

Scientific production of Brazilian researchers focusing on oral surgery, oral medicine, and oral pathology

Lucyana Conceição FARIAS^(a) 

Mauro Costa BARBOSA^(b) 

Daniella Reis Barbosa MARTELLI^(c) 

Hercílio MARTELLI JÚNIOR^(a) 

^(a)Universidade Estadual de Montes Claros – Unimontes, Dental School, Oral Diagnosis, Montes Claros, MG, Brazil.

^(b)Universidade Estadual de Montes Claros – Unimontes, Dental School, Montes Claros, MG, Brazil.

^(c)Universidade Estadual de Montes Claros – Unimontes, Dental School, Semiology Clinic, Montes Claros, MG, Brazil.

Abstract: We analyzed the distribution characteristics of the scientific production of Brazilian dentistry researchers of the Brazilian National Council for Scientific and Technological Development. The Lattes curriculum data of 211 researchers from Oral Pathology, Oral Surgery, and Oral Medicine fields were included (2018–2020). Over their academic career, 39 researchers published 7,555 papers (average, 175 articles/researcher); 3,876/7,555 papers were indexed in the Web of Science. During 2018–2020, 1,440/7,555 (19%) papers were published. Brazilian dental researchers contribute significantly to international research by participating in scientific journals' editorial boards, evaluating research promotion agencies, training researchers, and contributing to scientific and technological development.

Keywords: Scientific Production; Scientific Publication; Journal Impact Factor

Introduction

Brazil has a population of approximately 213 million and an extensive territorial area of 8,515,767,049 km². Its population is distributed among 26 Federal States and 1 Federal District (Brasilia, the country's capital), with 5,570 municipalities distributed in the country's five geographic regions (<https://www.ibge.gov.br/>). The country has approximately 544 dentistry schools and 23 dental specialties recognized by the Federal Council of Dentistry (<https://website.cfo.org.br/estatisticas/>). Oral Pathology (OP) was recognized as a specialty in 1971; currently, there are 380 registered OP specialists in Brazil. Oral-Maxillofacial Surgery and Traumatology (OMFST) and Oral Medicine (OM) were recognized as specialties in 1975 and 1992, respectively. Currently, there are 6,315 OMFST specialists and 999 OM specialists registered (<https://website.cfo.org.br/estatisticas/>).

In Brazil, there are 162 postgraduate courses (MSc and PhD degrees) in the different branches of dentistry (<https://sucupira.capes.gov.br/>). Several publications have highlighted the importance of Brazilian scientific production in the OP and OM fields.^{1,2} The two main science funding agencies in Brazil are the Coordination for the Improvement of Higher Education Personnel (Capes) and the Brazilian National Council for Scientific and Technological Development (CNPq), which provide the majority of

Declaration of Interests: The authors certify that they have no commercial or associative interest that represents a conflict of interest in connection with the manuscript.

Corresponding Author:

Lucyana Conceição Farias
E-mail: lucyanacfarias@gmail.com

<https://doi.org/10.1590/1807-3107bor-2022.vol36.0096>

Submitted: October 24, 2021
Accepted for publication: April 4, 2022
Last revision: April 19, 2022



sponsored research funds for Brazilian scientists. CNPq also provides a particular form of funding called scientific productivity fellowships, which classifies the researchers into two main categories, Category 1 and Category 2, in decreasing order of value. Category 1 is subdivided into 1A, 1B, 1C, and 1D (<https://www.gov.br/cnpq/pt-br>).

A recent publication of the Journal of Oral and Maxillofacial Surgery highlighted the dilemma between the scientific production of young researchers and senior scientists and emphasized on the Brazilian researchers of CNPq in the fields of OP and OM.³

To understand this better, this study describes the profile and scientific production of the recipients of the CNPq scientific productivity fellowship in the OP, OMFST, and OM fields.

According to the Advisory Committee of the CNPq, the criteria for receiving a scientific productivity fellowship include scientific production, training of human resources, contribution to innovation, coordination and participation in research projects, and participation in editorial activities. Considering the limited number of scholarships, this Committee stated that the following criteria, among others, be used as classification parameters and be applied to all categories/levels: a) number of publications and impact factor of the journals; b) number of national and international patents; c) number of PhD students; d) number of Master's students; e) leadership of research groups; and f) the Hirsch index (http://www.cnpq.br/web/guest/view//journal_content/56_INSTANCE_0oED/10157/49701). Thus, this includes researchers with a wide and outstanding trajectory in research and those recognized by peer reviewers.

Out of 211 researchers in dentistry in July 2021 (<http://www.cnpq.br/web/guest/bolsistas-vigentes>), 39 (18.48%) listed OP, OMFST, and OM as their main areas of investigation. Using the publicly available Lattes curriculum on the Lattes Platform (<http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar>), we constructed an information database of each researcher regarding the institution, time since receiving the PhD degree, scientific production (number of published papers), and training

of human resources (supervision of undergraduates scientific initiation students, Master's students, and PhD students). For the analysis of scientific production, we considered all the publications and advising over the researcher's career, defined as the period from the first scientific paper published up to December 2020. We also analyzed the publications and advising over the past 3 years from 2018 to 2020 (average duration of the fellowship).

A majority of the 39 researcher fellows were male ($n = 27$; 69.2%). The distribution of the researchers among the nine states and one Federal District was as follows: São Paulo, 41.0%; Minas Gerais, 20.5%; Bahia, 10.3%; Rio Grande do Norte, 7.7%; Pernambuco, 7.7%; Goiás, 2.6%; Rio de Janeiro, 2.6%; Paraíba, 2.6%; Rio Grande do Sul, 2.6%; and Federal District, 2.6%. As for the home institution, researchers were spread over 17 different institutions in the country. However, 41.0% of the fellows belonged to FOU SP (15.4%), FOP-Unicamp (12.8%), and UFMG (12.8%). The median time elapsed since receiving the doctoral degree was 22 years (interquartile range: 17–27; range: 6–44 years).

Over their academic career, the 39 researchers published 7,555 papers in scientific journals, with an average of 175 articles per researcher (range, 91–404 papers). Of 7,555 papers, 3,876 (51.3%) were indexed in the Web of Science. The researchers published 1,440 out of the total 7,555 papers (19.0%) during the triennium (2018–2020), with an average of 36.9 articles per researcher (range, 3–70 papers). Through their career course, the fellows counseled 933 undergraduate students in research (median, 22.0; range, 5–91), 782 Master's students (median, 17.0; range, 7–45), and 518 PhD students (median, 12.0; range, 2–35). The median Hirsch index of the fellows at the Institute for Scientific Information was 22.6.

Brazilian dental research has contributed significantly to the international research scenario. As expected, our findings show that fellows in OP, OMFST, and OM, who are recipients of the CNPq scientific productivity scholarship, are a group with significant scientific production, as also observed in other areas such as Medicine and Pharmacy.^{4,5,6} We believe that this group of dedicated and hardworking Brazilian

researchers play a significant role in research by participating in editorial boards of scientific journals, evaluating research promotion agencies, training researchers, and showing relevant performance in scientific and technological development.

Acknowledgments

We would like to thank the Minas Gerais State Research Foundation – Fapemig, Minas Gerais, Brazil and the National Council for Scientific and Technological Development – CNPq, Brazil.

References

1. Arruda D, Bezerra F, Neris VA, De Toro PR, Wainera J. Brazilian computer science research: gender and regional distributions. *Scientometrics*. 2009;79(3):651-65. <https://doi.org/10.1007/s11192-007-1944-0>
2. Andrade RS, Martelli DR, Almeida OP, Lopes MA, Swerts MS, Pires FR, et al. Brazilian scientific production in oral medicine and oral pathology. *Oral Surg Oral Med Oral Pathol Oral Radiol*. 2018 Feb;125(2):179-81. <https://doi.org/10.1016/j.oooo.2017.08.009>
3. Arruda JA, Schuch LF. Why do Editors publish in the same journal in which they work as editors? A dilemma among veteran scientists. *J Oral Maxillofac Surg*. 2021 May;79(5):962-3. <https://doi.org/10.1016/j.joms.2020.12.051>
4. Oliveira EA, Colosimo EA, Martelli DR, Quirino IG, Oliveira MC, Lima LS, et al. Comparison of Brazilian researchers in clinical medicine: are criteria for ranking well-adjusted? *Scientometrics*. 2012;90(2):429-43. <https://doi.org/10.1007/s11192-011-0492-9>
5. Oliveira EA, Peicots-Filho R, Martelli DR, Quirino IG, Oliveira MC, Duarte MG, et al. Is there a correlation between journal impact factor and researchers' performance? A study comprising the fields of clinical nephrology and neurosciences. *Scientometrics*. 2013;97(2):149-60. <https://doi.org/10.1007/s11192-013-0992-x>
6. Rodrigues LO, Gouvea MM, Marques FF, Mourão SC. Overview of the scientific production in the Pharmacy area in Brazil: profile and productivity of researchers granted with fellowships by the National Council for Scientific and Technological Development. *Scientometrics*. 2017;110(3):1157-71. <https://doi.org/10.1007/s11192-016-2210-0>