among them: Physiotherapy, Physical Education, Speech Therapy, Pedagogy, Nautical Sciences, Technician in Medical Radiology, Computer Networks and Pharmacy and Biochemistry.

Data on the study design and the subject belonging to physiotherapy are presented in table 1. There was a prevalence of studies with quantitative design (79.28%) and belonging to the subject Traumato-orthopedic (17.13%).



Científico e Tecnológico (CNPq) pointed out that, in Biological and Health Sciences, there is a higher frequency of women scholarship holders, while in the Exact Sciences, Earth and Engineering, there is a greater number of men with scholarships<sup>7</sup>.

The increase in women in the scientific environment only occurred after World War II, a period in which women began to assume a more active role in the scientific environment, which until then was dominated by men. This also contributed to the inversion of sociocultural values in force until the 19<sup>th</sup> century, in which man had greater prominence in life in society<sup>8</sup>. In addition, there is currently a significant increase in women egress in physiotherapy courses and who enter PPG<sup>9,10</sup>, which demonstrates a large number of women who seek professional qualification, especially the doctorate, as indicated by the results of this review.

The quantitative method was predominantly used in the theses analyzed in this study. Similar data was found by Tolves *et al.*<sup>11</sup> in its bibliometric review on articles published in Brazilian journals in physiotherapy. According to the authors, in physiotherapy, there is frequent use of inferential statistics based on hypothesis tests, which can differentiate the analysis of a quantitative study from a qualitative study. In addition, the quantitative method bases evidence-based practice since it involves studies with greater methodological rigor<sup>12</sup>.

Another important result of this review concerns the area of physiotherapy, Traumato-orthopedic, in which most studies were classified. This finding reinforces the professional direction that occurs since the emergence of the profession, focused on the tertiary level of health care<sup>13</sup>. Both the area and the most used keywords – "elderly", "muscular" and "aging" - corroborate the results found by other studies<sup>11,14,15</sup>. In Haupenthal's study *et al.*<sup>14</sup>, with a search method similar to that of the present study, the themes of the PPG course completion studies analyzed had greater emphasis on Orthopedics and used more frequently the keywords "physical exercise" and "elderly". These data show that the subject Traumato-Orthopedics is still a large field of research in physiotherapy and frequently encompasses studies on physical exercise and muscle characteristics. Furthermore, the higher frequency of the words "aging" and "elderly" may be related to the increase in publications on aspects of the health of the elderly, since accelerated population aging is a Brazilian reality<sup>16</sup> and, thus, the search for improvements in the quality of life of this population becomes judicious.

The results of this review contribute to the dissemination of knowledge about what is produced in PPG with doctorate in Brazil, which can help researchers in future studies on topics less addressed and with scientific needs. However, some limitations were observed, such as the search for theses only available on the websites of programs or HEI repositories, due to the ease of access to information. Currently, most HEIs provide course completion papers at graduate, master's, and doctorate levels online. This way of publication contributes to the dissemination of knowledge and dissemination of the works produced in that HEI but requires constant updating. Another limitation of this study was the search only for theses. This was due to the objective of the study being centered on doctoral programs. However, the analysis of dissertations can also provide greater knowledge of what is produced in PPG at master's level. In addition, there are few studies that analyze PPG production in Brazil, which made it difficult to compare the results of this review with other studies.

## Conclusion

From the results of this study, it is possible to observe the increase of women with doctorate with training in physiotherapy. In relation to the studies produced, in general, these are quantitative, focused on the area of Traumato-Orthopedics and with the frequent use of "elderly", "muscular" and "aging" as keywords.

**Conflict of interest:** The authors stated that there was no conflict of interest.

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