# Bibliometric study of the scientific production of Brazilian Journal of Geriatrics and Gerontology between 2014 and 2019

- Vanovya Alves Claudino Cesário<sup>1</sup> (D)
- Cícera Renata Diniz Vieira Silva<sup>1</sup>
  - Juliana Pontes Soares<sup>2</sup>
- Paula Beatriz de Souza Mendonça<sup>2</sup>
  - Mônica Karina Santos Reis<sup>3</sup> (D)
    - Kenio Costa de Lima<sup>2</sup>

### **Abstract**

Objective: To describe and analyze the profile of publications of the Revista Brasileira de Geriatria e Gerontologia (RBGG) from 2014 to 2019. Method: This is a bibliometric study of the scientific production of RBGG, during the period from January 2014 to December 2019. Data collection was performed by four independent researchers, previously trained and oriented to standardize this process. The collected data were arranged in a spreadsheet in Microsoft Excel® and analyzed using the Stata version 10.0 program. The analyzed variables were organized into four axes: Publication identification; Kind of study; Authors; and Editorial process. Results: A total of 504 studies were published from 2014 to 2019, of which 75% are original articles and 13.49% reviews, 95.4% of the authors were Brazilian nationals and affiliation institutions were mostly in the Southeast (41.8%) and South (28.68%). The quantitative approach (70.5%) was predominant and the themes that stood out were public health (33.1%), diseases (19.9%), and health care (19.4%). The approval time showed a reduction lasted an average of four months and the publication three months. Conclusion: There was an increase in the number of publications during the analyzed period, with emphasis on original articles and quantitative studies. The diversity of themes reveals the most common trend, beyond those centered on the disease, and more towards biopsychosocial and behavioral processes, as verified in studies in public health. The editorial process was rapid with a significant reduction in the time between receipt and publication, and an increase in the amount of approval of the articles received.

Keywords: Scientific and Technical Publications. Brazilian Journal of Geriatrics and Gerontology. Bibliometry. Aging.

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Universidade Federal do Rio Grande do Norte, Centro de Ciência da Saúde, Programa de Pós-graduação em Ciências da Saúde. Natal, RN, Brasil.

Universidade Federal do Rio Grande do Norte, Programa de Pós-graduação em Saúde Coletiva. Natal,

Universidade Federal do Rio Grande do Norte, Departamento de Odontologia. Natal, RN, Brasil.

### INTRODUCTION

Scientific publications have increasingly stood out in the academic world. In the area related to the aging process, researchers seek to respond to existing gaps in the changing profile of this population, as well as the factors that are associated with morbidity, mortality and quality of life in older people<sup>1</sup>.

In this direction, in 1998, the Open University for Older People, of the State University of Rio de Janeiro (UnATI-UERJ), Rio de Janeiro, Brazil, began its editorial project with a series of Texts on Aging. The first issue aimed to bring relevant information to the academic community about aging and older people in Brazil<sup>2</sup>. That issue brought as its central theme the health and quality of life of older people, emphasizing living conditions and factors related to a more autonomous and independent aging process. It took eight years to disseminate scientific productions in the area of Geriatrics and Gerontology. In 2005, the Texts on Aging had its last volume published, which consisted of three issues that addressed different themes in the context of human aging<sup>2</sup>.

Subsequently, in 2006, Texts on Aging was restructured under the name Revista Brasileira de Geriatria e Gerontologia (RBGG), which is currently considered the most qualified journal in the area of aging in Brazilian territory. With the RBGG, the intention was to promote a policy of free and broad access to knowledge that allows greater international dissemination of Brazilian and Latin American scientific production in the area<sup>3</sup>.

The journal is currently indexed in the following sources: Scientific Electronic Library Online (SciELO), Cabell's Directory of Publishing Opportunities, Directory of Open Access Journals (DOAJ), Free Medical Journals, Sistema Regional de Información en Línea para Revistas Científicas de América Latina, el Caribe, España y Portugal (LATINDEX), Latin American and Caribbean Literature in Social Sciences (LILACS), Red Revistas Científicas América (Redalyc), Open Access Digital Library, Ubc Library Journals, considerably expanding the dissemination of published studies<sup>4</sup>. With regard to qualification, according to the Coordination for the Improvement of Higher Education Personnel

(CAPES), in its 2019/2020 assessment, RBGG is classified as Qualis A4, highlighting its importance in scientific dissemination in the area of Geriatrics and Gerontology<sup>4</sup>. Regarding the h5 Index, a metric referring to publications in the last five years, the RBGG has an h5 of 30 and the Median of h5, which corresponds to the average of citations for the articles that make up its h5 index, of 41. Considering the aforementioned metric, RBGG occupies a prominent place because, among the main periodicals published in Portuguese, it occupies the 14th position (https://scholar.google.com/citations?view\_op=top\_venues&hl=pt-BR&vq=pt).

The increasing relevance of the journal highlighted the need to compile information about its publications, the most discussed topics in the context of Geriatrics and Gerontology, the Institutions with the highest number of authors who publish in this journal, considering the region and state of the country, in addition to editorial information and the main characteristics of authors who are dedicated to the study of aging. In this sense, bibliometric studies make it possible to quantify the production and written scientific communication, emphasizing the productivity of authors<sup>5</sup>. Through bibliometrics, it is possible to monitor the development of scientific areas and, in addition to assessing the productivity of authors, it allows carrying out studies on citations, keywords, year of publication, origin of work, among others6.

A previous bibliometric study assessed the profile of RBGG publications from 2006 to 2013<sup>7</sup>, and found that there was a continued increase in the number of works received and published in the journal throughout the period. There was also an increase in time for publication between 2006 and 2011, followed by stability until 2013, and the most common themes were those referring to the psychological aspects of aging, physical activity and nutrition. However, considering the substantial changes in the editorial process, indexing in new databases and the time elapsed since the analysis of the aforementioned bibliometric study, there is a need for a new study on this topic in order to systematize and update the journal's profile in relation to the description of publications, types of studies published, characteristics of authorship and editorial process, in a more recent period, identifying changes and continuities in this regard. Thus, this study aimed to describe and analyze the profile of publications by the Revista Brasileira de Geriatria e Gerontologia (RBGG) from 2014 to 2019.

## METHOD

This is a bibliometric study of the scientific production of RBGG, from January 2014 to December 2019. Considering the atypical character of the year 2020 due to the pandemic caused by Sars-Cov-2, where publication of scientific production volumes was delayed, there was not enough time to include researches published in 2020. The articles listed were all published in the journal and made available on its website<sup>4</sup> and on the Scielo website<sup>8</sup>.

Inclusion criteria were: original articles, thematic articles, review articles, and case reports, published in the RBGG, in the period of time in question. Publications that, in some way, referred the expression of opinions, reflections and interpretations, such as letters to the editor, editorial, update articles and interviews, were excluded; or dealing with ongoing studies, such as brief communications. The volumes were grouped following the division from 2014 to 2016 and from 2017 to 2019, as there is a similarity in the quantity of volumes published (three) by the journal between the periods in question. Between 2014 and 2016, 14 issues were published, between 2017 and 2019 there were 18, totaling 32 issues, distributed in six volumes listed in 504 publications.

This total number of publications was used to describe the type of publication variable, however, for the analysis of the other variables, the scientific productions that met the exclusion criteria were disregarded, making a total of 468 publications analyzed.

Data collection was performed by four independent researchers, previously trained and oriented, so that all collected data according to the stipulated inclusion and exclusion criteria, in order to ensure the standardization of this process. Therefore, considering the period of analysis of this study (2014 to 2019), a draw was carried out to define the years and volumes that each researcher would systematize in advance and the collected data were entered into

a Microsoft Excel® spreadsheet, prepared by the team in question. After this first structuring of the database, each researcher analyzed the data referring to the periods that they had not systematized. In case of doubts or disagreements, the researcher coordinating the work was contacted to resolve them.

The analyzed variables were organized into four axes: publication identification; kind of study; authors; and editorial process. The first axis had its analysis allowed through the reading of the abstracts, in which the variables number, year, volume and type of publication were identified.

The second axis was identified by reading the abstracts and articles in their entirety, in which information was extracted regarding the variables: methodological approach (quantitative, qualitative or mixed) and study design (cross-sectional; longitudinal; review; other designs); quantitative of the sample; research theme (classification of articles in seven themes corresponding to the terms of major categories of the Health Sciences Descriptors9, as this terminology is a way to search for articles recognizedly used for health research); study funding; total number of bibliographic references and those prior to the five years of publication of the article.

The "authors" axis had the variables: number of authors, nationality, education, number of institutions to which the authors are affiliated and their corresponding geographic region. In addition, data on the main author were collected: education, gender, nationality, institution and its corresponding geographic region and state of the federation. Information regarding the background and nationality of the authors were taken from the Lattes Platform (http://lattes.cnpq.br/) and from the *Open Researcher and Contributor ID* (ORCID; https://orcid.org/), so that those whose information was not found were classified as unidentified.

The editorial process included the following variables: quantity of articles received, approved and rejected; approval time and publication time. After the research team contacted one of those responsible for the journal's editorial process, data regarding the first three variables listed were made available. The others were extracted by reading the articles published from January 2014 to December 2019.

In order to subsidize information on the scientific dissemination of publications, through Google Scholar (https://scholar.google.com.br/?hl=pt), the number of citations of each article up to the period of analysis was identified (September 2020), from which a list of the most cited studies was drawn up.

After filling out the Microsoft Excel® spreadsheets, in the pre-established model, they were all consolidated in a single database, analyzed in the Stata program, version 10.0, and, subsequently, there was the systematization of the prevalences of the variables, presented as tables and figures.

#### RESULTS AND DISCUSSION

RBGG published 504 studies, of which 250 were from 2014 to 2016 and 254 from 2017 to 2019, with a predominance of publications in the form of original articles (75%); 13.49% are review articles; 6.35% are editorials; 2.78% thematic articles; 0.79% case reports; 0.6% of update articles; 0.6% are brief communications and with a percentage equal to 0.2%, interviews and letters to the editor.

After applying the exclusion criteria, there were 468 publications, corresponding to 92.86% of all RBGG publications, being 232 from 2014 to 2016 and 236 from 2017 to 2019. These publications are distributed among six issues of the journal, in a total of 32 volumes. It was found that 81.22% (380) are original articles, 14.96% (70) review articles, 2.99% (14) thematic articles, 0.86% (four) case reports. Thus, there is an increase in the number of articles published in the RBGG, compared to a bibliometric review of this same journal that analyzed the period from 2006 to 2013, and included a total of 366 articles<sup>7</sup>.

The field of research involving older people was included in other recent bibliometric reviews, both in health and in other areas of knowledge<sup>10-16</sup>, which demonstrates the current interest of the academic community in knowing the profile of publications in this segment. The undeniable importance of the ascendancy of publications lies in the possibility of transferring knowledge to the improvement of professional practice, allowing the expansion of care for the older population and combating health

conditions that compromise the health of this population group<sup>17,18</sup>.

Among the authors of publications, in the period from 2014 to 2016, it was found that there were 896 different authors, who are predominantly Brazilian (95.4%). The institutions that were affiliated are from the Southeast (41.18%) and South (28.68%), and most had training in Physiotherapy (25.11%), Medicine (14.51%) and Nursing (11.61%).

In the period 2017 to 2019, there were 867 different authors and the predominant characteristics were similar to those verified in the previous period, with 96.77% Brazilians. Regarding the location of the authors' affiliation institutions, there was a reduction in those located in the Southeast to 39.68% and those in the South to 24.45%, and even so, these two Regions continued to be the highlights with greater participation in the volume of productions, as observed in other studies<sup>7,16</sup>. Nursing education was the most prevalent (29.87%), followed by Physiotherapy (15.46%) and Medicine (13.03%).

Similar characteristics were observed in the previous bibliometric review, published in the RBGG, regarding the nationality of the authors and the respective regions of the country with greater prominence<sup>7</sup>. In the same study, there is an increase in publications with nursing authors, also identified in this analysis. This fact may be related to the strengthening of research groups in Geriatrics and Gerontology in academia, particularly in Nursing<sup>19,20</sup>, and their alignment with the Ministry of Health's Agenda of Research Priorities, which has health of older people as one of its priority axes<sup>21</sup>.

The results referring to the number of authors and number of institutions, and those related to the main author (gender, education and nationality; region of affiliation institutions) are presented in Table 1. Among these variables, two were presented considering the quantity of their frequency, from 2014 to 2019: the "education" which includes those with a frequency greater than 12 and the "affiliation institution" which has eight or more publications. While nationality was categorized in order to dichotomize authorship between Brazilian and foreign (Argentine, Chilean, Colombian, Peruvian and Portuguese).

According to Table 1, it can be seen that the predominance of the number of authors per article has remained between four and six, with a considerable reduction in the percentage, referring to seven authors or more, from 10.8% to 0.4%. In both periods analyzed, there is a predominance of female authors, corresponding to 78.9% from 2014 to 2016 and 70% from 2017 to 2019. There was maintenance of a substantial prevalence of Brazilian main authors, with an increase in the period from 2017 to 2019 in relation to the previous period of approximately 4%; while graduations in Nursing and Physiotherapy represent the predominant training among the main authors, making up a representative percentage of 39.7% in the first period in question and 50.3% between 2017 and 2019.

Malta et al.,<sup>22</sup> in a bibliometric study on Chronic Non-Communicable Diseases, they identified a

similar profile of authors and their institutions. The predominance of women among the main authors shows advances in gender inclusion, however, there are still substantial setbacks in this inclusive process, since, despite this increasing role of the female in scientific production, women are still the ones with the least incentives, such as productivity grants of the National Council for Scientific and Technological Development (CNPq)<sup>23</sup>.

The predominance of a greater number of authors, corroborated in other bibliometric studies with older people and related themes<sup>22,24</sup>, shows the significant character that co-authorship has in scientific production, as it allows the integration of different knowledge and skills that support an intense scientific collaboration, which is of intense relevance due to the complexity of the themes analyzed.

**Table 1.** Descriptive analysis of variables referring to the main author of articles published in RBGG between 2014 and 2019. Natal, RN, 2021.

	Period		
	2014 to 2016	2017 to 2019	TOTAL
Author profile	n (%)	n (%)	N (%)
Number of authors			
0 to 3	91 (39.2)	72 (30.5)	163 (34.8)
4 to 6	116(50)	163 (69.1)	279 (59.6)
7 or more	25 (10.8)	1 (0.4)	26 (5.6)
Total	232 (100)	236 (100)	468 (100)
Sex			
Male	49 (21.1)	72 (30.5)	121 (25.9)
Female	183 (78.9)	164 (69.5)	347 (74.1)
Education			
Nursing	32 (13.8)	82 (34.8)	114 (24.3)
Physiotherapy	60 (25.9)	36 (15.2)	96 (20.6)
Medicine	19 (8.2)	33 (13.9)	52 (11.1)
Nutrition	25 (10.8)	16 (6.8)	41 (8.8)
Physical education	20 (8.6)	14 (5.9)	34 (7.2)
Psychology	14 (6.0)	9 (3.8)	23 (4.9)
Dentistry	10 (4.3)	11 (4.7)	21 (4.5)
Occupational therapy	8 (3.4)	6 (2.5)	14 (3.0)
Pharmacy	6 (2.6)	6 (2.5)	12 (2.5)
Gerontology	4 (1.7)	9 (3.8)	13 (2.8)
Not identified	12 (5.2)	0 (0.0)	12 (2.5)
Others	22 (9.5)*	14(5.9)**	36 (7.70)

to be continued

Continuation of Table 1

	Period		
	2014 to 2016	2017 to 2019	TOTAL
Author profile	n (%)	n (%)	N (%)
Nationality			
Brazilian	219 (94.4)	232 (98.3)	451 (96.3)
Foreign***	13 (5.6)	4 (1.7)	17 (3.7)
Number of institutions			
1	112 (48.3)	117 (49.6)	229 (48.9)
2	69 (29.7)	69 (29.2)	138 (29.5)
3	30 (12.9)	27 (11.4)	57 (12.2)
4 or more	21 (9.1)	23 (9.7)	44 (9.4)
Region			
Midwest	6 (2.59)	24 (10.3)	30 (6.4)
North East	44 (19.0)	49 (21.0)	93 (19.8)
North	10 (4.3)	4 (1.7)	14 (2.99)
Southeast	100 (43.1)	102 (42.5)	202 (43.2)
South	59 (25.4)	53 (22.7)	112 (23.9)
NA	13 (5.6)	4 (1.72)	17 (3.6)

<sup>\*</sup> Social Communication, Law, Economics, Home Economics, Environmental Engineering, Speech Therapy and Social Work; \*\* Biological Sciences, Economics, Statistics, Aesthetics and Cosmetics, Philosophy, Speech Therapy, History, Arts, Social Work, Information System and Data Processing Technology;\*\* Argentine, Chilean, Colombian, Peruvian and Portuguese.

At the institutional level, it was found that the publications have authors from one or two different institutions, among which USP (5.6%), UFRN (3.9%) and UFMG (3%) stand out in the first period and in the second, the first two remain with relevant percentage growth in the University of Campinas of 3.4%, and in the University of Passo Fundo, whose percentage has doubled (2.6% to 5.2%). Thus, it is possible to infer that there is a higher prevalence of publications by the Southeast, South and Northeast regions, in this order of prevalence, due to a greater production by authors linked to institutions in São Paulo, Minas Gerais, Rio Grande do Sul, and Rio Grande do Norte, with emphasis on the growth in the production of those located in the Federal District, from 1.7% to 6.4%.

The linkage of authors to public higher education institutions, for the most part, has been observed in other bibliometric studies, <sup>16,22</sup> and it highlights the social importance of this segment in the scientific production and current reality, as the advancement of science and technology, especially in health, has the potential to promote changes in people's lives and health. Thus, it appears that it is essential that

there is encouragement and investment in public education, in disagreement with the funding restrictions that have been observed in Education, science and technology, expanding research groups and increasingly strengthening scientific production on older people health<sup>22</sup>.

In Table 2, it can be seen that the articles in question present a higher prevalence of themes related to Public Health, diseases and health care, with a predominant quantitative approach. However, the increase of almost 7% of qualitative studies between the analyzed periods stands out; a predominance of research published simultaneously in Portuguese and English (99.6%) between 2017 and 2019; and those who did not have financing (77.6%). Among the periods in question, there is an inversion in the predominance of publications, initially studies whose references were not updated predominate, and between 2017 and 2019 the articles present a percentage of 66.5% of the used references published in the last 5 years.

The growth of scientific production related to public health and diseases in the older population is strongly related to the prioritization, in the global and national agenda, from the first decade of 2000, on actions to promote, prevent and monitor non-communicable chronic diseases. These have fostered the development of actions and studies that support paradigm shifts and boost a better quality of life for Brazilians<sup>22</sup>.

Regarding the themes in Geriatrics and Gerontology at RBGG, the diversity of themes and disciplinary areas in the present study reveals the broader trend of contemporary research, beyond those centered on the disease, and more towards biopsychosocial and behavioral processes, reflecting the same direction of studies in public health<sup>16</sup>.

**Table 2.** Descriptive analysis of variables related to articles published in the RBGG between 2014 and 2019. Natal, RN, 2021.

	Period		
	2014 to 2016	2017 to 2019	TOTAL
Publication profile	n (%)	n (%)	N (%)
Theme			
Public health	72 (31.0)	84 (35.6)	155 (33.1)
Health care	46 (19.8)	45 (19.3)	91 (19.4)
Diseases	44 (19.0)	50 (21.2)	93 (19.9)
Analytical, diagnostic and therapeutic techniques and equipment	36 (15.5)	20 (8.5)	55 (11.7)
Psychiatry and Psychology	3 (12.9)	29 (12.3)	59 (12.6)
Phenomena and processes	4 (1.7)	3 (1.3)	7 (1.5)
Anthropology, education, sociology and social phenomena	0 (0)	5 (2.1)	5 (1.1)
Methodological approach			
Quantitative	172 (74.1)	158 (66.9)	330 (70.5)
Qualitative	59 (25.4)	77 (32.6)	136 (29.1)
Mixed	1 (0.4)	1 (0.4)	2 (0.4)
Study design			
Cross-sectional			
Descriptive	28 (12.1)	28 (11.8)	56 (11.9)
Analytics: Sectional	11 (4.7)	25 (10.6)	36 (7.7)
Analytics: Ecological	1 (0.4)	5 (2.1)	6 (1.3)
Other cross-sectional studies	123 (53.0)	103 (43.6)	200 (48.3)
Longitudinal			
Cohort	3 (1.2)	5 (2.1)	8 (1.7)
Experimental/Almost experimental	11 (4.7)	6 (2.5)	17 (3.6)
Clinical trial	7 (3.0)	1 (0.4)	8 (1.7)
Other longitudinal studies	7 (3.0)	8 (3.4)	15 (3.2)
Review			
Integrative review	11 (4.7)	25 (10.6)	36 (7.7)
Systematic review	7 (3.0)	12 (5.1)	19 (4.1)
Other reviews	15 (6.4)	6 (2.5)	21 (4.5)
Other designs *	8 (3.4)	12(5.1)	20 (4.3)

to be continued

Continuation of Table 2

	Period		
	2014 to 2016	2017 to 2019	TOTAL
Publication profile	n (%)	n (%)	N (%)
Sample (N)			
0-33	55 (23.7)	47 (19.9)	102 (21.8)
34-112	64 (27.6)	35 (14.8)	99 (21.1)
113-304	44 (19.0)	55 (23.3)	99 (21.1)
305 and more	69 (29.7)	99 (42.0)	168 (35.9)
Language of the article			
Portuguese only	102 (43.9)	0 (0.0)	102 (21.8)
English only	6 (2.6)	0 (0.0)	6 (1.3)
Portuguese and English	118 (50.9)	235 (99.6)	353 (75.4)
Spanish and English	6 (20.6)	1 (0.4)	7 (1.5)
Research funding			
No	184 (79.3)	179 (75.9)	363 (77.6)
Yes	48 (20.7)	57 (24.1)	105 (22.4)
References			
Not updated	153 (65.9)	79 (33.5)	232 (49.6)
Updated	79 (34.1)	157 (66.5)	236 (50.4)

<sup>\*</sup> Ethnographic; Exploratory; Exploratory-descriptive; Methodological; Case study; and Case series

The predominance of quantitative studies in the field of aging has been observed in other publications<sup>25,26</sup>, which highlights the commitment of epidemiological studies to health promotion and the analysis of its determinants in human communities<sup>27</sup>. Although the present research demonstrates a slight increase in the publication of qualitative research, there is still a considerable discrepancy between publications of qualitative and quantitative studies, as observed in other studies<sup>28</sup>, which demonstrates the importance of reflecting on the difficulty reported by researchers in publishing studies with this design in some journals.

The considerable increase in publications, simultaneously, in Portuguese and English (48.7%) increases the visibility of this journal, in the international scope, since English is considered the universal language in the scientific community and demonstrates the precursor character of the RBGG in the internationalization of knowledge produced in Brazil<sup>27</sup>.

Regarding the themes of the most cited articles, three of them deal with aspects of falls in older people, two of which are literature reviews, totaling 175 citations on this topic, which has been widely published in recent years<sup>29-31</sup>. Furthermore, publication time may have been an important factor for the most cited articles, as they date from 2014 to 2016.

The publication with more citations is a case study with primary and secondary data sources, developed by researchers at the Aggeu Magalhães Research Center, of the Oswaldo Cruz Foundation, in Pernambuco, which brings reflections on the challenges of planning public policies for the population aging. The wide range of citations is due to the topicality of the questions presented in the study, related to the aging of society that needs social policies that guarantee better health care.

The scope of the theme around public policies and socioeconomic factors associated with population aging are in evidence in the scientific community as they are emerging themes that need to be debated in all areas of health<sup>29-32</sup>.

Table 3. Ranking of articles with the highest number of citations in the RBGG from 2014 to 2019. Natal, RN, 2021.

Citations	Authors	Year	Title
221	Miranda, GMD; Mendes, ACGM; Silva, ALA	2016	The Brazilian population aging: current and future social challenges and consequences
64	Soares, WJS; Moraes, SA; Ferriolli, E; Perracini, MR	2014	Factors associated with falls and recurrent falls in older people: a population-based study
64	Cordeiro, J; Del Castilho, BL; Freitas, CS; Gonçalves, MP	2014	Effects of physical activity on declarative memory, functional capacity and quality of life in older people
59	Oliveira, AS; Trevizan, PF; Bestetti, MLT; Melo, RC	2014	Environmental factors and risk of falls in older people: systematic review
54	Andrade, AN; Nascimento, MMP; Oliveira, MMD; Queiroga, RM; Fonseca, FLA; Lacerda, SNB; Adami, F	2014	Older people perception of the coexistence group: a study in the city of Cajazeiras-PB
52	Falsarella, GR; Gasparotto, LPR; Coimbra, AMV	2014	Falls: concepts, frequencies and applications to older people care. Literature revision
50	Borges, AM; Santos, G; Kummer, JA; Fior, L; Molin, VD; Wibelinger, LM	2014	Self-perception of health in older people living in a city in the interior of Rio Grande do Sul
50	Manso, MEG; Biffi, ECA; Gerardi, TJ	2015	Inadequate prescription of medications for older people with chronic diseases in a health plan in the city of São Paulo, SP
50	Silveira, MH; Ciampone, MHT	2014	Perception of the multidisciplinary team on palliative care
49	Ferreira, FPC; Bansi, LO; Paschoal, SMP	2014	Older people care services and home and institutional care strategies

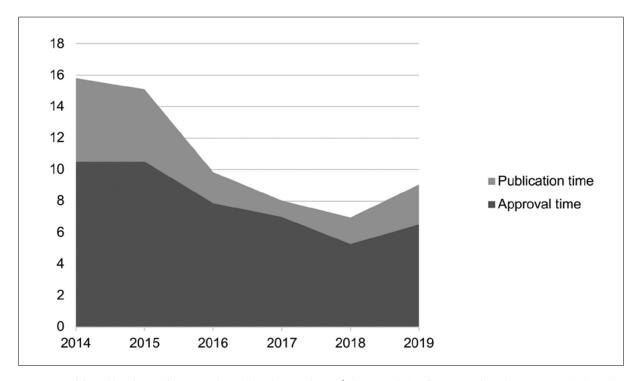
In the editorial field, there were substantial advances, both in the time for approval from 2014 ( $10.52 \pm 2.73$  months) to 2019 ( $6.52 \pm 2.03$  months), and in the time of publication in the same period, corresponding to, respectively, at 5.29 ( $\pm 1.71$ ) months and 2.52 ( $\pm 1.64$ ) months, which shows an average reduction in the time for approval of four months and publication of approximately three months, as shown in Figure 1.

When comparing these results with the study carried out in 2014, the reduction in time is even more evident<sup>7</sup>. Between 2006 and 2013, the average time between approval and publication was 16 months and now it corresponds to seven months, with a reduction of 56.25% in relation to the previous<sup>7</sup>. The speed in the editorial response brings benefits both for the journal, which achieves greater versatility and favors an improvement in its bibliometric indexes related to impact factors, and for the academic community that obtains

quick returns for the dissemination of scientific production and dissemination of knowledge<sup>7,33</sup>.

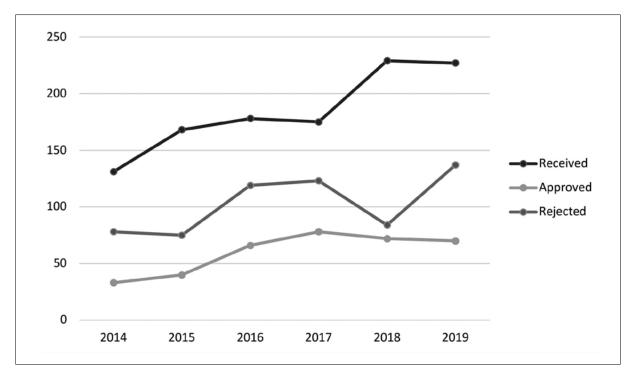
Figure 2, in turn, shows that from the initial period of analysis (2014) to the end (2019) there was an increase in the number of studies received (73.3%), approved (112.1%) and rejected (75.6%), despite the stabilization in the number of received from 2018 to 2019 and a reduction in rejected from 2017 to 2018.

The data indicate that the approval rate is higher than that of rejected, which indicates that, although the journal establishes strict criteria regarding the evaluative standard during the editorial process, the rate of approval over rejection growth, in the period from 2014 to 2019, is 1.48. The stability regarding the number of articles received, observed between 2018 and 2019, can be considered within the normal range, as it remains at a higher level when compared to previous years<sup>7</sup>.



**Figure 1.** Trend in time of approval, publication and total<sup>1</sup> (in months) of manuscripts in RBGG, during the period 2014-2019. Natal, RN, 2021.

<sup>&</sup>lt;sup>1</sup> Total time is the sum of the publication time and the approval time.



**Figure 2.** Trends in the number of articles received, approved and rejected between the years 2014-2019. Natal, RN, 2021.

Firmo et al. 16 evidenced an ascending profile in the quantity of publications related to the health of older people in the Revista Ciência e Saúde Coletiva, as verified in the RBGG, demonstrating the expansion of the relevance of this theme in the Brazilian scientific community. It is noteworthy that the RBGG, as a journal specialized in geriatrics and gerontology, has assumed relevant significance in the process of disseminating scientific knowledge and substantially contributed to the deepening of issues concerning human aging.

The indicators observed in this study, which favored the expansion of the RBGG, are related to the reduction in the initial response time, approval time, publication time and the increase in the number of approved articles. The low rate of qualitative studies, despite the increase identified by this study, may indicate limitations in the range of methods, when compared to other studies. Periodic events associated with the RBGG are suggested, such as the I Congress of the Brazilian Journal of Geriatrics and Gerontology held in 2018, as it brings visibility to the scope of the journal to the scientific community; and greater regularity in the public call for special issues involving the scientific community, in order to favor greater production on the topic of geriatrics and gerontology. The internationalization of the RBGG can be developed through international partnerships with researchers, associations and educational institutions added to cooperation and sharing of science in the area of aging.

## CONCLUSIONS

It appears that there was an increase in the number of publications during the period analyzed, with emphasis on original articles, quantitative studies. These studies are attributed to public health themes, covering health promotion and analysis of social determinants in human communities. Scientific production is developed nationwide, predominantly, by female professionals from Nursing, Physiotherapy and Medicine courses linked to public universities in the Southeast and South regions.

The editorial process has been fast, with a significant reduction in the time between receipt and publication, and an increase in the amount of approval of articles received. RBGG remains in the ascendancy in the dissemination of scientific knowledge, which has substantially contributed to the deepening of issues concerning human aging.

It should be noted that there must be an incentive for the publication of studies carried out in the North and Northeast regions, as well as for qualitative studies. Financial investment is needed to subsidize the development of public education, which has significantly contributed to scientific advances in the area of Geriatrics and Gerontology in the country, in line with the National Health Policy for the Older Person and the demographic representation of this population group.

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