

The science of collective health in writing: contribution to studies in collective oral health

Efigênia Ferreira e Ferreira (<https://orcid.org/0000-0002-0665-211X>)¹
Raquel Conceição Ferreira (<https://orcid.org/0000-0001-8897-9345>)¹
Carlos Botazzo (<https://orcid.org/0000-0002-8646-1769>)²
Viviane Elisângela Gomes (<https://orcid.org/0000-0001-9637-1911>)¹
Lorrany Gabriela Rodrigues (<https://orcid.org/0000-0002-9531-5392>)¹
Andrea Maria Duarte Vargas (<https://orcid.org/0000-0002-4371-9862>)¹

Abstract *Celebrating the 25 years of existence of the Journal Ciência & Saúde Coletiva (C&SC), this paper analyzed 375 documents published between 2000-2019 as an integral part of the editorial of collective oral health. The production analysis aimed to understand how oral health core appears in publications and how it could have contributed to knowledge on the population's health-disease, specific public policies, education, and management of oral health services in the SUS. The process employed bibliometric and documental analysis. We could show the authors' territorial distribution, their extensive collaboration network, and the dimension of citations in publications, including the international plan. The Brazilian states most present in the publications were São Paulo and Minas Gerais, followed by authors from Pernambuco, Rio Grande do Sul, and Santa Catarina. Citations were more frequent in Brazil (85.14%), followed by the United States (2.31%), Portugal (1.34%), and Australia (1.34%). We concluded that, despite the limitations, the C&SC showed unequivocally a powerful instrument for the dissemination of scientific production from the perspective of collective oral health, enabling the exchange of information and facilitating the integration between researchers and enabling a path to its consolidation.*

Key words *Periodical, Public Health, Oral Health*

¹ Departamento de Odontologia Social e Preventiva, Universidade Federal de Minas Gerais. Av. Antônio Carlos 6627, Pampulha. 31270-901 Belo Horizonte MG Brasil. efigeniaf@gmail.com
² Faculdade de Saúde Pública, Departamento de Política, Gestão e Saúde, Universidade de São Paulo. São Paulo SP Brasil.

Introduction

Talking about the contribution and the role of scientific dissemination of collective health to public oral health research is a historically imposed task. It has been some sort of epistemic balance when oral health scholars and others began to publish regularly in the *Ciência & Saúde Coletiva* (C&SC), since the publication of its first issue more than two decades ago. However, one could not speak of C&SC without mentioning the Brazilian Association of Collective Health (Abrasco), which is already quite mature at age 45. Both are expressions of the vigor with which the field has moved on the national scene since its emergence way back in 1979. In making this balance, we expressed our joy and joined the community in this more than deserved celebration.

Collective health was then and continues to be today a threefold social practice. That is, as a social or collective movement of health activists; a field of human health care practices; and an investigation agenda or knowledge production device¹⁻³. Such configurations are not without contradictions or epistemic gaps, nor would it be the case to consider such inaccuracies, since they feed the good things in life, even those of science.

This paper will seek to understand the relationship between collective health and its particular “oral” expression, or, to put it another way, between the field and the core⁴. We will attempt to identify, somehow, the determinations, influences, or reciprocal allocations, taking as a reference the publication of their ideas and wishes that justified our presence in C&SC in the last two decades. Journals and scientific papers are part of the daily life of researchers. In the humorous expression of Eric Hobsbawm, given the intense specialization of science, scientists increasingly need publications “to explain to each other what is going on outside their respective fields”⁵(p.506).

Would the referent *collective oral health* be a paradigm in the Kuhnian sense? Not necessarily, if we consider the interpretations of Moysés and Sheiham⁶. Based on Edgard Morin, the authors understand the theoretical problems involved with a concept that, while “operationally convenient”, are also “simplifiers or reducers”. That is why they prefer to affirm the “almost” nature of the paradigm.

However, *collective oral health* has ensured permanence in the field as an epistemic presence. We will consider some other referents to “explain” this presence, without the sense of conceptual rigidity of paradigm. First, we need to understand

who is the speaking subject. In other words, what are the subjects writing about, what is their theoretical-political framework, language, and incorporation into the world (or situation). Thus, we understand that they are dental surgeons, but not only that, since other subjects have long contributed to the specific stronghold of dentistry. Then, we must understand that, in principle, these subjects adopted the discursive matrix of collective oral health, whose expression incorporates the social and human sciences, epidemiology, and politics⁷, which is why it is worth asking whether these subjects would set an epistemic community or thinking group.

However, it is challenging and sometimes impossible to “describe the history of a field of knowledge correctly”. A field or area consists of “many lines of developing ideas, which cross and influence each other [...] as if we wanted to reproduce, in writing and faithfully [...] an animated conversation, in which several people would speak to each other simultaneously, imposing their voice on others, and in which there would be, however, a crystallizing common idea”⁸(p.61).

This representation of the different opinions and guidelines in a field, eloquently seen as a *conversation*, is quite the expression of what could be said of groups and communities aligned with shared ideas and concepts. Therefore, we can understand the thinking group as “the community of researchers who exchange ideas or establish an intellectual interaction, and, for this reason, develop a collective thinking style”. Perhaps it will be so, since “a well-organized group is the bearer of knowledge that far exceeds the capacity of any individual”⁸(p.89).

What could they reflect as researchers? How are they contributing to the development of science and society? We will seek to answer these triggering questions, observing some parameters proposed by Barbosa and Pereira Neto⁹. Our analysis considered the following assumptions:

- [researchers are not isolated from the outside world and are affected by factors outside the scientific world];
- [personal identity attributes] they are dentists, trained in different dentistry schools, at different times, in different places;
- [how they understand the world, that is,] dental practice, health policies, the patient, and society;
- [the language they use] the categories of analysis (descriptors/keywords), the construction of thought and conclusions, how it all appears in publications;

- [how the production of collective oral health in C&SC] dialogues with the social categories, how tensions emerge, how knowledge influenced/influences teaching, oral health policy, and even the research agenda of this group.

This paper aims to clarify how the theoretical production of *collective oral health*, anchored in Social and Human Sciences, Epidemiology and Policies, is expressed as a “thinking group” of the set of papers published in C&SC. Thus, the extracted data will be analyzed from bibliometric procedures and will also be interpreted qualitatively, seeking to understand how the above assumptions can be recovered in the period’s production. Finally, it is worth mentioning what is called knowledge translation, here seen as the meeting between scientific knowledge and knowledge resulting from experience – or the gaps between the known and the employed – to consider possible incorporations of the knowledge produced in the management of services or policymaking.

Methodological procedures

Two biases evaluated the oral health papers published in C&SC: one bibliometric and the other considering the published study’s object. The production of the area in the 2000-2019 period was considered, available in the Scielo.br database, totaling 375 titles. This number represents the path of *collective oral health* publications in the period, taking 2000 as a milestone, which was the first publication year. All types of contributions were considered: original and review papers, case/experience reports, editorials, and letters to the editor, referred to by title and abstract. They were identified in the Web of Science (WoS) database, section SciELO Citation Index (Web of Science®) to generate the citations report, except for the paper published in 2000, which occurred because the SciELO Citation Index integrated with WoS makes available the papers in the C&SC magazine from 2002. Concerning the 2000 publications, the number of citations was searched directly on the SciELO database.

Document analysis

All papers identified in the oral health area were included in this stage of the study. A document analysis, which primarily considers original documents that have not had analytical treatment¹⁰, was carried out. This qualitative research

technique requires that data be selected, examined, and interpreted to obtain understanding and meaning for the development of empirical knowledge¹¹. The corpus of analysis considered the papers organized by year of publication and numbered according to the order of publication in the Journal. Works were divided into three numerically similar blocks, and three researchers independently read and extracted the data following the roadmap: theme, title, citation, objectives, type of study, contributions to science and public policies and services (Unified Health System - SUS). This study considered the themes and contributions of the studies for discussion.

The themes were previously defined from the collective oral health core anchored in the social and human sciences, epidemiology, and policies: 1. Social sciences and health; 2. Epidemiology; 3. Oral health policies and service evaluation. Theme 1 included papers that discussed the issues relevant to the collective oral health core, considering the social and human sciences’ theoretical framework. Theme 2 included studies that used epidemiology as a surveillance tool and strategy for the construction of policies, discussed the epidemiological method, and created theoretical models to study oral diseases and conditions. Theme 3 included papers that addressed health services’ evaluation and those that brought pertinent discussion for the construction and strengthening of public policies, especially SUS.

The researchers met throughout the process, and concerns were discussed until consensus. At the end of the analysis process, a synthesis of the papers was constructed considering the contributions to science and services, which were gathered and analyzed later.

Bibliometric analysis

The following indicators were presented considering the metric perspective: 1) absolute frequency of publications in the 2000-2019 period, 2) absolute frequency of citations until 2020, 3) mean number of citations for each publication per year; 3) H factor of the set of oral health publications, 4) period until the first citation, 5) the percentage of publications that received no citations in the period, and 6) source of publications and citations. Moreover, the co-authoring network was analyzed based on the authors of the publications and their institutions.

The analysis of publications in the period considered the total number of documents pub-

lished each year. The number of citations was counted considering the results of the citations in all databases. These frequencies were analyzed for all publications and according to the classification: social and human sciences, epidemiology, and oral health policies, including service evaluation studies. The mean number of citations for each publication was calculated by the ratio of the total number of citations obtained for each publication divided by the publication age. Age was the result of the subtraction between the year 2020 and the year of publication. The H factor was based on the number of oral health publications that received at least the same number of citations. The period until the first citation was defined by the time between the year of publication and the first citation. The origin of the publications was based on the affiliation or address of the first and last authors. The frequency of publications in each country and the Brazilian states was represented proportionally through circles on maps.

The source of citations by country was consolidated from citations report until 2020, generated on the Web of Science, referring to publications from 2002 (year of the first publication in the area) to 2019. Maps represented the distribution of citations in the world, and the total number of citations in each country was represented by circles whose diameters vary proportionally according to the frequency of citations received. Self-citations were not excluded.

On the same database, the following information about the selected publications was exported to a *txt (tab-delimited) file: publication type (PT), authors (AU), publisher (PU), authors' ORCID (OI), Title (TI), Source (SO), language (LA), document type (DT), descriptors (DE), abstract (AB), author's address (CI), total citation count (Web of Science Core Collection, BIOSIS Citation Index, Chinese Science Citation Database, Data Citation Index, Russian Science Citation Index, SciELO Citation Index) (Z9), publication date (PD), publication year (PY), information about the publication (volume-VL, issue-IS, start page-BP, end page-EP, DOI-DI), journal's field (SC), open access (OA). Single-author productions were excluded from this analysis. The VOSviewer® software was used to analyze scientific cooperation by evaluating co-authorships, considering the institutions of origin linked to publications¹². The probabilistic similarity method, called association strength¹³, was employed to analyze and define clusters, and the results were shown on maps. On the map,

each circle represents an institution and is identified by its name (label). Institutions were represented by acronyms to avoid overlapping names. The circle's diameter and the size of the acronym (label) represent the importance of each institution according to the total link strength. The link strength is defined by the number of documents shared by institutions. For example, a link strength of 2 between Institution 1 and Institution 2 means common authorship in two publications. Different colors identify clusters. Lines between institutions represent the links between them. The higher the number of lines, the greater the strength of scientific collaboration. The distance between two items in the visualization indicates, approximately, the relationship of authors and institutions concerning of co-authorship links.

A word cloud was created using the Wordle® application. The descriptors of the selected articles were grouped and organized graphically according to their frequency.

Quantitative data were organized and analyzed descriptively using the Microsoft Excel® program. Maps were created with Infogram (<https://infogram.com>).

Results and discussion

Contextualizing the period under analysis (2000 to 2019), the first ten years were decisive for Brazilian oral health care organization, from its incorporation into the Family Health Program (currently Strategy) in 2001, through Ministerial Ordinance N° 1,444, of December 2000¹⁴.

The Oral Health Conditions Survey of the Brazilian population, SB Brasil-2003, was carried out in 2003, and is the first in-depth diagnosis of the population's oral health situation, with a well-structured and replicable methodological basis, a matrix for the creation of epidemiological oral health surveillance¹⁵ whose results subsidized the construction of the National Oral Health Policy¹⁶. This policy's axis, known as *Brazil Sorridente* (Smiling Brazil), was expanding oral health care for the Brazilian population.

That same year, the Third National Oral Health Conference was held with the theme access and quality, overcoming social exclusion, observed in the results of SB Brasil 2003¹⁷.

The Dental Specialization Centers (CEO) and the Regional Dental Protheses Laboratories (LRPD) were implemented in 2006, with the introduction of secondary care for some special-

ties, taking yet another step towards comprehensive care¹⁸.

SB Brasil 2010 was carried out at the end of the decade, in 2010, along the lines of the 2003 survey, with the concern of improving the method and strategies, but with the same purposes as SB Brasil 2003, including directing the course of the National Oral Health Policy¹⁹.

Accompanying these achievements, an increasing number of publications in the period was observed in the annual distribution of 375 papers published. A significant increase was noted as of 2006 (Figure 1a). Fourteen documents were published from 2000 to 2005. For comparison purposes, 33 documents were published in 2006 alone, including a thematic issue, *Collective Oral Health*. In this issue's editorial, signed by the invited editors, Carlos Botazzo and Paulo Capel Narvai, the moment experienced by the *Collective Oral Health* group is expressed in scientific production, consistent with the political moment of the decade, as described in this text: "If an expressive theoretical development in this area has been seen in recent years, a significant increase was also observed in practices, with the reformulation of services and the development of new care technologies"²⁰.

Since then, about 26 documents have been published annually, on average, with a peak of 50 documents published in 2010. Publications on health policies and service evaluation were among the documents published throughout the period evaluated, driving, or driven by changes. In the early years, we noted a higher number of Social and Health Sciences publications, and an increased number of epidemiological studies was observed as of 2007 (Figure 1b).

The total number of citations until 2020 was 3,039, increasing in the period (Figure 1a). Most publications received at least one citation ($n = 316$, 84.27%). Epidemiological studies and those addressing public policies were the most cited (Figure 1c). The mean citation of each publication per year ranged from 0.71 to 6.0. Most publications cited at least once received the first citation in the first ($n = 122$, 38.61%) and second ($n = 97$, 30.70%) years of publication. Mean time until the first citation was 2.15 years ($SD = 1.38$; 1 to 11). Most ($n = 40$; 67.80%) of the fifty-eight documents not yet cited (15.47%) were published no more than two years ago. Sixteen papers not yet cited were published five years ago or more. The H factor was 23. The twenty-three papers with at least 23 citations are distributed in the areas cited here, including social sciences,

epidemiology, public policies, and service evaluation.

C&SC fulfills its role by hosting scientific papers by Brazilian researchers, mostly originating from the *stricto-sensu* Postgraduate Programs. In the period analyzed, 46.7% of oral health core contributions were about Oral Health Policies and Service Evaluation, 38.4% Epidemiology, and 14.9% Social Sciences.

This separation into dimensions required many researchers' efforts, since, to a greater or lesser degree, authors and co-authors traverse the three fields. We aimed to see whether the mission defined by C&SC in its creation remained faithful by authors of the publications.

The studies brought contributions to: 1. transformation of health services, although sometimes with a local scope, covering aspects of primary health care, specialized care, health surveillance, training of human resources and relevant discussions on strengthening the SUS, allowing reflections on planning, needs, and priorities in oral health services; 2. the knowledge and recognition of the population's illness process, with reflections on the prevalence, incidence and determining factors of diseases and oral manifestations, health inequalities, and interpersonal violence, also considering the health-disease relationship and quality of life; 3. some discussions based on the social sciences, focusing mainly on subjectivity in oral health, as a crucial point to be considered in diagnostics, planning, evaluations, and public policies, to achieve adequate oral health actions.

Some theoretical essays brought critical reflections for sedimenting the collective oral health core, which are fundamental for reshaping dental science and practice, such as, for example, discussing the concept of orality, proposed by Botazzo in 2006²¹. Likewise, the reflections elaborated on the term *collective oral health*, its theoretical-political-practical implications, discussing the gathering of oral (particularized) and collective (denial of particularization) which, carrying an apparent contradiction, shows "the effort of this rupture process, to leave the individual and embrace the collective plane"¹⁵.

In the light of the epistemology by Ludwick Fleck (1896-1961), the theoretical essay on the etiology of caries discussed the oral thinking of dental caries. Five trends were identified when considering a historical construction of etiological knowledge, pointing to a macro style of thinking: the biologicist, the clinical-epidemiological, the clinical-biological, the biopsychosocial, and the social²².

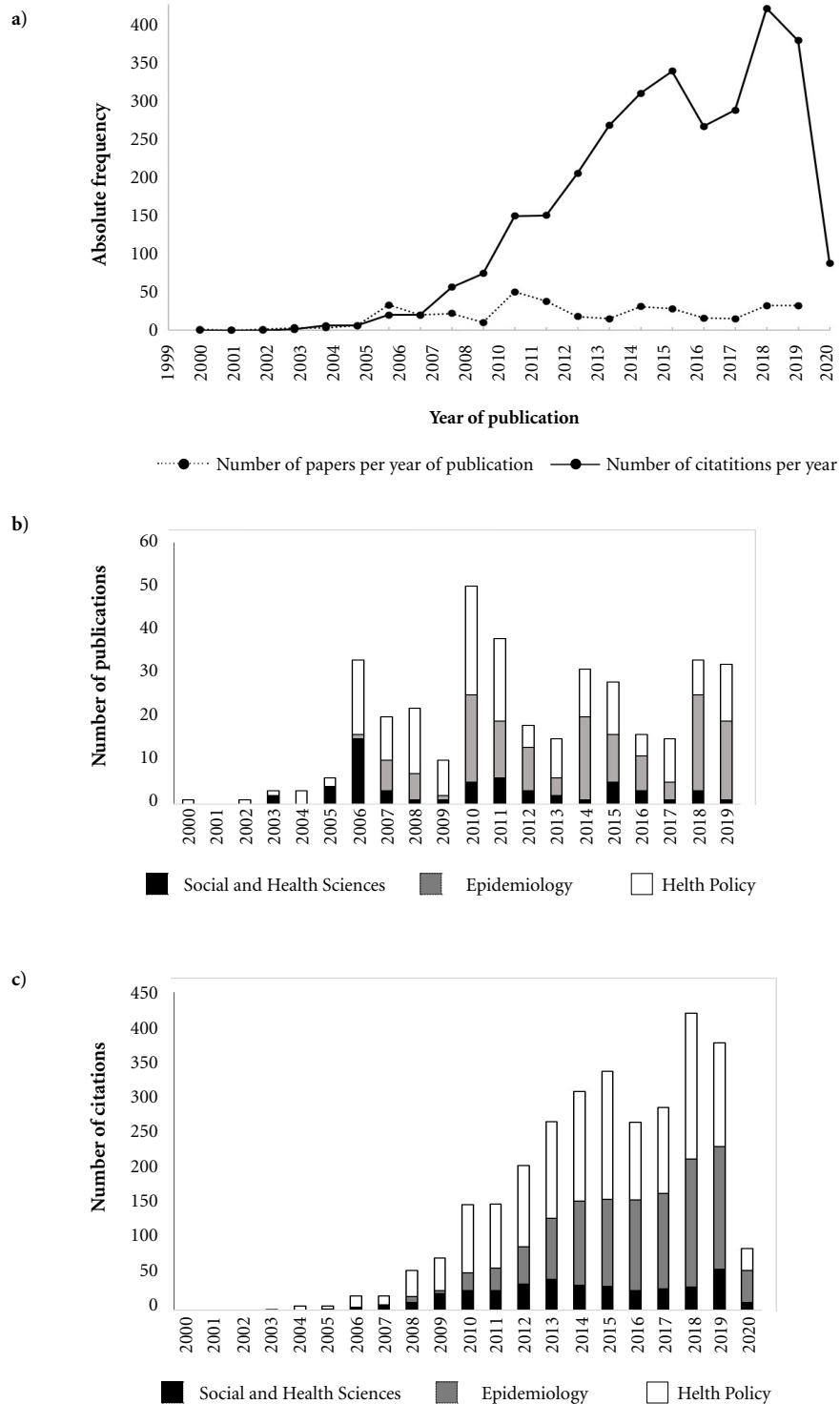


Figure 1. Absolute number of documents published in the Journal *Ciência & Saúde Coletiva* from 2000 to 2019 and citations obtained by publications in each year, until 2020, considering the total number of publications ($n = 375$) and the classification according to the fields of Collective Health: Social and Human Sciences ($n = 56$), Epidemiology ($n = 144$) and Health Policies ($n = 175$).

Source: Own elaboration, 2020.

The studies pointed to a specific commitment of undergraduate and graduate courses to the ethical dimension of professional training and advances concerning faculty training, graduates' profile, and the curricular integration process. On the other hand, they indicated deficiencies in the contents related to cultural, humanistic, and political education concerning teaching guidance and teaching-learning scenarios and the evaluation process. The authors observed Bioethics' incipient presence as a discipline and cross-curricular theme, accompanied by the scarce specific training of their teachers, collaborating in discussions on Pedagogical Political Projects, frequent since 2000, when the National Curricular Guidelines for dentistry courses were established in the country²³.

No science is not social because, in epistemological terms, "knowing represents the individual's most socially conditioned activity, and knowledge is the social creation par excellence"²⁴. In other words, science in the service of man is an ethical foundation required for scientific production.

However, the fragmentation of scientific knowledge permeates all science and not only the studies considered here. When writing a review of the book *Introduction to Complex Thinking*, by Edgar Morin, Alano highlights the hyperspecialized knowledge, resulting from the fragmented reality, which resulted in scientific blindness, which "destroys sets and totalities, isolates all elements from their environment"²⁵(p.142). For example, we can observe that part of the epidemiological studies still must transpose the measurement of the factors and consider their inseparable link with the social dimension²⁴. No epidemiology is not social.

The evaluation of public policies and services must be based on the solution to the problems detected, strengthen the SUS, and, consequently, benefits for society. Therefore, they must be embedded in the state and societal discussion, requiring the basis of social sciences increasingly.

Overall, in the dimension of the social sciences, we observe the productions that discuss subjectivity as the central theme through perception and self-report, based on psychology (international tendency) instead of sociology, more common in the Brazilian production. It sometimes detaches itself from society for which the produced science should serve.

These observations appear in line with the study conducted by Celeste and Warmling²⁶ when they underscore different modulations in the the-

matic distribution of publications on public oral health in journals on public health and dentistry. They conclude that the declining frequency of some themes in dentistry journals after 2000 indicates that they may be trending in other debate arenas, but they pointed out the strong adherence of publications on collective oral health to the theoretical framework of Collective Health²⁶.

In the bibliometric analysis of this series of publications, considering the origin of the authors, most first authors were Brazilian researchers (n = 371, 98.93%). Four works' first authors were from other countries, namely Argentina, Colombia, Mexico, and Portugal. The distribution was similar considering the second author's origin, including a publication by an Australian and a Canadian author. The first and last authors were most often from São Paulo, followed by Minas Gerais, Rio Grande do Sul, and Santa Catarina (Figure 2).

This is a natural result, for a Brazilian journal with roots in Brazilian collective health (ABRASCO), with clear initial purposes²⁶, "to qualify the knowledge of the field in the academic area; collective health, [...] strengthen the Brazilian and Latin American current of health conception not only as an object of public authorities but mainly as the fruit and construction of society"²⁷(p.337). Oral health's core has fulfilled these purposes.

Figure 3 represents the countries of origin of authors who cited publications from *Revista Ciência & Saúde Coletiva*. The citations were most frequently from Brazil (85.14%), followed by the United States (2.31%), Portugal (1.34%), and Australia (1.34%).

While incipient, there is a "network of citations" from C&SC, showing that many researchers in collective oral health in the world are reading their papers and citing them in their productions on all continents. A knowledge shared with other locations, which probably face the same challenges and benefit from the knowledge produced here. Even without a more sophisticated analysis, considering the number, this is an indicator of scientific quality, typical of science development²⁸.

Figure 4 shows the "collective thinking" network, consolidated and published through C&SC, gathering scientists from all Brazilian regions. A total of 160 collaborating national institutions were identified, of which 140 shared co-authorship, that is, a scientific production network covering the entire Brazilian territory.

A worldwide trend is observed in Brazil, with an expanded network of collaborations with

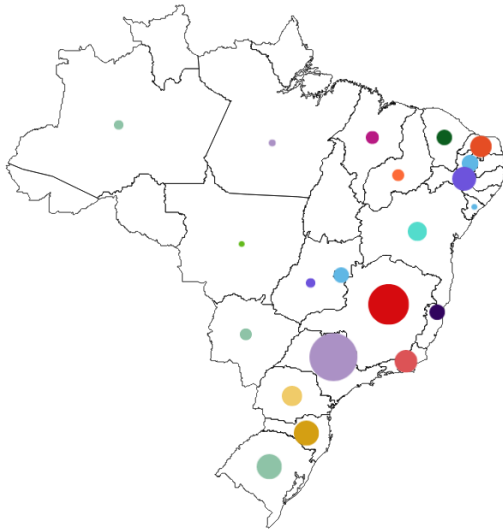


Figure 2. Distribution of publications in the oral health area in the Journal *Ciência & Saúde Coletiva* by origin of the first author.

prospects for change, as already noted, in the central axis of knowledge production. Caused by a series of factors and developments that are still unknown, these networks have contributed with different views in facing challenges and seeking solutions²⁹.

A word cloud was created from the 200 most frequent descriptors (Figure 5) to represent the specific themes addressed in the scientific productions evaluated. The figure represents all the analysis made in this paper's production, and that is where the "collective conversation" circulates, a conversation mentioned above, or these many lines of developing ideas.

By the descriptors selected by the authors, the highlights in these 20 years were epidemiology-related themes, and some underlying themes such as dental caries, quality of life and tooth loss, and older adults and dentistry themes. Dental care, public health, primary care, Family Health Program/Family Health, access to health and oral health services appear in the background, in the

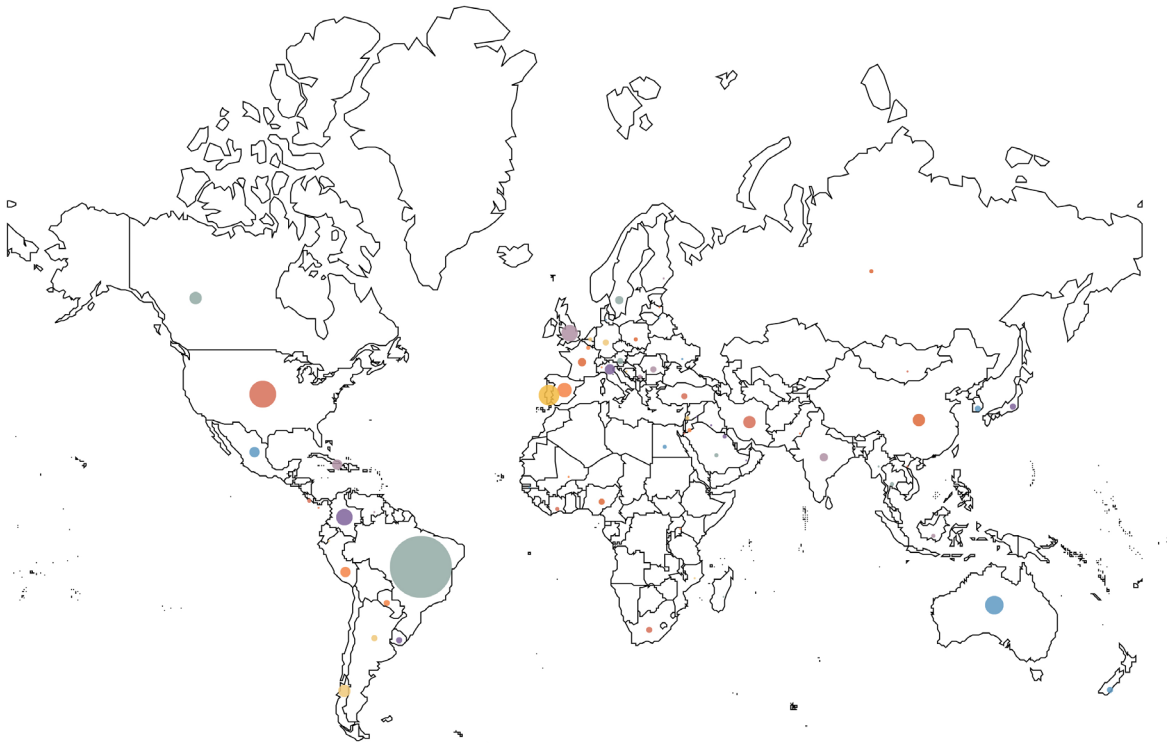


Figure 3. Countries of origin of citations of publications in oral health in the Journal *Ciência & Saúde Coletiva* (citations until May 2020).

group of public policies and service evaluation, with a higher frequency in service assessments. As already noted, social science topics are much rarer.

Final considerations

Bibliometrics and the analysis of the documents published in these 25 years of the Journal C&SC, in the core of Collective Oral Health, were adequate to reveal the collective production of this core. We could unveil the creative and innovative nature of the intellectual production contained in the contributions, expressed both by the scope of the objects addressed and methodologies appropriate to the respective selections. On the other hand, we could observe the spatial distribution of the authors in Brazil. While they are concentrated in São Paulo and Minas Gerais, it is still significant that the origin of the contributions covers almost the entire national territory, somehow shaping a network of collaboration and interest in research. It is also observed that an international network of scientific exchange is being established, albeit timidly.

Some assumptions have not been confirmed or were partially confirmed. This is the case of the last assumption, which, *a priori*, proposed to perceive dialogues with the social categories, and even how the knowledge produced could have influenced education, the oral health policy or the research agenda of this core. Such dimensions could not be fully grasped. Even so, the investiga-

tion of human resources in professional training, both in undergraduate and graduate courses and in continuing education, appears on a small scale.

Likewise, epidemiological and evaluative studies and less emphasis on studies from the social and human sciences were observed. We can point out that the nature of epidemiological studies has not yet crossed the barrier of measuring factors, and consider its inseparable link with the social dimension. That is, they are still descriptive and exploratory in part of the cases. On the other hand, studies on subjectivity still express more immediate theoretical and political concerns, such as seeking to identify representations or perceptions of specific social groups, particularly pregnant women and those responsible for children, parents, or teachers.

Despite these possible limitations, C&SC proved to be, unmistakably, a powerful tool for disseminating scientific production from the perspective of Collective Oral Health, enabling the dissemination and exchange of information, facilitating the integration between researchers, and enabling a path of its consolidation.

There is a diversity of thoughts and ideas and way of producing knowledge, considering the singularities of individuals and groups. However, this is how science and knowledge are produced: dialectically.

Finally, we could identify where it will be necessary to advance in the scientific production of this core to achieve the noblest goal of science: justice and equity, with health as a non-negotiable human right.

Collaborations

All authors worked on the paper's design, data collection, and structuring and drafting of the manuscript. RC Ferreira worked on statistical analysis. EF Ferreira, AMD Vargas, VE Gomes, and C Botazzo worked on the analysis of the documents.

References

1. Nunes ED. Cecília Donnangelo: pioneira na construção teórica de um pensamento social em saúde. *Cien Saude Colet* 2008; 13(3): 909-916.
2. Nunes ED. Saúde coletiva: história de uma idéia e de um conceito. *Saúde Soc* 1994; 3(2):5-21.
3. Minayo MCS. A produção de conhecimentos na interface entre as ciências sociais e humanas e a saúde coletiva. *Saúde Soc* 2013; 22 (1):21-31.
4. Campos GWS. Saúde pública e saúde coletiva: campo e núcleo de saberes e práticas. *Cien Saúde Colet* 2000; 5(2):219-230.
5. Hobsbawm E. *A era dos extremos. O breve século XX: 1914-1991*. 2ª ed. São Paulo: Companhia das Letras; 2010.
6. Moysés SJ, Sheiham A. Saúde bucal coletiva: personagens, autores ou ... Pirandello de novo? In: Kriger L, organizador. *Promoção de saúde bucal: paradigma, ciência, humanização*. 2ª ed. Rio de Janeiro: Artes Médicas; 2003. p. 387-442.
7. Nunes ED. Saúde bucal coletiva: a busca de uma identidade. *Cien Saude Colet* 2006; 11(1):37-39.
8. Fleck L. *La génesis y el desarrollo de un hecho científico. Introducción a la teoría del estilo de pensamiento y del colectivo de pensamiento*. Madrid: Alianza Editorial; 1986.
9. Barbosa L, Pereira-Neto A, Ludwik Fleck (1896-1961) e a translação do conhecimento: considerações sobre a genealogia de um conceito. *Saúde Debate* 2017; 41(n. esp.):317-329.
10. Kripka R, Scheller M, Bonotto DL. Pesquisa Documental: considerações sobre conceitos e características na Pesquisa Qualitativa. *Congresso Ibero-Americano de Investigação Qualitativa-CIAIQ* 2015; 2:243-247.
11. Bowen GA. Document Analysis as a Qualitative Research Method. *Qualitative Res J* 2009; 9(2):27-40.
12. Centre for Science and Technology Studies. *VOSviewer*. Leiden: Leiden University; 2018.
13. van Eck NJ, Waltman L. How to normalize cooccurrence data? An analysis of some well-known similarity measures. *J Am Soc Inf Sci Tec* 2009; 60(8):1635-1651.
14. Brasil. Ministério da Saúde (MS). Portaria nº 1.444, de 28 de dezembro de 2000. Estabelece incentivo financeiro para a reorganização da atenção à saúde bucal prestada nos municípios por meio do Programa de Saúde da Família. *Diário Oficial da União* 2000; 29 dez.
15. Roncalli AG. Epidemiologia e saúde bucal coletiva: um caminhar compartilhado. *Cien Saude Colet* 2006; 11(1):105-114.
16. Brasil. Ministério da Saúde (MS). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Coordenação Nacional de Saúde Bucal. *Diretrizes da Política Nacional de Saúde Bucal*. Brasília: MS; 2004.
17. Brasil. Ministério da Saúde (MS). Conselho Nacional de Saúde (CNS). *3ª Conferência Nacional de Saúde Bucal: acesso e qualidade superando exclusão social*. Brasília: MS; 2005.
18. Brasil. Ministério da Saúde (MS). Gabinete do Ministro. Portaria nº 599, de 23 de março de 2006. Define a implantação de Especialidades Odontológicas (CEOs) e de Laboratórios Regionais de Próteses Dentárias (LRPDs) e estabelecer critérios, normas e requisitos para seu credenciamento. *Diário Oficial da União*; 2006.

19. Roncalli AG. Projeto SB Brasil 2010 - Pesquisa Nacional de Saúde Bucal revela importante redução da cárie dentária no país [editorial]. *Cad Saúde Pública* 2011; 27(1):4-5.
20. Botazzo C, Narvai PC. Editorial. *Cien Saude Colet* 2006; 11(1):4.
21. Botazzo C. Sobre a bucalidade: notas para a pesquisa e contribuição ao debate. *Cien Saude Colet* 2006; 11(1):7-17.
22. Gomes D, Ros MA. A etiologia da cárie no estilo de pensamento da ciência odontológica. *Cien Saude Colet* 2008; 13(3):1081-1090.
23. Brasil. Conselho Nacional de Educação (CNE). Câmara de Educação Superior (CES). Resolução CNE/CES 3, de 19 de fevereiro de 2002. Institui Diretrizes Curriculares Nacionais do Curso de Graduação em Odontologia. *Diário Oficial da União*; 2002.
24. Czeresnia D. Epidemiologia, Ciências Humanas e Sociais e a integração das ciências. *Rev Saúde Pública* 2008; 42(6):1112-1117.
25. Alano ERC. Introdução ao pensamento complexo. *PRACS* 2019; 12(3):141-148.
26. Celeste RK, Warmling CM. Produção bibliográfica brasileira da Saúde Bucal Coletiva em periódicos da saúde coletiva e da odontologia. *Cien Saude Colet* 2014; 19(6):1921-1932.
27. Minayo MCS, Gomes R. Significance and metrics of what is produced by Ciência & Saúde Coletiva. *Cien Saude Colet* 2017; 22(2):336-337.
28. Vanz SAS, Caregnato SE. Estudos de citação: uma ferramenta para entender a comunicação científica. *Em Questão* 2003; 9(2):295-307.
29. Adams J. The rise of research networks. *Nature* 2012; 490:335-336.

Article submitted 29/07/2020

Approved 30/07/2020

Final version submitted 01/08/2020