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BIBLIOMETRIC ANALYSIS AND THEMATIC ANALYSIS OF PUBLICATIONS ABOUT THE "PROGRAMA MAIS MÉDICOS"

ANÁLISE BIBLIOMÉTRICA E ANÁLISE TEMÁTICA DE PUBLICAÇÕES SOBRE O PROGRAMA MAIS MÉDICOS

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Abstract: **Introduction:** The bibliometric research is an important statistical instrument. The data obtained from these survey guides technical decisions about current and future scientific production. **Objective:** The objective of this article is to perform bibliometric and thematic analysis of scientific publications carried out about "ProgramaMaisMédicos". **Methodology:** This is a quantitative, descriptive, cross-sectional study, applying bibliometric properties. An analysis of articles published in the SciELO database, in Portuguese, between the years 2020 and2023 was carried out, using the term "ProgramaMaisMédicos" for the research. The following items were analyzed: number of articles, references, quotes and authors, journals, institution of origin, financing, category, methodology, theme, keywords and year of publication. **Results:** Regarding the articles, it was found that the majority originated in public universities in the Southeast region, the average number of authors was 3.75, the majority did not receive funding, the majority were original articles, with qualitative methodology,

the average number of references was of 34.4, the most frequently occurring keywords were “ProgramaMaisMédicos”, “EducaçãoMédica” and “AtençãoPrimária à Saúde”, the average number of quotes was 1.66 and the main theme of the articles was “Cursomédico". **Conclusion:** Having knowledge about the results of researches that have been carried out in a given area of study is essential. Through data from bibliometric analysis it is possible to be critical in relation to the existing literature and plan the direction of the scientific research.

Keywords: Bibliometrics; Public Health; Doctors

INTRODUCTION

With the increase in scientific journals and publications, there is a growing difficulty for researchers in following publications in their respective areas of expertise. The bibliometric method allows a systemic and reproducible evaluation of the current literature, guiding researchers about the works produced on a given topic in a defined period of time [(1)].

The bibliometric method can be framed in a quantitative or qualitative research and has three main laws[(2)]. Lotka's Law considers that a large part of the scientific literature is dominated by a small number of researchers, who are assumed to be more prestigious. The Bradford Law states that there is a restricted group of journals that hold a greater number of articles on a given topic, which would make them of better quality. Zipf's Laws estimate the frequency of occurrence of words in a text and the region of concentration of indexing terms or keywords [(3)].

The five main methods of bibliometric mapping of documents, authors or journals are: Citation analysis, cocitation, bibliographic coupling, co-authorship and co-words[(1)]. The first three criteria are of influence and similarity, based on citations. The fourth criterion evaluates collaboration through co-authorship data and the last one searches for similar words in the body of the article [(4)].

In conclusion, bibliometrics is a statistical instrument that allows to reduce the subjectivity inherent in indexing and retrieval of information, enabling the production of several indicators about scientific production. These indicators are necessary for the criticism and direction of science and technology[(1)]. The data from this type of research contribute to guide the technical decisions supported by the scientific method[(2)]. For example, identifying less explored themes and directing researchers so that they can explore them and, later, make them the target of public policies [(5)].

In the case of health, under the terms of the Federal Constitution of 1988, health is a right of all and a duty of the State and must be guaranteed through social and economic public policies, in order to ensure universal, equitable and integral access to health to actions and services for its promotion, maintenance and recovery. Although this right is guaranteed by law, inequalities are

observed in its offer in the country [6]. Regulated by Law 8.080/1990, the Unified Health System (SUS) defined the State as responsible for providing conditions for the full exercise of health through public policies. In this context, the Family Health Program (PSF), later called the Family Health Strategy (FHS), and the Community Health Agents Program (PACS) stand out, focusing on strengthening comprehensive primary care and direct interference in health determinants [7].

Despite the advances with the implementation of the ESF and PACS Programs, the country still had low levels of coverage in primary care in several regions. Considering that Brazil is a country of great territorial extension, inequalities in health supply in the country were markedly perpetuated in the form of regional inequalities, so that advances did not happen homogeneously and access to health in Brazil was characterized as precarious mainly in the North and Northeast regions and in municipalities of greater social vulnerability. The More Doctors Program (PMM), established by Law 12.871/2013, came to mitigate these deficiencies and reduce regional inequalities, focusing on priority areas for the SUS, strengthening primary health care. The PMM was established in three axes Strategic: 1) medical training for public health care, from an increase in undergraduate vacancies, medical residency vacancies and the opening of new medical courses; 2) improvement in the infrastructure of the UBSs with the new investments and; 3) the emergency provision of doctors in vulnerable areas, that is, that do not have enough medical staff to the population[8].

It was found that the program brought several advances to Primary Health Care (PHC), among them: the increase in the number of doctors; expansion of the FHS teams; expansion of the coverage of the PHC with greater agility; increase in the number of consultations; expansion of the number of primary care procedures and reduction of hospitalizations sensitive to PHC. There was also a real increase in the number of doctors in Brazil, the average proportion of doctors was 1.8 per thousand inhabitants in the time before the Program, while in January 2018 the proportion was 2.18 doctors per thousand inhabitants [6].

The objective of this article is to perform the bibliometric analysis and thematic analysis of scientific publications on the PMM between the years 2020 and 2023, in order to understand the direction of these studies and their trends to support future research.

METHODOLOGY

This is a quantitative, descriptive and cross-sectional study, with application of bibliometric properties. An analysis of articles published in full in the SciELO database, in Portuguese, was carried out between the years 2020-2023, using the term "More Doctors Program" for the research.

The choice of the database is directly related to the importance it has in the national scenario and due to the large number of publications made. The SciELO database was accessed virtually, in the first quarter of 2024, through its electronic portal and the following items were analyzed: number of articles, indexed journals, number of authors, institution of origin, form of financing, category, methodology, theme of the article, number of references, keywords, year of publication and number of citations

Through the analysis of these criteria it is possible to understand which themes are more and less prevalent, in order to direct efforts to less explored themes. In addition, the institution of origin and the funding criteria are important, as they show the origin of the studies and the need for investment in research.

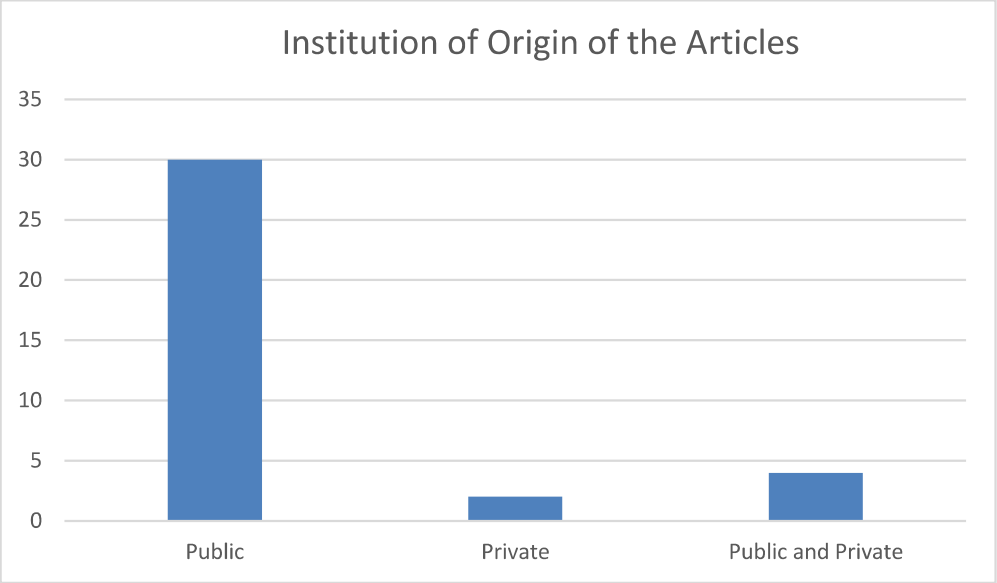
The other criteria, such as category, authors and methodology are valuable, since, through these items, the trend of Brazilian publications is understood. 36 articles were evaluated and the data were tabulated through the Microsoft Office Excel program.

RESULTS

The journals used for publications of articles related to the More Doctors Program on the Scielo Platform are of Brazilian origin, and the journals that had the most publications among the years surveyed were: Interface-Communication, Health, Education (7 articles - 19%) and the Brazilian Journal of Medical Education (6 articles - 16%), followed by Science & Collective Health and Health and Society, each with 4 articles (11.1%) and Health in Debate and Work, Education and Health, each with 3 articles (8.3%). The other journals presented less than 3 articles.

Regarding the Institution of origin of the article, most of them originated in Public Institutions (30; 83.3%), while a smaller part originated in Private Institutions (2; 5.5%) or in Public and Private institutions, simultaneously (4; 11.1%).

Chart 1: Institution of origin of the articles.



Source: Prepared by the authors, 2024.

And the institutions that stood out with the highest number of published articles were: Federal University of Viçosa (3 articles), Federal University of Bahia (3 articles) and University of São Paulo (3 articles), followed by Federal University of Espírito Santo, Federal University of Goiás, Oswaldo Cruz Foundation and Federal University of São Carlos, each of which published 2 articles.

Most of the articles had 2 researchers for their publication, with the average number of researchers who participated in the preparation of the articles of 3.75.

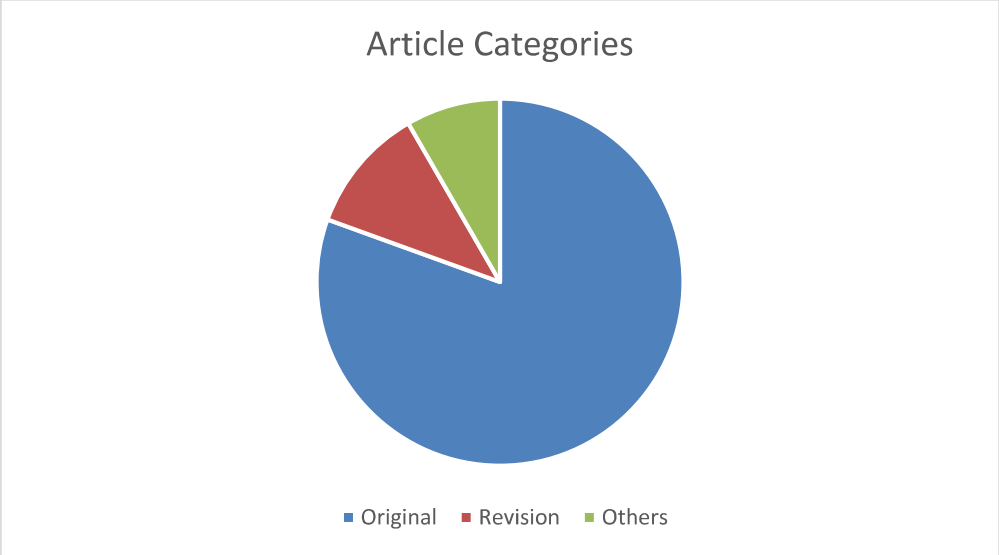
Most of the articles did not present funding (28; 77.7%), in relation to the minority, which presented funding (8; 22.2%). The SUS Research Program - PPSUS, the Research Support Foundation of the State of Minas Gerais- Fapemig, the Coordination Foundation for the Improvement of Higher Education Personnel-Capes, the National Council for Scientific and Technological Development- CNPQ, and the Foundation for Support of Teaching, Research and Extension- FUNAPE/MS, in addition to projects that obtained Own Funding were declared as contributors.

Chart 2: Form of financing the article.

Source: Prepared by the authors, 2024.

Regarding the category, most of the articles evaluated were composed of Original Articles (29; 80.5%), while the minority was composed of Review Articles (4; 11.1%), among others (3; 8.3%).

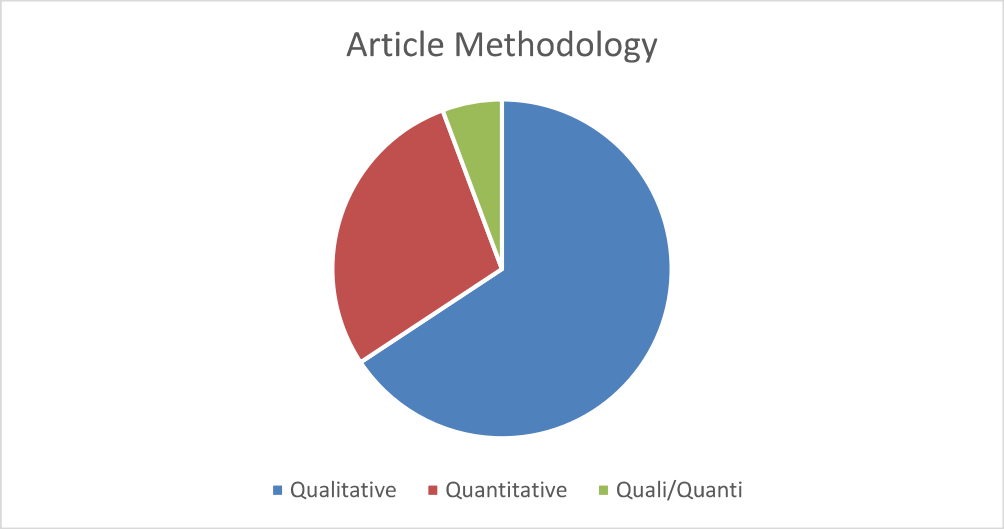
Chart 3: Article Categories.



Source: Prepared by the authors, 2024.

Regarding the Methodology used, most articles used the Qualitative approach (23;63.8%), while the others were a Quantitative approach (10;27.7%) or Quali/Quantitative (2; 5%).

Chart 4: Article Methodology.



Source: Prepared by the authors, 2024.

Regarding the number of references used by each researcher, the average was 34.4 references, the median of 33, the fashion of 20, the minimum of 16 and the maximum of 55 references used.

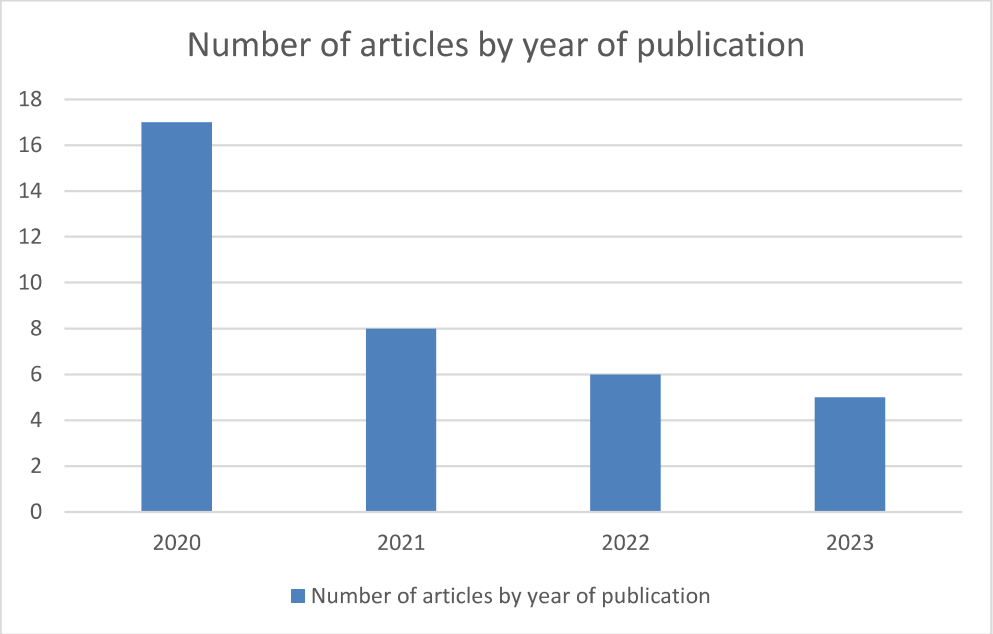
About the most used keywords, in descending order: More Doctors Program; Medical Education; Primary Health Care; Education; Doctors; Human Resources in Health; Medicine; Unified Health System (SUS); Covid-19; Public Policy; Health Consortium; Indigenous Peoples; Human Resources, etc.

Image 1: Word Cloud Chart (Word Cloud).

Source: Prepared by the authors, 2024.

The articles analyzed were all published between the years 2020 and 2023, and there was a decrease in the number of productions in this period, to be evaluated: 2020 (17; 47%), 2021(8; 22%), 2022 (6; 16%), 2023 (5; 13%).

Chart 5: Number of articles by year of publication.



Source: Prepared by the authors, 2024.

Regarding the number of citations, the average of citations of the articles was 1.66, the fashion of 0, the median of 1, the minimum of 0 and the maximum of 7.

In relation to the theme, the articles on the Medical Course stood out as most of the written texts (9; 25%), followed by articles on supervision (8; 22%) and analysis of PMM development (6; 16.6%), perception/experience of PMM doctors (6; 16.6%) and differentiated attention/effects of the PMM (3; 8%). Following, the themes with only one published article (1; 2%): Intention of undergraduates to join the PMM, COVID-19 and the PMM, Media and the PMM and the clash with the medical corporation.

DISCUSSION

The significant majority of publications had their authors linked to public Higher Education Institutions, the same having been observed in other bibliometric studies, which shows the contribution of this sector to scientific production and to the community, since the advancement of science has the potential, especially in the health area, to promote paradigm changes [9-11]. It follows that incentives and investments in public education and research are essential [10].

Also considering the Institution of origin, in relation to the origin of the first author by macro-region of Brazil, 70.5% has origin in the Southeast region, 17% in the Northeast Region and 11.7% in the Midwest Region, considering the universe of universities that published the most (>1 article per university). Most publications are centered on the Southeast region, which is in line with other scientific productions [9.10]. This shows the monopoly of Brazilian production for a more economically developed region and with a greater number of public teaching and research

institutions, and although this hegemony is being weakened, as can be evidenced by the research data that also point to the Northeast and Midwest regions as important producers, the Southeast region stands out as the main responsible for scientific productions[9]. Another bibliometric study on the PMM also shows this trend of productions concentrated in the Southeast region, but with contributions also from the North region [12].

Of the analyzed publications, the minority declared financial support (22.2%), and most of them were constituted in the form of public institutions, being the national development agencies and the state research support foundations, which are configured in the majority of taxpayers, in addition, solely, to the authors' own funding, as was also measured in other studies also of a bibliometric nature [9-11]. This is related to the fact that the Brazilian State presents in its canon regulations that guide the national development in science, technology and innovation in health, in addition to the promotion of research and studies in the health area, one of the pillars of the SUS, embodied in the form of Law N 8.080 [13].

The preponderance of larger research groups is also highlighted, with a measured average of 3.75 authors per publication, showing that a collective of researchers can enhance the elaboration of a scientific production, by the conjunction of skills, discourses and complementary knowledge that can be shared [14].

Regarding the methodological approach, there was a predominance of qualitative methods (63.8%), which can also be observed in another bibliometric study conducted on the PMM between the years 2013-2016. This is not the trend observed in other bibliometric studies, also in the health area [9-11]. In qualitative methodology, the object of the study is not the event itself, but its meaning, and the researcher's objective is to understand what it means for those who experience it. The perceptions and valorization of services should be valued in the provision of health services to the community [15].

In relation to the thematic analysis, carried out in this study between the years 2020-2023, the themes were highlighted: Medical Course, supervision and analysis of the PMM and differentiated attention/effects of the PMM. In another production about the bibliometric analysis on the PMM between the years 2013-2016, the prominent themes were: equity, this being the most prevalent, followed by effectiveness, professional training, implementation of the PMM, work practices and processes, media approach and political analysis of the PMM. They are in congruence in listing that a considerable part of the articles evaluated the effectiveness of the PMM, including terminal effects on community health, perception and user satisfaction, which constituted 6 articles in the current research, constituting the third most addressed theme and 10 articles in the research that preceded it, constituting the second most addressed theme. Also on the previous research, until 2016, most of the articles included in its analysis (55%) focused on the axis "emergency care of Brazilian and

foreign doctors", while the "training" axis represented 8% of the articles (13). In the current research, from the year 2020, the main axis was the "Medical course" (25%), showing a redirection of research in the area.

Regarding the citation, it is a common practice of the academic community and it has an important role in the construction of theoretical and scientific discourse. Citing a work is a way of valuing the work of a related area researcher and helps in the construction and foundation of scientific works[16]. The current research verified an average of 1.66 citations in all the publications evaluated, with a minimum of 0 and a maximum of 7, the latter verified in three articles that presented greater external validation, and of these, two were reviews and were published in the same journal "Ciência & Saúde Coletiva".

Regarding the category of articles, this research presented a majority of original studies, to the detriment of review articles. The same can be evidenced in the bibliometric research carried out on the PMM between the years 2013-2016, which presented a majority of empirical studies and a minority of revisional studies and legal texts[12]. This trend of most original articles is followed in other bibliometric analyzes carried out in the health area [9-11].

The present study presents some limitations, to mention, the accuracy of some specific results that were impaired, such as the institutional link of the research. The option to consider, in the study, only the first author in the evaluation of institutional production certainly underestimates the participation of other institutions to which the co-authors of the articles are linked.

CONCLUSION

Having knowledge about the research that has already been carried out in a given area of study is essential in the scientific context. Through the data from the bibliometric analysis it is possible to criticize the existing literature and plan the direction of science supported by the scientific method.

It should be noted that there must be an incentive for the publication of studies from other macro-regions of the country, especially the North and Northeast regions, which requires financial investment that subsidizes the development of public education, which has contributed significantly to scientific progress as has been measured in the current research.

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