THE STATE OF KNOWLEDGE IN PUBLIC HEALTH: EPISTEMOLOGICAL REFLECTION

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Abstract: This article presents an epistemological reflection on the state of knowledge in Public Health, articulating classical theoretical foundations and contemporary contributions to understand the paradigms that structure the field. The analysis begins with a historical overview of the development of Public Health, from the predominance of the biomedical model to the incorporation of interdisciplinary approaches and the social determination of health. This qualitative and exploratory research was based on a systematic literature review and critical analysis of national and international scientific publications, following Brazilian ABNT standards. The study identifies trends in scientific production, highlighting the growth of quantitative and epidemiological research, as well as the gradual appreciation of qualitative methods and community knowledge. It argues that the advancement of Public Health requires ongoing dialogue between different epistemological frameworks, integration between science and public policies, and the enhancement of knowledge translation into social practice. It concludes that understanding epistemological foundations is essential for guiding research, management, and policy-making that effectively and equitably address contemporary health challenges.

Keywords: Public Health. Epistemology. Scientific production. Social determinants.

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INTRODUCTION

Public Health is a multidimensional field of knowledge and social practice, located at the interface between biological, social and human sciences. Its genesis dates back to the need to understand and intervene on collective determinants of health, overcoming the restricted view centered on the disease and the individual. Historically, the field has been consolidated from interactions between Preventive Medicine, Epidemiology and health policies, expanding to encompass social, environmental, cultural and economic dimensions that influence population well-being. In Brazil, Public Health acquired particular contours from the second half of the twentieth century, incorporating the perspective of Collective Health, marked by criticism of the hegemonic biomedical model and by the valorization of interdisciplinary and participatory approaches.

At the international level, the evolution of the field was marked by conceptual and normative frameworks, such as the International Conference on Primary Health Care (Alma-Ata, 1978) and the Ottawa Charter (1986), which expanded the scope of health promotion and reinforced intersectoriality as a structuring principle. However, scientific production in Public Health continues to face significant epistemological challenges, such as the fragmentation of knowledge, the overlapping of paradigms, and the difficulty of articulating scientific evidence with community knowledge and local experiences.

In this scenario, the state of knowledge emerges as a methodological tool to systematize and critically analyze what has already been produced on a given topic, allowing the mapping of trends, gaps and potentialities. Unlike the state of the art, which privileges the most innovative theoretical and methodological contributions, the state of knowledge seeks to gather, describe and interpret the totality of the available production within a defined cut, be it temporal, geographic or thematic. This approach is especially relevant for complex and dynamic fields, such as Public Health, where knowledge is produced by different disciplines, institutional agents, and epistemological traditions.

Epistemological reflection, in this context, plays a central role. It not only questions the validity and internal coherence of the theories and methods employed, but also investigates the

historical, political, and cultural conditions that shape the production of knowledge. It is, therefore, a matter of recognizing that scientific knowledge is not neutral, but situated, marked by ontological and methodological choices that reflect disputes of meaning and power. In Public Health, this analysis reveals how certain paradigms — such as the biomedical, the social or the ecological — gain hegemony and guide policies, while others remain marginalized.

The study adopts the design of a literature review of the "state of knowledge" type, articulated with an epistemological analysis. The choice for this type of approach is justified by its potential to systematize what has already been published on the subject, allowing a panoramic view of theoretical currents, research practices and persistent gaps.

The SciELO, LILACS, PubMed, and Web of Science databases were selected as the main sources, due to their relevance in the health area and the scope of national and international publications. The time frame considered the period from 2013 to 2023, in order to contemplate the most recent scientific production and capture transformations resulting from political changes, health crises (such as the COVID-19 pandemic) and technological advances in the field of health.

The descriptors used were "Public Health", "Collective Health", "State of Knowledge", "Epistemology" and "Scientific Production", combined through Boolean operators (AND, OR) according to the specificities of each database. The inclusion criteria included articles published in peer-reviewed journals, written in Portuguese, English, or Spanish, and that presented explicit discussions on theoretical, methodological, or epistemological foundations related to Public Health. Studies of a merely technical-operational nature, book reviews, and institutional documents without scientific analysis were excluded.

The analysis process followed three main stages: (1) Exploratory reading of the titles and abstracts for initial screening; (2) Analytical reading of the full content of the selected texts, with a record of the theoretical approaches, methods used, objects of study and main conclusions; (3) Interpretative synthesis, guided by pre-defined categories (predominant theoretical paradigms, interdisciplinary integration, gaps and perspectives).

The epistemological dimension of the analysis was constructed from the comparison of the references identified in the articles with classic and contemporary models of knowledge production in health, according to authors such as Thomas Kuhn, Gaston Bachelard, Boaventura de Sousa Santos and Naomar de Almeida Filho. This approach allowed us to examine not only the frequency of certain paradigms, but also their internal coherence, compatibility with other perspectives, and capacity to respond to concrete challenges in public health.

It is recognized that, although the state of knowledge is comprehensive, it has inherent limitations, such as the dependence of indexing on the databases consulted and the possible exclusion of relevant productions published in non-indexed vehicles or in gray literature. Even so, the methodology adopted seeks to offer a solid and consistent panorama, capable of sustaining the epistemological reflection proposed in this article.

Thus, this article aims to carry out a brief epistemological reflection on the state of knowledge in Public Health, identifying the main theoretical and methodological trends, as well as the gaps that persist. It seeks, with this, to contribute to a more integrated and critical understanding of the field, favoring the articulation between scientific and social knowledge, in line with the contemporary demands of health and well-being.

PUBLIC HEALTH: CONCEPTS, EVOLUTION AND SCOPE

Public Health, as a field of knowledge and social practice, is a multidisciplinary area focused on the protection, promotion and recovery of the health of populations, based on the understanding of the social, economic, cultural and environmental determinants that influence collective well-being. Although health is historically conceived as an individual attribute, the concept of Public Health emerges from the need to address problems that transcend the individual sphere and that require coordinated and collective actions (Rosemberg, 1995).

According to Winslow (1920), in one of the most classic definitions, Public Health is “the

science and art of preventing disease, prolonging life, and promoting physical and mental health, through organized community efforts for environmental sanitation, infection control, health education, and the development of medical and nursing services" (Winslow, 1920). This formulation, still considered a reference today, highlights three central dimensions: prevention, social organization, and the role of scientific knowledge.

In Brazil, the contemporary conception of Public Health was strongly influenced by the Health Reform movement, which, from the 1970s and 1980s onwards, proposed a broader view of health, understanding it as "the result of the conditions of food, housing, education, income, environment, work, transportation, employment, leisure, freedom, access and possession of land and access to health services" (Brasil, 1986). This formulation, enshrined in the Final Report of the 8th National Health Conference, broke with the restricted logic of the biomedical model and inspired the construction of the Unified Health System (SUS), established by the Federal Constitution of 1988.

The historical evolution of Public Health can be analyzed in three major periods. The first, between the eighteenth and nineteenth centuries, is marked by European Social Medicine and the first public hygiene actions, strongly linked to the control of epidemics and industrial urbanization (Rosen, 1994). At that time, approaches centered on sanitation and environmental inspection prevailed, with emphasis on the contributions of John Snow, considered one of the founders of modern Epidemiology.

The second period, at the beginning of the twentieth century, is characterized by the institutionalization of Public Health as an academic discipline and the creation of international health cooperation organizations, such as the Pan American Health Organization (1902) and the World Health Organization (1948). In this phase, national health systems and mass vaccination strategies are consolidated, still with the predominance of the biomedical paradigm, but already with increasing attention to socioeconomic factors.

The third period, which extends to the present day, is marked by the conceptual expansion and strengthening of Collective Health in Brazil and of integrative perspectives in the international scenario, such as health promotion, equity and intersectoriality (BUSS; Pellegrini Filho, 2007).

The Alma-Ata Conference (1978) and the Ottawa Charter (1986) were key events in this process, reaffirming the importance of primary care, social participation and intersectoral action as structuring elements of health policies.

Currently, Public Health faces increasingly complex challenges, resulting from global processes such as climate change, demographic and epidemiological transition, accelerated urbanization, and economic globalization. Recent studies point to the need to overcome fragmented models and incorporate systemic approaches that consider the interdependencies between human, animal, and environmental health — a perspective known as One Health (Gibbs, 2014; Lerner; Bergeson, 2020). This view reinforces that health cannot be understood in isolation, but as a product of networks of ecological, social, and political interactions.

In the Brazilian context, the scope of Public Health is manifested in a wide spectrum of actions, from epidemiological monitoring and control of communicable diseases to policies for the prevention of chronic diseases, promotion of healthy habits and sanitary regulation. In addition, the cultural and socioeconomic dimension of the country requires strategies adapted to regional inequalities and the diversity of populations, including indigenous peoples, quilombola communities, and populations in situations of urban vulnerability (Paim; Almeida Filho, 2014).

From the epistemological point of view, Public Health has a unique characteristic: it is structured as a hybrid field of knowledge, which integrates quantitative and qualitative methods, technical and community knowledge, and combines biomedical, social and environmental approaches (Almeida Filho; Jucá, 2002). This heterogeneity, far from being a problem, is a source of power, as it makes it possible to understand complex problems from multiple perspectives. However, it also imposes challenges to the formation of theoretical and methodological consensus, generating tensions between disciplines and currents of thought.

The expansion of the concept of health and the incorporation of social and environmental determinants reinforce the need for an interdisciplinary view. As Dahlgren and Whitehead (1991) point out, the health status of a population is the result of a gradient ranging from individual factors

and lifestyles to broad socioeconomic, cultural, and environmental conditions. This conceptual matrix is fundamental to guide more effective and equitable public policies.

Nevertheless, contemporary Public Health is marked by an expanded conception, which goes beyond the biomedical dimension and incorporates social, cultural, economic and environmental determinants. Its historical development reflects changes in the ways of understanding and intervening in collective health, moving from hygienist actions focused on epidemic control to integrated and participatory strategies, aimed at promoting health and equity. At the same time, the field continues to face epistemological, political, and operational challenges that require constant reflection and innovation. Thus, Almeida Filho and Jucá (2002) observe that understanding the concepts, evolution and scope of Public Health are essential to critically analyze its state of knowledge, identify trends and gaps, and guide research and intervention strategies capable of responding to the complex demands of contemporary society.

STATE OF KNOWLEDGE: CONCEPT AND APPLICATION

The term "state of knowledge" refers to a specific type of literature review whose central objective is to identify, systematize and critically analyze the totality of existing academic productions on a given topic, in a previously defined time and geographic frame. It is a methodology that aims to map what has already been produced, highlighting trends, theoretical approaches, methods employed, gaps and potentials for future investigations (Morosini; Fernandes, 2014).

Although often confused with the "state of the art", there are important distinctions between the two. The state of the art emphasizes works, theories and methodologies that are more innovative or have a greater impact on the field, while the state of knowledge seeks to encompass the set of available production, not being restricted to works considered "reference" or "pioneering" (Ferreira, 2002). This difference is relevant, because the breadth of the state of knowledge allows for a panoramic and comprehensive view, which is fundamental for areas of knowledge in constant expansion, such as

Public Health.

Historically, the practice of knowledge synthesis dates back to the first systematic reviews in Medicine and the Social Sciences, but the use of the term "state of knowledge" was consolidated in Brazil from the 1990s onwards, especially in the area of Education, when researchers began to use this approach to map scientific production in theses and dissertations (Romanowski; Ens, 2006). Since then, its application has expanded to other areas, including Collective Health, as a strategy to understand not only the volume of publications, but also the epistemological and methodological paths taken by researchers.

From the methodological point of view, the state of knowledge presents some central stages. The first consists of a clear definition of the object of study, delimiting key concepts, target population, thematic area, time and geographic cut. This step is essential to avoid dispersion and ensure internal coherence to the analysis (Pizzani et al., 2012). Next, the selection of information sources is carried out. In the health area, the most used databases include SciELO, LILACS, PubMed, Web of Science, and Scopus, as well as repositories of theses and dissertations, such as the Brazilian Digital Library of Theses and Dissertations (BDTD). The choice of sources must be judicious, considering criteria of relevance, comprehensiveness and reliability.

The third step involves the development of a search strategy, usually combining controlled descriptors — such as Health Sciences Descriptors (DeCS) or Medical Subject Headings (MeSH) terms — with Boolean operators to refine document retrieval (Haddad; Pereira Neto, 2015). The reproducibility of this strategy is an important aspect to ensure the transparency of the process. After collection, the material is sorted, applying previously established inclusion and exclusion criteria. In a state of knowledge, the objective is not to restrict the sample to studies of high methodological quality, as in systematic reviews, but to include all the relevant production for the topic. Therefore, studies of a theoretical, empirical, methodological or documentary nature can be incorporated, as long as they meet the defined criteria.

The analysis of documents can be conducted through different approaches, such as content

analysis (Bardin, 2011), bibliometric analysis or thematic mapping. This stage aims to identify patterns, trends, and gaps in scientific production. In epistemologically-based studies, such as the present one, the theoretical perspectives adopted, the predominant scientific paradigms and the possible asymmetries in the valorization of different types of knowledge are also examined. The application of the state of knowledge in the area of Public Health is particularly relevant. As it is an interdisciplinary field, with strong production both in the academic and institutional spheres, the mapping of its scientific production contributes to understanding how different areas interact, which methods are most used, and how research agendas evolve (Almeida Filho; Jucá, 2002).

In addition, the state of knowledge provides subsidies for the formulation of public policies and decision-making in health. By revealing which themes are being prioritized in scientific production, it allows the identification of neglected areas that need greater investment in research. For example, a survey may indicate that certain population groups — such as indigenous peoples or riverine populations — receive little attention in epidemiological studies, highlighting the need to expand inclusive approaches (Paim; Almeida Filho, 2014).

The potential of this methodology for analyzing the epistemological influences that permeate scientific production is also a relevant aspect to be considered. According to Costa et al. (2021), the process of examining which theories, paradigms, or conceptual frameworks are most cited and applied, allows the researcher to identify hegemonies and absences. For example, the prevalence of a biomedical focus to the detriment of socio-environmental perspectives may indicate the need to promote greater epistemological diversity in the field.

In contemporary times, the state of knowledge also benefits from the advancement of digital tools for data analysis and text mining, which make it possible to process large volumes of publications in a more agile and detailed way. Software such as VOSviewer, Bibliometrix, and NVivo allow you to visualize collaboration networks, maps of keyword co-occurrence, and temporal evolution of themes, enriching analyses and expanding the capacity for synthesis (Costa et al., 2021). Therefore, the state of knowledge is a methodological approach that, by bringing together breadth and systematicity,

becomes an essential tool for understanding complex scientific fields such as Public Health. According to Almeida Filho and Jucá (2002), its application enables the descriptive mapping of production, as well as a critical reading that considers the epistemological and sociopolitical dimensions of science. In the context of this article, this methodology will be mobilized to identify the main theoretical and methodological trends in recent scientific production on Public Health, as well as the gaps and challenges that persist.

EPISTEMOLOGY AND PUBLIC HEALTH

The relationship between epistemology and Public Health is central to understanding how knowledge is produced, validated, and applied in this field, as well as to recognizing the historical, political, and cultural conditioning factors that guide its practice. Epistemology, understood as the critical study of the foundations, methods, and validity of knowledge (Chalmers, 1999), provides tools to analyze the conceptual basis of Public Health, questioning its assumptions, methods, and social implications. In the context of health, this means reflecting on the nature of the knowledge that sustains it, the modes of production and circulation of this knowledge, and its interactions with different scientific and social paradigms.

Historically, thinking in Public Health has been shaped by a predominance of the biomedical paradigm, based on the positivist conception of science that emerged in the nineteenth century. This paradigm, influenced by authors such as Auguste Comte and by the tradition of experimental medicine of Claude Bernard, prioritized quantitative methods, linear causality, and the search for universal laws applicable to the prevention and control of diseases (Rosen, 1994). From this perspective, valid knowledge was that which was measurable and reproducible, with a focus on objectivity and scientific neutrality. Although it has contributed to significant advances in the control of infectious diseases and in the extension of life expectancy, this reductionist model has proven to be insufficient to deal with health problems of a multifactorial and complex nature.

From the second half of the twentieth century, driven by social epidemiology and the social sciences applied to health, a movement of criticism and epistemological expansion emerged. Thomas Kuhn (1998) and Imre Lakatos (1978), although coming from the philosophy of science, inspired reflections on the changes in paradigms and research programs that directly affected Public Health. Kuhn (1998) highlighted that science does not evolve cumulatively, but through paradigmatic ruptures, which is evident in the transition from a strictly biomedical view to broader and more interdisciplinary approaches. Lakatos (1978), in turn, contributed by proposing that scientific theories are developed in research programs that can be progressive or degenerative, a useful concept for understanding the evolution of practices in collective health.

In this process, Public Health has gradually incorporated critical and constructivist approaches that recognize the influence of social, cultural, economic, and environmental factors on the health-disease process. Critical epistemology, influenced by authors such as Paulo Freire (1987) and Boaventura de Sousa Santos (2006), brought to the field the notion that knowledge in health is not neutral, but situated, permeated by power relations and disputes of meaning. Santos (2006), in proposing the "Epistemologies of the South", argues that scientific production must dialogue with popular and traditional knowledge, recognizing epistemic plurality and combating the monoculture of hegemonic scientific knowledge. This perspective is particularly relevant for Brazilian Public Health, given the sociocultural diversity and the need to incorporate indigenous, Afro-Brazilian, and community knowledge into health policies and practices.

The growing complexity of contemporary health problems – such as pandemics, chronic non-communicable diseases, environmental crises, and social inequalities – requires an epistemological framework capable of integrating multiple references. In this sense, the theory of complexity, formulated by Morin (2011), proposes a way of thinking that overcomes disciplinary fragmentation and articulates biological, psychological, social and ecological dimensions. Morin argues that understanding health requires considering the interactions and interdependencies between systems, recognizing uncertainty and unpredictability as inherent elements of complex phenomena.

From the methodological point of view, this epistemological broadening implies recognizing the value of both quantitative and qualitative methods, overcoming the dichotomy between "hard sciences" and "human sciences". The triangulation of methods, recommended by Denzin and Lincoln (2011), allows us to capture the statistical and objective dimension of health problems, as well as their social and cultural meanings. This hybrid approach is essential to build more effective policies, as it makes it possible to understand not only the epidemiological distribution of diseases, but also the life contexts of the affected populations.

Another relevant aspect is the epistemology of practice, which analyzes the way scientific knowledge is translated into concrete actions in the field of Public Health. Schön (2000) highlights that the professional works in situations of uncertainty and singularity, which requires practical-reflective knowledge capable of adapting general guidelines to specific contexts. In the context of public health, this means that protocols and policies need to dialogue with local realities, avoiding the mechanical application of universal models.

Public Health also benefits from the contributions of feminist epistemology, which denounces gender biases in the production and application of knowledge. Haraway (1988) and Harding (1991) argue that scientific objectivity should be rethought from the notion of "situated knowledge", recognizing that all knowledge production starts from a particular perspective. This approach expands the capacity of Public Health to respond to the specific needs of historically marginalized groups, such as women, LGBTQIA+ populations, and peripheral communities.

In the Brazilian context, the integration between epistemology and Public Health finds expression in the field of Collective Health, which articulates interdisciplinary practices, social criticism and community participation. Paim and Almeida Filho (1998) highlight that Collective Health is not just a practice, but a political-epistemological project that seeks to understand health as the result of a social process, overcoming the dichotomy between prevention and care. This conception breaks with the idea of neutrality and recognizes that the production of knowledge in health is immersed in ideological disputes and economic interests.

The strengthening of this perspective also requires the development of a transdisciplinary epistemology, capable of integrating scientific and non-scientific knowledge in the formulation of public policies. Nicolescu (2002) argues that transdisciplinarity is not just a method, but an epistemological posture that seeks to understand reality from multiple levels and logics. Applied to Public Health, this vision implies the dialogue between epidemiology, anthropology, economics, environmental sciences and traditional knowledge, building more comprehensive and sustainable responses.

In this sense, epistemology applied to Public Health shows that the production of knowledge is neither neutral nor linear, but situated, plural and permeated by disputes. Chalmers (1999) observes that the evolution of the field demonstrates a paradigm shift from the positivist biomedical model to the incorporation of critical, constructivist and complex approaches, with an emphasis on interdisciplinarity and social participation. This movement is fundamental to face contemporary challenges, as it allows for the construction of practices and policies that consider not only the biological dimensions of diseases, but also their social, cultural, and environmental roots. By recognizing epistemological plurality and valuing dialogue between different ways of knowing, Public Health strengthens its ethical and political commitment to the promotion of equity and social justice.

AN OVERVIEW OF SCIENTIFIC PRODUCTION IN PUBLIC HEALTH: EPISTEMOLOGICAL TRENDS

Scientific production in Public Health, especially since the end of the twentieth century, has been showing a significant growth, both in volume of publications and in thematic and methodological diversity. This phenomenon is the result of the consolidation of the area as an interdisciplinary field, articulating knowledge from the biomedical, social, and environmental sciences, and responding to complex global challenges such as climate change, demographic and epidemiological transitions, and health inequalities (Buss; Pellegrini Filho, 2007). The analysis of this panorama allows us to identify not only the predominant themes, but also the epistemological trends that shape the development of

knowledge in the area, revealing the power dynamics, paradigmatic orientations and persistent gaps.

In high-income countries, scientific production in Public Health has historically focused on epidemiological modeling, large-scale clinical studies and evidence-based interventions (Sackett et al., 1996). This approach, strongly aligned with the positivist paradigm, favors quantitative methods and linear causal logic, reinforcing the notion that health problems can be solved through technically accurate and replicable interventions. While this approach has provided significant advances, such as the control of infectious diseases and increased life expectancy, it has also been criticized for reducing the complexity of social and cultural determinants of health to statistical variables (Krieger, 2011).

In Latin American contexts, scientific production has been characterized by a critical tradition that, from the 1970s onwards, strongly incorporated the perspective of the social determination of the health-disease process, influenced by the works of Breilh (2006) and Laurell (1982). This epistemological approach breaks with the fragmentation between biological and social, advocating an integral and interdisciplinary approach, in which health is understood as a product of historical and structural processes. This perspective contributed to the fact that Public Health research in Brazil, especially in the field of Collective Health, was aligned with principles of social justice and community participation, influencing public policies and primary care strategies.

From the 2000s onwards, there has been an increase in scientific production focused on emerging topics such as environmental health, the impacts of climate change, chronic non-communicable diseases and, more recently, digital health and the use of big data in epidemiological surveillance (Razzouk; Zorzetto, 2010). This thematic expansion reflects the growing complexity of health problems and the need for intersectoral approaches, in which dialogue between disciplines is not only desirable but indispensable. However, such interdisciplinarity, although frequently evoked, is not always achieved in a balanced way, and there is still a predominance of biomedical approaches to the detriment of cultural and subjective dimensions (Gómez; Minayo, 2010).

From the epistemological point of view, it is possible to identify, in recent literature, a tension between two major trends: on the one hand, the maintenance of a positivist hard core, centered

on the production of quantitative evidence and the hierarchization of methods according to their supposed robustness; on the other hand, the valorization of constructivist, critical and participatory approaches, which recognize the plurality of knowledge and the importance of the historical and social contextualization of health phenomena (Popper, 2008; Kuhn, 2013). This tension is not merely theoretical, but is expressed in the definition of research agendas, in the selection of methodologies and in the evaluation of scientific merit itself.

In the Brazilian case, the bibliometric analysis of reference journals such as Cadernos de Saúde Pública and Revista de Saúde Pública shows that, although quantitative research continues to predominate, there is a consistent growth of qualitative and mixed-methods studies, especially focused on the analysis of public policies, community experiences, and program evaluation (Pereira Neto; Lucena, 2015). This change suggests an advance towards integrating different epistemological perspectives, albeit in an asymmetrical way.

Another relevant aspect is the internationalization of scientific production in Public Health. The increasing indexing of Latin American journals in databases such as Scopus and the Web of Science has increased the international visibility of studies produced in the region, but has also brought challenges related to the adoption of hegemonic editorial and linguistic standards, often aligned with Eurocentric visions of science (Santos, 2014). This can generate a tension between the need for global dialogue and the preservation of critical and contextually rooted approaches.

The advent of the COVID-19 pandemic, starting in 2020, catalyzed significant changes in the scenario of scientific production in Public Health. The urgency of the health crisis has driven the accelerated publication of studies, the adoption of preprint platforms, and the massive use of real-time data for epidemiological modeling (Lancet, 2020). Epistemologically, this moment exposed both the power and the weaknesses of contemporary science: the capacity for rapid response and international cooperation coexisting with problems of methodological quality, conflicts of interest, and the circulation of non-validated information. In addition, the perception of the need to integrate social, economic, and political dimensions in the understanding of global health phenomena was

reinforced.

Current epistemological trends point to a transitional scenario. There is a movement towards open science, the valorization of shared data, and interdisciplinary collaboration, while inequalities persist in access to the production and use of knowledge. In addition, there is a growing recognition of the importance of plural epistemologies, capable of dialoguing with indigenous, community and traditional knowledge, especially in facing environmental and health problems related to sustainability (Escobar, 2016).

Escobar (2016) also reiterates that the panorama of scientific production in Public Health presents a field in expansion and transformation, in which different epistemological matrices coexist and dispute legitimacy. It is possible to observe a process of strengthening critical and interdisciplinary approaches, as well as the expansion of dialogue with non-hegemonic knowledge, representing a promising path for the construction of a more robust, contextualized and socially committed knowledge. However, for this transition to be consolidated, it will be necessary to face structural challenges related to research funding, the training of researchers, and the overcoming of epistemological and institutional barriers that still limit the plurality of the field.

FINAL CONSIDERATIONS

The present study sought to offer an epistemological reflection on the state of knowledge in Public Health, articulating a conceptual, historical and methodological overview with the analysis of trends in scientific production and the theoretical and practical challenges faced by the area. The discussion revealed that Public Health, as a field of knowledge and social practice, is intrinsically linked to historical processes of social organization, scientific advances and political transformations, being permeated by multiple paradigms that coexist, dialogue and, sometimes, enter into tension.

The theoretical analysis and the literature review pointed out that Public Health, since its modern constitution in the nineteenth century, has been strongly associated with the biomedical

paradigm, with a focus on disease control and social hygiene. However, throughout the twentieth century, especially from the formulations of collective health in Latin America and the movement for the social determination of health, there was an expansion of the conceptual and methodological scope of the area, incorporating social, cultural, economic and environmental dimensions. This epistemological transformation is fundamental to understand the current trends in scientific production, which are progressively oriented towards interdisciplinarity and integrated health approaches (Buss; Pellegrini Filho, 2007).

From the epistemological point of view, the study showed that contemporary Public Health operates in a field of paradigmatic pluralism, in which quantitative, qualitative, mixed and participatory perspectives coexist. This scenario allows for a greater range of analysis and intervention, but also brings challenges related to theoretical coherence, the integration of different levels of analysis, and the valorization of non-hegemonic knowledge, such as traditional and community knowledge. Such questions refer directly to the need for a more effective dialogue between science, public policies and social practices, reinforcing the role of epistemology as a critical tool for the orientation and legitimation of the knowledge produced.

The systematization of the panorama of scientific production revealed a significant growth in the literature on Public Health, especially from the 2000s onwards, driven by the consolidation of specialized journals, the expansion of graduate studies, and the greater availability of funding for health research. It was observed that the most recurrent themes include epidemiological surveillance, public health policies, health promotion and social determinants. However, there is still a predominance of studies with a quantitative design and biomedical focus, which indicates the need for greater encouragement of qualitative and interdisciplinary research, capable of capturing the complexity of health phenomena.

From a practical point of view, the findings suggest that the production of knowledge in Public Health needs to advance in order to break with disciplinary fragmentation and adopt integrated perspectives that dialogue with different epistemological matrices. This implies recognizing that

health is a multidimensional phenomenon, which demands articulated approaches between biology, social sciences, economics, ecology and culture. Such recognition is essential to face contemporary challenges, such as climate change, pandemics, social inequalities, and new demographic and epidemiological configurations.

Another relevant point is the need to value and institutionalize knowledge translation practices, so that the results of research are not restricted to the academic environment, but effectively reach managers, health professionals and communities. This dimension of transfer and application of knowledge, often neglected, is central for scientific production to fulfill its social role, promoting concrete changes in the health and living conditions of the population.

Thus, it is concluded that epistemological reflection on Public Health is not only a theoretical exercise, but a strategic instrument to guide research, professional training and the formulation of more effective and equitable policies. It is urgent that researchers and institutions recognize the importance of understanding and mapping the paradigms that guide the area, identifying their potentialities and limitations, so that we can move towards a more inclusive, critical, and socially committed science. In this sense, this study reinforces that the strengthening of Public Health in Brazil and in the world depends on the ability to integrate multiple knowledges, promote social justice and face, with rigor and creativity, the complex challenges that characterize health in the twenty-first century.

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