

**Epidemiology and Collective Health: historical aspects and evolution of scientific production****Epidemiologia e Saúde Coletiva: aspectos históricos e evolução da produção científica****Epidemiología y Salud Colectiva: aspectos históricos y evolución de la producción científica****Received: 07/11/2019****Approved: 22/05/2020****Published: 01/07/2020****Gustavo Correia Basto da Silva<sup>1</sup>  
Osires de Medeiros Melo Neto<sup>2</sup>  
Waleska Fernanda Souto Nóbrega<sup>3</sup>**

Epidemiology, with Collective Health, forms the pillar of scientific health research in order to contribute substantially to the development of actions and services. Thus, this article aims to reflect on the historical aspects and evolution of scientific production in the fields of epidemiology and collective health. A survey was carried out in LILACS, SciELO and VHL databases in 2019, with the following descriptors: *Public Health, Epidemiology and Applications of epidemiology*, using the Boolean operator "AND". The guiding question was: How is the current scene of epidemiology and collective health? 15 productions were considered, and the analysis showed that interest in the theme is not recent and has increased over time; however it still has a limited number of articles, geographically concentrated in the south and southeast regions, marked by the low diversity of theories and weaknesses in methodological contributions.

**Descriptors:** Public Health; Epidemiology; Uses of epidemiology.

A Epidemiologia, em comunhão com a Saúde Coletiva, forma o pilar da pesquisa científica em saúde, de modo a contribuir substancialmente para o desenvolvimento de ações e serviços. Desse modo, o presente artigo tem como objetivo realizar uma reflexão acerca dos aspectos históricos e evolução da produção científica dos campos da epidemiologia e saúde coletiva. Realizou-se levantamento em bases de dados LILACS, Scielo e BVS, em 2019, com os seguintes descritores: *Saúde Pública, Epidemiologia e Aplicações da epidemiologia*, utilizando o operador booleano "AND". A pergunta norteadora foi: Como se encontra o panorama atual da epidemiologia e saúde coletiva? Considerou-se 15 produções e, a análise demonstrou que o interesse na temática não é recente e tem aumentado ao longo do tempo, entretanto ainda conta com um número restrito de artigos, concentrados geograficamente nas regiões sul e sudeste, marcados pela baixa diversidade de teorias e por fragilidades de aportes metodológicos.

**Descritores:** Saúde Pública; Epidemiologia; Aplicações da epidemiologia.

La Epidemiología, junto con la Salud Colectiva, constituye el pilar de la investigación científica en la salud para contribuir sustancialmente al desarrollo de acciones y servicios. Así pues, este artículo tiene por objeto reflexionar sobre los aspectos históricos y la evolución de la producción científica en los ámbitos de la epidemiología y la salud colectiva. En 2019 se realizó una encuesta en las bases de datos LILACS, Scielo y BVS, con los siguientes descriptores: *Salud Pública, Epidemiología y Aplicaciones de la epidemiología*, utilizando el operador booleano "AND". La pregunta orientadora fue: "¿Cómo está el panorama actual de la epidemiología y la salud colectiva?". Se consideraron 15 producciones y el análisis demostró que el interés por el tema no es reciente y ha aumentado con el tiempo, sin embargo, todavía hay un número restringido de artículos, concentrados geográficamente en las regiones del sur y el sudeste, caracterizados por la escasa diversidad de teorías y la fragilidad de los aportes metodológicos.

**Descritores:** Salud Pública; Epidemiología; Aplicaciones de la epidemiología.

1. Dental surgeon. Master in Public Health. PhD student in Dentistry at the Universidade Estadual da Paraíba (UEPB), Campina Grande/PB, Brazil. ORCID: 0000-0002-6081-2540 E-mail: gugacorreiaa@gmail.com

2. Civil engineer. Specialist in Geotechnics. Master's student in Civil and Environmental Engineering at the Universidade Federal de Campina Grande (UFCG), Campina Grande/PB, Brazil. ORCID: 0000-0002-2535-0969 E-mail: osiresdemedeiros@gmail.com

3. Dental surgeon. Master in Public Health. PhD student in Dentistry at UEPB, Campina Grande/PB, Brazil. ORCID: 0000-0002-8698-5650 E-mail: waleska\_bic@hotmail.com

## INTRODUCTION

Several concepts were proposed during the history of epidemiology, but its name is unanimous as the study of the distribution of diseases and their conditioning factors in a given population, acting in the prevention, control and eradication of these diseases<sup>1</sup>. Epidemiology arises with the proposition to study communicable diseases, such as cholera, typhus, the plague, smallpox and yellow fever, investigating the prevailing epidemics of the time, so that there was a control of their spread by society.

Due to changes in the population's morbidity profile, due to the decrease in the occurrence of communicable diseases and the progressive aging of the population, epidemiology began to focus its research on non-communicable and non-infectious diseases and, also, worrying about unrelated events exclusively to diseases, as is the case of studies on violence, harmful habits and birth weight<sup>2</sup>. As a result, the concept of the uniqueness of diseases was gradually changed, giving rise to multicausal thinking, in which the interaction between agent, host and environment is responsible for the emergence of diseases.

At the end of the last century, social epidemiology emerged on the Latin American scene, encompassing the views turned to the health-disease process, and focusing on social inequalities and their impact on the health of the population, which has, since then, led to a broader analysis of aspects previously unknown<sup>3</sup>.

Epidemiology has its roots in common with the history of medicine: Hippocrates already linked the appearance of diseases to the interaction between individual and environment, but over time his theories were abandoned, giving way to the theory of miasmas, from which it was believed that epidemics arose through poor air quality, resulting from decomposing emanations of animals, plants and patients<sup>2</sup>.

With the linkage of the epidemiological area in collective health, a new guise for epidemiology has been modified over time, expanding its health practices, when it was no longer restricted to the description of distribution of diseases and their causal factors, but enabling a organizational project of new so-called technological practices<sup>4</sup>.

As a result of advances achieved by epidemiology - with merit to the research developed by scholars like Oswaldo Cruz and Carlos Chagas - today this science uses biological sciences, statistics and social sciences as its basic pillars for its development<sup>5</sup>.

Collective health is portrayed under a multidisciplinary view, working together with the disciplines of biomedicine, statistics, biology and human sciences. Characterized by the history of struggles towards an effective modification of the scientific and socio-political scenario of health and society - like the Sanitary Reform and all its constructivist legacy - this area has three subdivisions: epidemiology, planning/management and health and science services humanities<sup>6</sup>.

Given this situation, it is worth highlighting the importance that both areas place on the planning of all health actions, causing constant dependence on the development of studies aimed at improving methods in these areas. Thus, this article aims to reflect on the historical aspects and evolution of scientific production in the fields of epidemiology and collective health.

## METHOD

This is a reflection on the main historical and evolutionary landmarks in the large area of Collective Health, with emphasis on epidemiology. The guiding question was: How is the current scene of epidemiology and collective health?

For the construction of the theoretical framework, a research was carried out, from June to September of 2019, in the LILACS, Scielo and VHL databases, with the following descriptors: Public Health, Epidemiology and Epidemiology Applications, using the Boolean operator "AND", with the central theme of the article as an eligibility criteria, necessarily focused on the fields of

activity of the areas under study. Because it is a historical rescue, the search also included articles published more than ten years ago.

## RESULTS

In order to base the debate, 15 references were considered in the bases at the time of the survey (2019).

## DISCUSSION

Concomitantly with the epidemiological transition, a change in the pattern of knowledge production in the areas of Collective Health and Epidemiology has been observed, justified by the considerable decline in research involving infectious diseases and, on the other hand, an increase in production involving chronic diseases.

A study<sup>7</sup> was carried out with the main objective of analyzing the growth of epidemiological research in Brazil when compared with the total of indexed publications and the publications of several countries in Latin America. From this study, it was possible to observe an increase in Brazilian production in relation to Latin America, with emphasis on the high level of internationalization of scientific production, an indispensable factor for the rise in the academic environment.

As for academic productions, there was a growing appearance of graduate programs in Collective Health in Brazil, comparing the 1970s with the current times. Most of these programs are concentrated in the Southeastern region. Contrastively, the Northern region had only a total of 2% of the programs until the year of 2013.

To verify the potential of these programs, CAPES conducts four-year evaluations, in which the productions are analyzed in a quantitative way, establishing goals always higher than those of the previous evaluation, so that there is an incentive related to production. As with any continuous evaluation process, there is a need for models of readaptative thinking so that there are no barriers to stagnating the criteria and, as a result, arbitrariness between the areas<sup>8</sup>.

Production in the area of collective health has grown considerably, especially in relation to quantitative research, perhaps due to better acceptance by high-impact journals. But the pressure for the constant need for publication has influenced the emergence of problems that can cause loss of information quality: low creativity, low innovation, reproduction of the same results, increased fraud<sup>9</sup>.

The study of institutions can clarify who are the most active in the area and who can influence the type of research being carried out, providing an understanding of who they are and how other research institutions work so that they can foster their growth and collaboration with others institutions are possibilities for public policies in the area.

However, Collective Health is a complex movement that can be defined only in its broadest configuration, so it is only with the use of innovative methods that new ways of evaluating scientific production in this area can be envisaged and results that can better direct research being performed<sup>10</sup>.

Due to high demand from CAPES, teachers of collective health are forced to increase their production in order to be accepted in graduate programs, as well as they can increase the probability of being benefited with project financing grants by research agencies. promotion.

The appreciation for unlimited production gives rise to doubtful scientific quality, since the academic environment is bound to produce uncontrollably so that there is recognition, when in fact, they could establish qualitative goals for publication, in which criteria such as creativity, innovation and theoretical foundation appropriate.

On the other hand, from the results obtained by a qualitative study, there was a greater incorporation of qualitative treatments to studies presented in scientific events in the field of collective health, even when these works were focused on epidemiology and public health -

areas preferably technicians. This increase in human sciences in scientific productions in collective health is valid because it can expand concepts and enable an even more multidisciplinary approach<sup>5</sup>.

In practical terms, Epidemiology is seen as an indispensable tool to support health decision-making processes, in addition to boosting the formulation of public policies active in prevention, treatment or rehabilitation, always inserting itself strongly in the context of collective health. In Brazil, this emerges as a discipline alongside Public Health, at the Universidade de São Paulo, in the 1920s and, subsequently, propagates in partnership with ABRASCO in the development of commissions responsible for the preparation of master plans<sup>11</sup>. Currently, it is quite consolidated in the graduate field, in the form of academic and professional master's and PhD degrees<sup>12</sup>.

Due to the need to identify the determinants of the health-disease process, epidemiology currently faces constant global challenges, due to the fluctuation of morbidity profiles, requiring a level monitoring and with fast resolving mechanisms, supported by knowledge from human sciences, for example. enable knowledge of the space in which the population is and to what limit this space can influence health<sup>13</sup>.

It can be seen that the publications so far have a limited number of articles, concentrated geographically, marked by the low diversity of theories and weaknesses in methodological contributions.

It points to the need to adopt other methodological approaches on the topic, in order to achieve evaluative research capable of comparing different models and using research procedures, methods and instruments<sup>14,15</sup>.

## CONCLUSION

Epidemiology and Collective Health and its scientific production demonstrate that interest in the theme is not recent and has increased over time. It is suggested from this reflection studies with greater temporality and other methods that can bring the state of the art in the area.

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**CONTRIBUTION**

**Gustavo Correia Basto da Silva** contributed with the conception of the study, writing and revision. **Osires de Medeiros Melo Neto** and **Waleska Fernanda Souto Nóbrega** participated in writing and revision.

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