Production of knowledge on policy, planning, and management in *Journal Ciência & Saúde Coletiva*

Cristiani Vieira Machado (https://orcid.org/0000-0002-9577-0301) [1]
Luciana Dias de Lima (https://orcid.org/0000-0002-0640-8387) [1]
Aylene Bousquat (http://orcid.org/0000-0003-2701-1570) [2]
Marcus Vinicius Pereira-Silva (https://orcid.org/0000-0002-4135-4011) [3]
Daniela Rangel Affonso Fernandes (https://orcid.org/0000-0002-0969-2707) [4]
Elizabeth Artmann (https://orcid.org/0000-0002-8690-5964) [1]
Ana Luiza D'Avila Viana (http://orcid.org/0000-0003-4498-899X) [5]
Sheyla Maria Lemos Lima (https://orcid.org/0000-0003-1450-0498) [1]

Abstract *The area of Policy, Planning and Health Management (PPG) express the intersection between research, intervention and political action. The article analyzes the dynamics of knowledge production about PPG in the Journal Ciência & Saúde Coletiva (C&SC) from 1996 to 2019. The study articulates a bibliometric and qualitative approach to explore the profile of articles in three dimensions: thematic, methodological and authorship/institutional partnerships. 1680 PPG manuscripts were identified, corresponding to 28.3% of the total publications. Thematic analysis showed a strong influence of the context and the implementation of Unified Health System (SUS). Qualitative empirical studies predominated, followed by quantitative and quanti-qualitative studies. The combination of methodological procedures was frequent, with bibliographic review and interviews being the most cited. The average number of authors per article and national institutional partnerships increased. As most articles were published in Portuguese, the challenge of internationalization persists. The PPG area stands out in the Journal C&SC and in the production of scientific knowledge relevant to SUS.*

Key words *Health policy, planning, and management, Bibliometrics, Periodical publications*

[1] Escola Nacional de Saúde Pública Sérgio Arouca, Fiocruz. R. Leopoldo Bulhões 1480, Manguinhos. 21041-210 Rio de Janeiro RJ Brasil. cristiani.machado@fiocruz.br
[2] Faculdade de Saúde Pública, Universidade de São Paulo (USP). São Paulo SP Brasil.
[3] Casa de Oswaldo Cruz e Observatório em Ciência, Tecnologia e Inovação em Saúde, Fiocruz. Rio de Janeiro RJ Brasil.
[4] Farmanguinhos, Fiocruz. Rio de Janeiro RJ Brasil.
[5] Faculdade de Medicina, USP. São Paulo SP Brasil.

Introduction

Public health is characterized by the intersection between research, intervention, and political action and can be defined as a "field of knowledge and practices"[1] whose central objective is to produce knowledge aimed at improving health and quality of life.

The area of health policy, planning, and management (PPM), recognized as one of the main pillars of the field of public health (alongside epidemiology and social sciences in health), has traditionally explored the dynamics of health policy, systems, and services, with research output having a strong influence on health policy processes, particularly since the 1970s[2].

The complexity of the area of PPM arises from its interdisciplinary nature and close connection to the Brazilian health reform and the country's public health system, the Unified Health System (*Sistema Único de Saúde* or SUS). PPM studies cover a wide range of themes, drawing on the support of a broad variety of disciplines and distinct theoretical bases. The multiplicity of theoretical and methodological perspectives and the overlap between research and the different spheres of policy and action extend the area's boundaries, posing challenges for the epistemological and methodological rigor of studies[3].

The Brazilian periodical, *Journal Ciência & Saúde Coletiva* (*C&SC*), produced by the Brazilian Public Health Association (*Associação Brasileira de Saúde Coletiva* - Abrasco), emerged shortly after the 10th National Health Conference. Its trajectory reflects both the institutionalization and professionalization of public health as a scientific field and the intrinsic connection between academic production and policy transformations in Brazil's health system[4].

Considering that the *C&SC* is uniquely positioned to anchor the results of research, reflections, and debates on public health and bearing in mind that the journal celebrates 25 years of existence in 2020, it would seem fitting to explore the trends in PPM research and dynamics and characteristics of PPM studies published in the journal. Within this context, this article analyzes research output in the area of PPM described in articles published in the *C&SC* between 1996 and 2019, with the aim of contributing to existing knowledge on the characteristics of this output and obtaining a better understanding of the dynamics of this area within the field of public health.

Methods

This study combines bibliometric and qualitative approaches[5], applying statistical and mathematical methods to explore trends in research on PPM published in the *C&SC* between 1996 and 2019 and analyzing the profile of the selected articles based on a predetermined set of characteristics.

A search was conducted of articles published in all sections of the journal between 1996, the year in which the periodical was launched, and 2019, using the search terms *planejamento* (planning) OR *gestão* (management) OR *política* (policy) OR gestión (management) OR *planificación* (planning) in the title, abstract, and keywords fields. Spanish terms were used because it is not compulsory for articles submitted in Spanish to have abstracts, titles, and keywords written in Portuguese. The term *saúde* (health) was not included and we did not adopt exclusion criteria because it was assumed that all the retrieved articles directly addressed or were tangential to the study area.

The search was conducted manually on the journal's page on the SciELO website (https://www.scielosp.org/journal/csc/) (n = 1,153) and automatically using the MAURO search tool (https://mauro.icict.fiocruz.br/) (n = 1,788), developed to capture and export metadata from journals indexed in SciELO. It is worth mentioning that all *C&SC* issues are available on this database.

Initially, we generated two separate worksheets using Microsoft Excel: one for the manually retrieved articles and the other for the articles retrieved using MAURO. Despite using the same search strategy, the results of the manual and automatic searches differed, indicating that both collection procedures had data retrieval limitations. The two work sheets were then combined and duplicate articles were excluded, resulting in 1,680 articles.

The following article characteristics were analyzed: main themes covered, methods used, section of the journal in which the article was published, language in which the article was published, and authors and collaborators. Specific procedures were used to analyze each characteristic, as outlined below.

To construct the bibliometric map and analyze the main themes covered by the articles, we applied a visualization of similarities technique using the VOSviewer[6] and considering association strength[7]. Each term on the map is repre-

sented by a circle where the closer the circles the stronger the relation between the terms. The diameter and size of the labels indicate the number of occurrences of the term. We used the binary counting method, meaning that the presence of a given term is only considered once. The minimum number of occurrences of a term for analysis is five and 60% of the most relevant terms were selected. Clusters are made up of a minimum number of terms equal to 25% of the total number of terms.

Methods used were analyzed according to study type/design and methodology. The following categories were used for study type/design: 1) empirical studies (classified into quantitative, qualitative, or quanti-qualitative studies); 2) literature reviews; 3) theoretical-conceptual studies; 4) other study designs; and 5) not applicable, including articles where the study type/design was not identified. Case studies, historical analyses, conjunctural analyses, comparative studies, and intervention reports (i.e., method or dataset development, etc.) were classified as empirical studies. Articles documenting experiences, essays, and policy reviews not defined as empirical studies were classified as other study designs. Theoretical-conceptual studies included articles that explicitly discussed concepts or presented explanatory theories. Each article was assigned only one category.

Methodology was classified as follows: secondary data analysis, document analysis, literature review, individual interview or questionnaire, group methods (group interviews, focus groups, meetings), observation (participant or other observation, field diary, etc.), other, and not applicable. Each article was assigned one or more categories.

The sections of the journal in which the article was published were: Editorial, Thematic Article, Open Topics, Literature Review, Opinion, Review, Debate, Letters, Debaters (response to an article published in the Debate section), Highlights, Builders (biographies of important figures in the field of public health), and Press Release (summary of published articles).

The number of articles on PPM was compared to the overall number of articles published in the *C&SC* retrieved from the manual search of the journal's page on the SciELO website considering all articles published in all the abovementioned sections.

Authors and collaborators were categorized as follows: lead author's institution and country, number of authors, number of collaborating institutions, and presence of collaborating institutions from more than one state and/or country.

The analysis was performed for the whole study period (1996 to 2019) and comparisons were made between three eight-year periods: 1996-2003, 2004-2011, and 2012-2019.

Results and discussion

A total of 1,680 manuscripts were retrieved, which corresponds to 28.3% of all publications during the period 1996 to 2019. The number of articles on PPM as a proportion of overall publications increased over the period, from 23.1% (n = 110) in the period 1996 to 2003 to 29.3% (n = 981) in the period 2012 to 2019 (Table 1).

This can be partially explained by changes in publication frequency, which was six-monthly up to 1999, quarterly between 2000 and 2006, bi-monthly between 2007 and 2010, and monthly as from 2011. Other factors include: growth in the number of studies[8]; an increase in the number of post-graduate programs; the fact that post-graduate evaluation systems emphasize scientific output as a quality indicator[9]; and the dynamics of the implementation of the SUS[10].

Thematic analysis

The thematic analysis of the articles revealed clusters of terms that varied throughout the period (Figure 1).

For the overall period, the analysis identified 534 terms divided into two main clusters: "policies and health systems" and "health problems, diseases, and specific populations" (Figure 1a).

In the first cluster, which contains the largest number of terms (320), the core terms (those terms closely related to a large number of other terms) were: health system, SUS, and organization. This cluster also contains a group of terms that refer to the construction and shaping of policies and of the field, bringing together terms such as concept, principles, constitution, reflection, debate, construction, field, contribution, proposals, role, and society.

There are also other terms related to system management, like government, governance, social policy, decentralization, regionalization, and coordination. Finally, there is a group of terms connected to other terms that suggest the prominence of literature reviews among the articles, including terms like review, literature, database, search, and publication.

Table 1. Articles on health policy, planning, and management published in the *Journal Ciência & Saúde Coletiva* during the period 1996 to 2019 according to study type/design.

Study type/Design	Periods						Total	
	1996 to 2003		2004 to 2011		2012 to 2019		1996 to 2019	
	N	%	N	%	N	%	N	%
Qualitative studies	17	15.4	212	36.1	303	30.9	532	31.7
Quantitative studies	17	15.5	86	14.6	305	31.1	408	24.3
Other study designs (essays, policy reviews, articles documenting experiences)	30	27.3	109	18.5	98	10.0	237	14.1
Literature reviews (narrative, integrative, and systematic)	26	23.6	45	7.6	95	9.7	166	9.9
Not applicable	9	8.2	62	10.5	69	7.0	140	8.3
Quanti-qualitative studies	7	6.4	46	7.8	76	7.7	129	7.7
Theoretical-conceptual studies	4	3.6	29	4.9	35	3.6	68	4.0
Total number of publications	**110**	**100.0**	**589**	**100.0**	**981**	**100.0**	**1680**	**100.0**
PPM publications as % of total overall publications in the journal	23.1		27.8		29.3		28.3	

Figure 1a. Thematic clusters identified in PPM articles published in the *Journal Ciência & Saúde Coletiva* between 1996 and 2019.

Source: Research database, articles obtained from the Scielo website.

The second cluster consists of 214 terms related to specific health problems and diseases, such as violence, diet, nutrition, smoking, alcoholism, hypertension, and diabetes. The most notable specific population groups were women and children, followed by adolescents, the elderly, and men. Another notable group of terms refers to methodology, including words like data, information systems, year, increase, prevalence, characteristics, factor, variable, questionnaire, survey, and number. This group is closely related to terms like mortality and hospitalizations, suggesting epidemiological studies related to the use of health services.

The period 1996 to 2003 comprises the first eight years of the *C&SC*. The thematic analysis of this period revealed three closely related clusters: "SUS and social determinants", "the public health

field", and "implementation and management of the SUS" (Figure 1b). In the first cluster, containing 37 terms, the following terms stand out: SUS, planning, proposals, and aspects related to the social determinants of health, such as inequality, equity, status, environment, population, space, worker, civil society, morbidity, and violence. The second cluster, containing 23 terms, expresses reflections on the constitution of the public health field, including terms such as public health, field, perspective, institution, research, science, knowledge, publication, education, and establishment. The third cluster includes 21 terms closely related to the initial implementation and management of the SUS, such as health policy, public policy, implementation, decentralization, municipality, government, and funding.

In short, the predominant terms in the period 1996 to 2003 are those related to reflections on the public health field, determinants of the health-disease process, and the main challenges in the first decade of the implementation of the SUS, such as decentralization and funding.

In the period 2004 to 2011, we identified two thematic clusters: "public health, health system and services" and "health problems, diseases, and specific populations" (Figure 1c). The first cluster contains 223 terms referring to strategic issues related to the implementation of the SUS, with

greater emphasis on the health system, health services, health care, and primary health care. Terms related to health policy and SUS management continue to appear, including decentralization, reform, health policy, constitution, funding, and sustainability. Another term that stands out in this cluster, and closely related to the terms in the second cluster, is violence. The second cluster includes 208 terms related to health problems, diseases, and specific populations: women, adolescents, children, health status, alcoholism, and nutrition.

In the last period (2012 to 2019), which reflects the most recent phase of the implementation of the SUS, we identified two clusters with thematic characteristics similar to those of the previous period: "health systems and services" and "health problems, diseases, and specific populations" (Figure 1d). However, the relationship between the two clusters was weaker. The first cluster contains 372 terms closely related to the organization and management of health systems and services. Notable new terms include regionalization, sustainability, public participation, governance, and accountability, while terms that continue to appear include teams, primary care, and health services. The most visible terms in the second cluster (containing 315 terms) were children and adolescents, types of violence (traffic
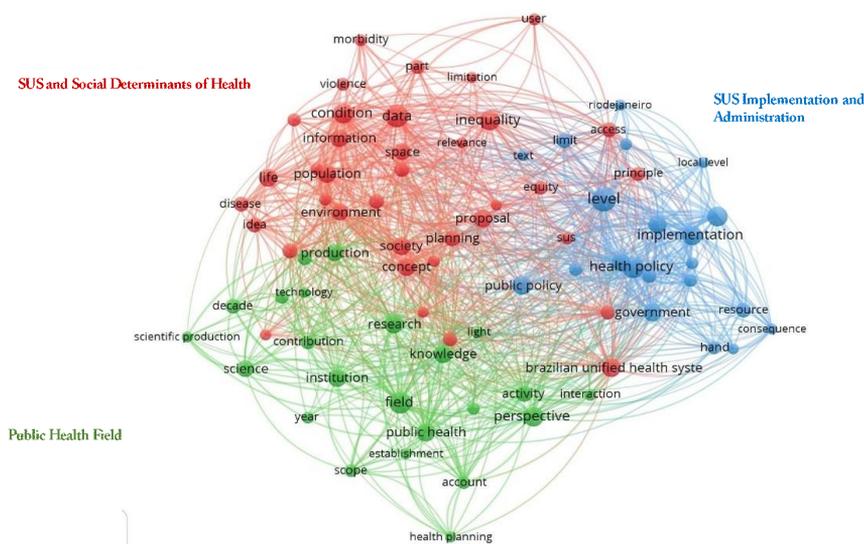

Figura 1b. Thematic clusters identified in PPM articles published in the *Journal Ciência & Saúde Coletiva* between 1996 to 2003.
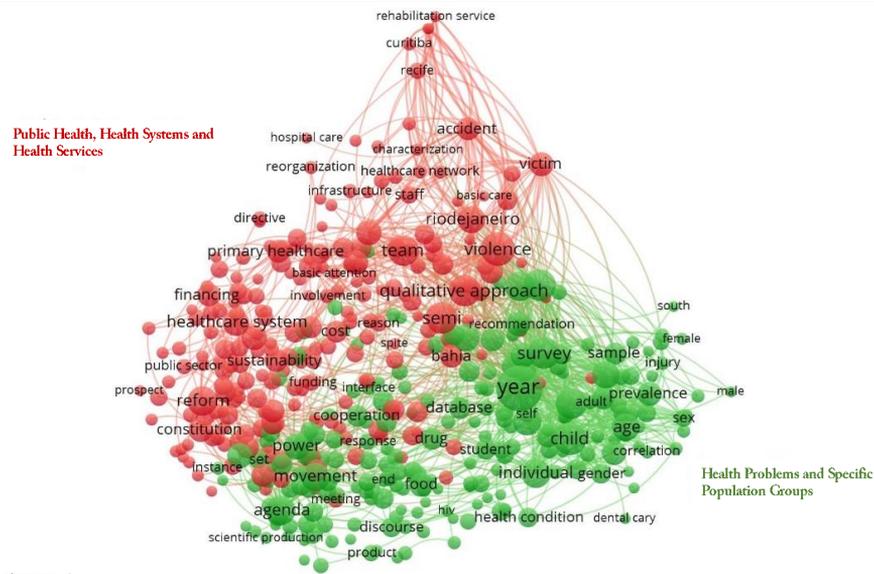
Figure 1c. Thematic clusters identified in PPM articles published in the *Journal Ciência & Saúde Coletiva* between 2004 to 2011.

Source: Research database, articles obtained from the Scielo website.

violence, sexual violence, and physical violence), and eating disorders (obesity).

Thus, prominent themes in the second period reflecting priority issues on the national health agenda, such as primary care and the Family Health Strategy[11], continued to appear in the last period, alongside new themes reflecting issues that were gaining in prominence such as regionalization[12], clearly illustrating the link between research output and the SUS implementation process.

With regard to health problems and specific population groups, it is interesting to note the emphasis given over the study period to violence and women's and children's health and, to a lesser extent, diet and nutrition. On the other hand, classic public health themes like infectious and chronic degenerative diseases were not prominent.

The findings show that the themes covered by the articles were strongly influenced by policy context at different moments in the implementation of the SUS.

Characterization of methods

The most common study type/design over the whole study period was qualitative stud-

ies (31.7%), followed by quantitative studies (24.3%), and other study designs (14.1%). Empirical studies accounted for 63.7% of all articles (1,072 manuscripts), with quanti-qualitative studies accounting for 7.7% of all articles (129 manuscripts) (Table 1).

In the first period (1996 to 2003), the most common study type/design was other study designs (27.3%), followed by literature reviews (23.6%), quantitative studies (15.5%), and qualitative studies (15.4%) (Table 1).

In the period 2004 to 2011, the most common study type/design was qualitative studies (36.1%), followed by other study designs (18.5%), and quantitative studies (14.6%) (Table 1).

The most common study type/design in the last period (2012 to 2019) was quantitative studies (31.1%), followed by qualitative studies (30.9%), other study designs (10.0%), reviews (9.7%), and quanti-qualitative studies (7.7%) (Table 1).

It is interesting to note the relatively large proportion of other study designs in the first two periods, particularly in the period 1996 to 2003, with empirical studies gaining more prominence in the most recent period. Of the 237 articles using other study designs, 146 were essays, 51 ar-

Figure 1d. Thematic clusters identified in PPM articles published in the *Journal Ciência & Saúde Coletiva* between 2012 to 2019.

Source: Research database, articles obtained from the Scielo website.

ticles documenting experiences, and 40 policy reviews.

One hundred and forty studies were not classified (not applicable) (Table 1). This category includes most of the articles published in the Opinion section (42) and all the articles published in the Debaters (44), Editorial (21), Review (16), Builders (8), Press Release (5), and Letters sections (1).

The most commonly used methodology over the whole study period was literature review (758), followed by individual interviews/questionnaires (625), document analysis (424), secondary data analysis (358), direct observation (163), and group methods (136) (Table 2).

Individual interviews/questionnaires were the most commonly used methodology in qualitative, quantitative, and quanti-qualitative studies (312, 222, and 81, respectively), while direct observations (129) and group methods (96) were most common in qualitative studies, although they were also cited in quanti-qualitative studies, other study designs, and in a few quantitative studies (Table 2). As expected, literature reviews were the most commonly used methodology in literature reviews, theoretical-conceptual studies, and other study designs.

Other methodologies were also reported, including clinical, nutritional, and anthropometric examinations and laboratory tests (Table 2).

The papers published between 1996 and 2019 were predominantly thematic articles (998), followed by open-topic (395) and review (81) articles. In the period 1996 to 2003, the majority of articles were thematic (82), followed by open-topic (13), opinion (8), and debate (7) articles. The predominance of thematic and open-topic articles continued into the next periods, with 343 and 135 articles and 573 and 247 articles in these categories in 2004 to 2001 and 2012 to 2019, respectively. In the last two periods, the proportion of articles published in other sections increased, particularly in the Review, Debate, Debaters, and Opinion sections.

Most of the articles published in the Thematic Articles section were qualitative studies (359), followed by quantitative (259) and quanti-qualitative (86) studies. A similar trend was witnessed in the Open Topics section, in which the majority of articles were qualitative (152), followed by quantitative (142) and quanti-qualitative (35) studies. Other study designs (185), which include essays, policy reviews, and articles documenting experiences, were also frequent in this section. Of

Table 2. Articles on health policy, planning, and, management published in the *Journal Ciência & Saúde Coletiva* during the period 1996 to 2019 according to study type/design and methodology.

Study type/design	Methodology							
	Secondary data analysis	Document analysis	Literature review	Individual interviews/ questionnaires	Group methods	Observation	Other	Not applicable
Qualitative studies	46	235	188	312	96	129	14	0
Quantitative studies	205	40	88	222	5	9	38	0
Quanti-qualitative studies	72	63	50	81	16	15	4	0
Literature reviews (narrative, integrative, and systematic)	5	8	166	0	0	0	2	0
Theoretical-conceptual studies	2	9	68	0	0	0	0	0
Other study designs (essays, policy reviews, articles documenting experiences)	28	69	198	10	19	10	13	1
Not applicable	0	0	0	0	0	0	0	140
Total	**358**	**424**	**758**	**625**	**136**	**163**	**71**	**141**

the articles published in the Debate section, 23 were classified as other study designs and 12 as qualitative studies. Only three articles in the Debate section were not classified in terms of study design. Only two manuscripts were published in the Highlights section, consisting of one qualitative study and one study using another type of study design. As expected, the study type/design was not identified in the articles published in the Debaters, Editorial, Review, Builders, and Press Release sections.

In general, the articles seem to have gained a more clearly defined structure over the period, possibly due to the maturing of methodology in the area. Although the predominance of qualitative studies was to be expected, there was also a significant proportion of quantitative and quanti-qualitative studies. Consequently, the use of a combination of research techniques was also common, although a large percentage of the empirical studies used document analysis and individual interviews.

On the other hand, the journal published essays, conjunctural analyses, and articles documenting experiences that were not presented as original research articles. This may be partially explained by the close link between the area of PPM and the dynamics of the implementation of the SUS and the radical way in which the area expresses the mix of "knowledge and practices" that constitutes the public health field[13,14]. Combined with the guidance of the journal's editorial policy with regard to the available sections for the submission of articles and the organization of thematic issues addressing key issues for the SUS, many of which combine calls for papers with invitations to public health experts. With regard to the area of PPM, a significant proportion of authors have both academic grounding and practical experience in management and health services, which is reflected not only in the themes, but also in the methodology and type of articles published.

Authors and collaborators

The mean number of authors per article was 3.3, with a median of 3.0 and standard deviation of 2.0. However, these numbers vary according to the period, increasing from 2.0 in the first period

to 2.8 in the second and 3.8 in the third period, as shown by Graph 1.

The proportion of articles with authors from more than one institution rose from 33.6% in the first period to 59.6% in the last period. However, the proportion of articles involving collaboration between institutions from more than one state was low, accounting for 28.4% of all articles in the last period and 23.8% of the articles published over the period as a whole. The proportion of articles involving collaboration between researchers from different countries was only 2.8% over the whole period.

The majority of lead authors were women (64.3%), with the data showing an increase in the proportion of female lead authors over the study period. With regard to the lead author's institution, the Oswaldo Cruz Foundation (Fiocruz) alone, including all its offices throughout the country, accounted for 23.2% of the articles. It is also worth mentioning that, in the period 1996 to 2003, this percentage was 42.7%. Fiocruz is followed by the University of São Paulo (6.8%), Rio de Janeiro State University, State University of Campinas (UNICAMP), University of Brasília (UNB), Federal University of Bahia (UFBA), Federal University of Rio de Janeiro (UFRJ), and Federal University of Minas Gerais (UFMG) (3.7, 3.5, 3.4, 3.2, 3.1, and 2.8%, respectively). It is also interesting to note that 7.7% of the articles were written by researchers working in different spheres of the SUS or health services.

With respect to language, only 90 articles (5.4%) were not published in Portuguese. The percentage of articles published in English over the whole study period was 31.5%. However, the journal witnessed a considerable increase in the proportion of articles published in English over the period, corresponding to 50.3% of all articles (493) in the last period. Only 58 articles were published in Spanish and five in French. With regard to author nationality, the large majority of lead authors were Brazilian (94.0%), followed by Portuguese (1.2%), Argentinian (0.8%), Canadian (0.7%), and American (0.7%).

It is important to highlight that, although the number of authors per article, and therefore the number of collaborating institutions, grew con-
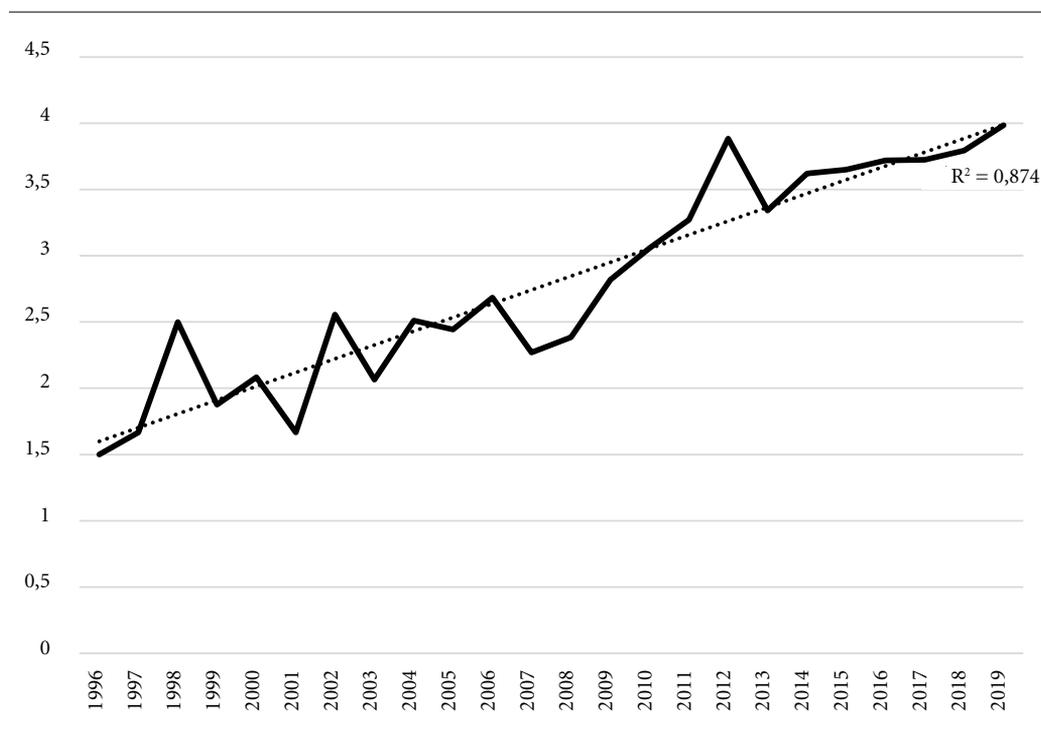
Graph 1. Mean number of authors per article in articles on health policy, planning, and, management published in the *Journal Ciência & Saúde Coletiva* in the period 1996 to 2019.

siderably over the study period, collaboration between institutions from more than one state or country remains timid. This may be associated with the predominance of authors from the Fiocruz and the small percentage of studies published in other languages other than Portuguese. It is important to note, however, that in the last period the journal made significant efforts to gain international exposure, with over half of the articles being published in English.

Conclusions

PPM was a prominent theme in the *C&SC* over the study period, with the number of articles increasing in both absolute and relative terms. The profile of the articles on PPM reflect not only the journal's editorial policy, but also the dynamics of knowledge production in the public health field and the relationship between the area and the policy processes, context, and dynamics of the SUS expressed in the multiple and varying themes covered throughout the study period. In this regard, reflections on the constitution of the field of public health and the SUS assumed prominence in the first period, while themes related to the implementation of the SUS closely related to specific services, health problems, and population groups stood out in the last period.

The articles also reflect the methodological diversity of studies in the area, and the analysis suggested increasing methodological density over the period. On the other hand, the journal maintained articles with a more flexible format – such as essays, opinion pieces, and debates – seeking to embrace the fluidity of the reflections produced in the public health field, particularly in the area of PPM.

Although the *C&SC* has invested in internationalization, an unfavorable climate for support and funding have hindered progress towards this goal. Increasing the publication of articles involving national and international inter-institutional collaborations therefore remains a challenge.

One of the limitations of this study is that it was restricted to a single scientific journal. Directions for future research include the comparison of international and national trends in PPM research and the updating of comprehensive analyses of research in the area encompassing both scientific articles and books. These efforts are important to highlight the contributions of the area of PPM to the field of public health and understand the transformations in health systems, especially at a time when science and social policies are facing various questions and constraints. Within this context, the *C&SC* continues to be one of the main bastions of science and expression of the public health field in the production of socially relevant knowledge.

Collaborations

CV Machado, LD Lima, A Bousquat, MV Pereira-Silva, DRA Fernandes, E Artmann, ALD Viana and SML Lima worked on the conception, survey and analysis of information, in the preparation and revision of the manuscript.

References

1. Paim J, Almeida Filho N. *A crise da saúde pública e a utopia da saúde coletiva*. Salvador: Casa da Qualidade Editora; 2000

2. Teixeira CF. Produção Científica na Área de Política, Planejamento e Gestão em Saúde 1975-2010: temas e teorias. In: Baptista TWF, Azevedo CS, Machado CV, organizadores. *Políticas, Planejamento e Gestão em Saúde - Abordagens e Métodos de Pesquisa*. Rio de Janeiro: Editora Fiocruz; 2015. p. 81-111

3. Baptista TWF, Azevedo CS, Machado CV, organizadores. *Políticas, Planejamento e Gestão em Saúde - Abordagens e Métodos de Pesquisa*. Rio de Janeiro: Editora Fiocruz; 2015.

4. Minayo MCS, Gomes R, Almeida MF, Goldbaum M, Carvalheiro JR. A Abrasco faz Ciência e avança conhecimentos: contribuições da Ciência & Saúde Coletiva e da Revista Brasileira de Epidemiologia. In: Lima NT, Santana JP, Paiva CHA, organizadores. *Saúde Coletiva: a Abrasco em 35 anos de história*. Rio de Janeiro: Editora Fiocruz; 2015. p. 101-114.

5. Pritchard A. Statistical bibliography or bibliometrics? *Journal of Documentation* 1969; 25(4):348-349.

6. Van Eck NJ, Waltman L. Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics* 2010; 84(2):523-538.

7. Van Eck NJ, Waltman L. How to normalize cooccurrence data? An analysis of some well-known similarity measures. *J Am Soc Inf Sci Technol* 2009; 60(8):1635-1651.

8. Paim J, Teixeira CF. Política, Planejamento e Gestão em Saúde: balanço do estado da arte. *Rev Saude Publica* 2006; 40(n. esp.):73-78.

9. Novaes HMD, Werneck GL, Cesse EAP, Goldbaum M, Minayo MCS. Pós-Graduação senso estrito em Saúde Coletiva e o Sistema Único de Saúde. *Cien Saude Colet* 2018; 23(6):2017-2025.

10. Minayo MCS, Gomes R. Ciência & Saúde Coletiva no contexto nacional e internacional da divulgação científica. *Cien Saude Colet* 2015; 20(7):2013-2022

11. Machado CV, Faria TW, Nogueira CO. Políticas de saúde no Brasil nos anos 2000: a agenda federal de prioridades. *Cad Saude Publica* 2011; 27(3):521-532.

12. Viana ALD, Lima LD, organizadores. *Regionalização e Relações Federativas na Política de Saúde no Brasil*. Rio de Janeiro: Contra Capa; 2011.

13. Rivera FJU, Artmann E. *Planejamento e Gestão em Saúde: conceitos, história e propostas*. Rio de Janeiro: Ed. Fiocruz; 2020.

14. Teixeira CF. *Planejamento em Saúde: conceitos, métodos, experiências*. Salvador: Edufba; 2010.