

**HEALTH LITERACY AND HEALTH SCIENCE: AN EPISTEMOLOGICAL
DIALOGUE WITH GASTON BACHELARD**

***LITERACIA PARA A SAÚDE E CIÊNCIA DA SAÚDE: UM DIÁLOGO
EPISTEMOLÓGICO COM GASTON BACHELARD***

***ALFABETIZACIÓN EN SALUD Y CIENCIA DE LA SALUD: UN DIÁLOGO
EPISTEMOLÓGICO CON GASTON BACHELARD***

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ABSTRACT: This is a theoretical study with the following objectives: to discuss Gaston Bachelard's theory of the "scientific spirit" and the notions of "epistemological obstacles" with the concepts of health; to discuss health literacy with the manifestation of the "scientific spirit". This study is exploratory and a documentary and bibliographic research of Gaston Bachelard's works and other scientific and documentary productions that support health concepts and health literacy. From the results found, it is possible to highlight the discussion between the Bachelardian epistemology, health concepts and health literacy that disrupts health archetypes and highlights the participation of the social actors involved in the health system. It is considered that Bachelard's epistemological observations are responsible for the renewal of health scientific knowledge and consolidate investigations in the area of health literacy, as a proposal to improve the level of information, apprehension, investment and management of health.

KEYWORDS: Sciences. Epistemology. Gaston Bachelard. Health literacy. Health.

RESUMO: É um estudo teórico com os seguintes objetivos: dialogar sobre a teoria do "espírito científico" e as noções de "obstáculos epistemológicos" de Gaston Bachelard com os conceitos de saúde; discutir a literacia para a saúde com a manifestação do "espírito científico". O estudo é exploratório, pesquisa documental e bibliográfica, em obras de Gaston Bachelard e em outras produções científicas e documentais que embasam conceitos de saúde, literacia para a saúde. Dos resultados encontrados destaca-se a discussão entre a epistemologia bachelardiana, conceitos de saúde e a literacia para a saúde que rompem com os arquétipos de saúde e evidencia a participação dos atores sociais envolvidos no sistema de saúde. Considera-se que as observações epistemológicas de Bachelard respondem pela renovação dos saberes científicos de saúde e consolidam as investigações na área da literacia para a saúde, como proposta de melhorar o nível de informação, apreensão, investimento e gestão da saúde.

PALAVRAS-CHAVE: Ciências. Epistemologia. Gaston Bachelard. Literacia para a saúde. Saúde.

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RESUMEN: Se trata de un estudio teórico con los siguientes objetivos: discutir la teoría del “espíritu científico” y las nociones de “obstáculos epistemológicos” de Gaston Bachelard con los conceptos de salud; discutir la alfabetización en salud con la manifestación del “espíritu científico”. Es un estudio exploratorio, de investigación documental y bibliográfica en las obras de Gaston Bachelard y otras producciones científicas y documentales que sustentan los conceptos de salud y alfabetización en salud. Entre los resultados encontrados, destaca la discusión entre la epistemología bachelardiana, los conceptos de salud y la alfabetización en salud, rompiendo con los arquetipos de salud y destacando la participación de los actores sociales involucrados en el sistema de salud. Se considera que las observaciones epistemológicas de Bachelard dan cuenta de la renovación de los conocimientos científicos en salud y consolidan las investigaciones en el área de alfabetización en salud, como propuesta para mejorar el nivel de información, comprensión, inversión y gestión de la salud.

PALABRAS CLAVE: Ciencias. Epistemología. Gaston Bachelard. Alfabetización en salud. Salud.

Introduction

Starting from the premise that, until the second half of the 19th century, only theologians and philosophers produced knowledge about men and society (GIL, 2019), this study proposes to understand the role of a social investigation in the area of health in the light of epistemological observations about the formation of the "scientific spirit" and the "epistemological obstacle" of Gaston Bachelard.

The French philosopher, Gaston Bachelard (1884-1962), focused on the works of his life in epistemology and philosophy of science, mainly the Sciences of Nature. In 1938, he published *The Formation of the Scientific Spirit*, in which he explores the various epistemological obstacles. In his work, the philosopher emphasizes the relevance that such obstacles need to be overcome in order to emerge a truly scientific mentality. As Bachelard (1972) understands, the collapses between common knowledge and science result from scientific progress that addresses an evolved science that comes with the marks of modernity. Bachelard, through the theory of the "scientific spirit", sought to find paths to knowledge through epistemological ruptures with normal or natural sciences, because the very pragmatic notion of scientific knowledge about something refers to an epistemological obstacle.

The choice to contextualize health literacy in health sciences through Bachelard's theory is due to the philosophical axis of this theory that challenges the linear progress of science, and presumes epistemological ruptures from scientific views of the world. Otherwise, it is possible to infer that this Bachelard's theory has the pedagogical capacity to provide scientific knowledge of health science with the power to find another definition of health other than the

inductive thought that the absence of the disease is the result of a healthy body. Saboga-Nunes (2014b) says that to meet this goal, the pathogenic approach seeks the origin of the disease in order to control and treat it.

According to Moraes (2012, p. 17, our translation), it is in the 19th century that the biomedical model appropriates a scientific discourse on health and disease "establishing new cause and effect relationships for diseases and leading to the objectification of the analysis and objectification of the patient and consequent loss of his identity". According to Saboga-Nunes *et al.* (2019), a strategic way to extend discussions about health, beyond this biomedical model, would be for the individual to take over knowledge and recognize what they are and how their living and working conditions reflect on their health and quality of their lives. Thus, it is necessary for the person to establish a salutogenic focus, that is, to seek elements that lead to the maintenance and promotion of his health.

By breaking with thought, a biomedical model, it can be said that there are no healthy or sick people, but rather investments in health that enhance the adoption of healthier lifestyles (SABOGA-NUNES, 2014b). Such investments should be established with collective actions, from various actors (the person, health professionals, policies, governments) that contribute to the improvement of living and health conditions, the person and the population. Therefore, it requires changes in the behavior of individuals and changes in the environment, considering the social determinants present in social realities. Individuals do not have complete freedom to choose healthy lifestyles. This is limited by factors such as accessibility, social economic, among others.

In his work *The Formation of the Scientific Spirit* Bachelard (1996), he presents the "scientific spirit", as a concept of epistemological character that allows dialogue about health and science, and transfers a new look, another parameter, to the formal, concrete concepts that permeate the immediate capture of empirical data, established by academic sciences in general and by health sciences. According to Bachelard (1996) the "scientific spirit" is more formative than normative because it flees from apparent identities, from homogeneity in search of dynamic, diversifying and rectifier thoughts of absolute certainties.

In Bachelard's words (1996, p. 17, our translation), "knowledge of the real is light that always casts some shadows. It is never immediate and full." In his studies, Bachelard (1996) reveals that the image of immediate knowledge is an obstacle to scientific progress, because in science nothing is ready or also constructed, but that it is formed when knowledge is not questioned and remains anchored in the first experience or in the generalized experience, becoming static. The victory over these epistemological obstacles, which block thought, is the

very formation of the "scientific spirit". The "scientific spirit" reorganizes all its "knowledge" that, to be scientific, must confront its spontaneous prosuspensions.

To overcome some paradigms and epistemological obstacles that involved health conceptions, health literacy is presented as a new direction to health promotion that responds to the demands related to quality of life and healthy lifestyle as well as disease prevention and contributes to the maintenance of a well-being, physical, mental and social as proposed by the World Health Organization (WHO).

In 2009, in Nairobi, at the 7th Global Conference on Health Promotion, it was concluded that *health literacy*, translated into Portuguese by health literacy or: health literacy, is an emerging concept that approximates health and literacy as a way of dealing with the critical conditions of the individual's life. Even if there are some concepts about health literacy, in this document its definition corresponds to the "degree to which people are able to access, understand, evaluate and communicate information to engage with the demands of different health contexts, in order to promote and maintain good health throughout life" (WHO, 2009, p. 10, our translation).

Triviño (2015, p. 17, our translation) emphasizes in his studies that "philosophical thinking that can feed on hypotheses and theories will always start from certain scientific bases". In this sense, when contemplating the world, it can be inferred that it is composed of phenomena and objects of various natures, which, in turn, contribute to the notion of reality inherent to each person. Thus, in the course of this article it will be understood that Bachelard presents a world that does not consist of a combination of finished and defined things, but always constantly changing, and therefore scientific thought advances as people and communities renew themselves. The scientific spirit will always break with epistemological obstacles by questioning knowledge, reformulating hardened intellectual problems and habits.

This is a theoretical study of scientific and academic relevance, as it expands the debates on health promotion, considering the complex character of the epistemology of health science anchored in Bachelard's epistemological theory. Thus, the aim of this study is to understand in Bachelard's epistemology contributions that provide the reader with a different view of conceptions and discourses of health that go beyond conceptual barriers. For this, the theory of the "scientific spirit" and the epistemological obstacles of the said author will be presented, in order to discuss new ways of promoting health and thinking about health science. Health literacy may emerge as a manifestation of this "scientific spirit", as well as a compass that is the guide of this path to be followed.

Methodological procedures

When the subject is very broad, sometimes it is necessary to delimit a theory to plan an exploratory study that enables research (TRIVIÑO, 2015). The present study is exploratory and uses documentary research, as well as literature review in a narrative way (CORDEIRO *et al.*, 2007).

In the first stage, a bibliographic survey was carried out in works by the author Gaston Bachelard, to map the descriptions referring to the theory of the formation of the "scientific spirit" and the senses of epistemological obstacle. The choice for the works of said author was given by the way that develops the "scientific spirit", that is, critical and dialectical. From the works studied, the authors chose: The formation of the scientific spirit of 1938; The epistemology of 1971, works that meet the objectives proposed in this theoretical essay. It is emphasized that it was used for this study of more recent and translated editions.

The authors used documents that bring concepts of health and health literacy discussed in organizations and collective meetings such as: the World Health Organization, International Conferences and scientific articles that also support health literacy in authors whose aspect of study relates more effectively to salutogenesis, health promotion. And also, to documents such as the Ottawa Charter, the result of the first International Conference on Health Promotion, held in Ottawa, Canada, in 1986; Federal Constitution of 1988 and Nairobi Document (KANJ; MITIC, 2009).

Results and discussions

Two categories for discussion were found from the theoretical and documentary mappings carried out:

The "scientific spirit", epistemological obstacles and concepts of health: a dialectic with Gaston Bachelard

Bachelard's thought (1996, p. 17, our translation), in one of his main works, *The Formation of the Scientific Spirit*, is very well represented in this clipping: "the act of knowing is given against a previous knowledge, destroying poorly established knowledge, overcoming what, in the spirit itself, is an obstacle to spiritualization". For the author, the spiritualization of knowledge is the act of breaking pre-established prejudices and foundations and before the mysteries of reality and facts never infer that a known fact is consequently a wealth, a ready

and finished response. It is important to point out that when the author speaks of "poorly established knowledge" he criticizes the act of giving meaning to an object or something from the usefulness of it. In this way, it is necessary to destroy the convictions on this already established fact and formulate new problems, new questions and let the "scientific spirit" manifest itself.

For Bachelard (1996), an epistemological obstacle consists in the closing of an unquestioned knowledge such as habits and intellectual sciences, which were useful one day, but may, at another time, impair scientific knowledge on the same subject hereinafter solved or answered.

However, would science have a limit to its knowledge? Bachelard (2006, p. 23, our translation) also questions:

Does the concept of limit of scientific knowledge have an absolute meaning? Is it really possible to draw the boundaries of scientific thought? Are we truly locked up in an objectively closed domain? Will we be slaves to an immutable reason? Is the spirit a kind of organic instrument, invariable as hand, limited as sight? Is he at least subject to a regular evolution in connection with an organic evolution? These are many questions, multiple and connected, which put at stake an entire philosophy and which should give a primary interest to the studies of the progress of scientific thought.

For Bachelard (2006), the frontier of scientific knowledge is not in his inability to solve certain problems, difficulties or human dreams, but represents a momentary parking lot of thought. The author concludes this statement by saying that "it would be desired that each science could propose a kind of five-year plan" (p. 25, our translation), because, in this way, knowledge, which was previously limited by a certain concept coming from some empirical experiment, could answer new questions or concerns in order to confirm or refute it. In the exercise of these ideas, the "scientific spirit" is biased to value them in excess, which ends up opposing a circulation of values and polarizes the problem that Bachelard (1996) calls "inertia to the spirit" (scientific).

In other words, scientific knowledge, on any topic, should not be limited and static. It is necessary to open spaces to dialogue with studies and concepts and leave the contemplation of it for the construction of a new response or deconstruction of an old concept. The search for epistemological understanding of a scientific problem is due to the fact that this knowledge provides basic and methodological tools to researchers (ÁVILA, 2019), so that they produce accurate and technical-level answers capable of leading the researcher to confront hypotheses/assumptions and demonstrate valid conclusions.

When the scientific problem enters the area of health, Lage (1995, p. 248, our translation) states that "health sciences are typically frontier sciences", are in contact with medicine, biology, chemistry, but also with electronics and human sciences, and researchers who combine this knowledge in the best way advanced in the field to research. Health, as a science, allows the tangency of its concepts with several aspects that involve human life, that is, the answers come from its interface not only with medicine, but also with biology, pharmacology, chemistry, social sciences, among others.

In the field of health sciences, this understanding of the boundaries of scientific knowledge and Bachelard's definitions of epistemological obstacles may break with some paradigms that clothe the concept of health and the promotion of social and personal well-being. According to Saboga-Nunes, Freitas and Cunha (2016), health has been conceptualized for its antithesis, that is, health as absence of disease or illness, even with broader definitions and discussed collectively in international organizations and by scholars in the area.

In consensus with Bachelard's theory, Saboga-Nunes's argument is an example of an intrinsic idea (health as absence of disease) limited by some borders and which, over the years, has acquired abusive clarity, and caused public and private health agencies to target their efforts to combat the elimination of the disease. Another consequence was the decrease in investments in health promotion. Otherwise, focusing on curative health overlaps health promotion, distancing from the integral health of the person.

The concept of health most referenced in scientific studies is that of the WHO, who, on April 7, 1948, stated that "Health is the state of the most complete physical, mental and social well-being and not just absence of disease" (WHO, 2014, p. 1, our translation). At the end of the 20th century, the WHO added to this definition the one established in its Ottawa Charter (WHO, 1986, p. 1, our translation) that:

In order to achieve a state of complete physical, mental and social well-being, the individual or group must be able to identify and realize their aspirations, to meet their needs in the environment and to modify or adapt. Thus, health is understood as a resource for life and not as a purpose of life; health is a positive concept that accentuates social and personal resources.

In Brazil, health is a right guaranteed by law and it is the duty of the State to maintain it, as presented in Art. 196 of the Federal Constitution: "health is the right of all and the duty of the State, guaranteed through social and economic policies aimed at reducing the risk of disease and other injuries and universal and equal access to actions and services for its promotion,

protection and recovery" (BRASIL, 1988). The right is guaranteed legally, but it is not enduring according to the demands of the different and diverse social realities of the country.

The *2008 World Health Report* (WHO, 2008) addresses the need to implement efforts in the development of "primary health care", because it understands that this system is capable of placing the citizen at the center of health care reaching the highest level of health in order to "maximize equity and solidarity". In any case, health does not symbolize the same thing for all people, because, according to Scliar (2007), the concept of health contemplates the social, political, economic and cultural aspects of the person. Therefore, the health of an individual will vary according to his philosophical, religious, scientific concepts, moral values and diversify according to the social, historical and economic moment that he is inserted.

The study by Rocha and David (2015) brings arguments about the causality of the health-disease process when considering that the health conditions of the individual or the collective are related to the sociocultural environment of these and not only as a biological manifestation. From this perspective, the author evidences the need to consider the social determinants of health, life history, social context and what would be unbalancing the biological conditions of this person beyond epidemiological conditions.

The new approaches that study the social determinations of the health and disease process, such as Social Medicine in Latin America and Collective Health in Brazil, together with health promotion movements in Canada, show that health and disease also depend on the socioeconomic conditions of individuals. In other words, aspects such as employment, income, living environment and values imply in maleconic or beneficial results for people's health (ROCHA; DAVID, 2015).

The brief compiled of these definitions is consistent with one of Bachelard's epistemological obstacle (1996), when he states that "an epistemological obstacle is embedded in unquestioned knowledge" (p. 19, our translation). Otherwise, it is understood that the generalities of concepts and studies involving health and its promotion become epistemological obstacles that can and should be questioned, in view of the changes in the way of life of people, families and societies that are more likely to understand, signify and manage their lives. In agreement with Bachelard's "scientific spirit" and expanding the boundaries of health definitions and health promotion systems is the author Saboga-Nunes (2000) who proposes a way to guide and perceive reality when he warns that the person has the ability to manage his life and consequently the stressful factors that affect his health.

Health literacy as a manifestation of the "scientific spirit"

It is possible to infer, from the punctuated questions, that the "scientific spirit" permeated the development of research and concepts of health and its promotion, because, through a scientific demand, the problem was being formulated and renewed. When Bachelard (1996, p. 17, our translation) introduces the notion of epistemological obstacle, he studies, through epistemological and psychological analysis, the barriers to the formation of scientific knowledge. In the words of said author "it is in terms of obstacles that the problem of scientific knowledge must be posed". As an epistemological obstacle, we identified the tendency to limit scientific knowledge with regard to the concept of health science, preventing these definitions from advancing beyond these conceptual boundaries. According to Okan *et al.* (2019), the concepts, in addition to stipulating a shared understanding of words, define indicators and measures of research. It is important to have concepts such as sharing this knowledge, but not as limiting data of a knowledge.

Historically, some health movements have been identified as International Conferences on Health Promotion, promoted by who, studies of social determinations in health in an attempt to a scientific reorientation based on empirical observations of people and their social relations. According to Rocha and David (2015, p. 132, our translation), it is from these movements that Social Medicine breaks out in France, and that health focuses not on the disease, but its promotion: "In the post-war period, the WHO's conception of health at the end of the 1970s refers to the need to integrate medical care in the fight against the causes of the disease". In the period mentioned, this uprising also sensitized the Pan American Health Organization (PAHO/OPAS) which ended up proposing policies and projects of health interventions, in countries with different historical backgrounds such as Chile and Sweden.

For the authors mentioned in the previous paragraph, the theme Social Determinants of Health (SSD), which conceptually relate economic, social, cultural, ethnic/racial, psychological and behavioral factors to the appearance of health problems, reveal another way of thinking and understanding health as a promotion of well-being and not only as a treatment of physical illness.

One of the changes in the paradigms of thinking about health happened after the Alma-Ata Conference in 1986, when the "Primary Health Care" movement was driven, prioritizing, as health values, social justice, the right to better health for all, participation and solidarity (WHO, 2008).

In 1986, after the "International Conference on Health Promotion" held in Ottawa, Canada, a Charter was adopted on the directions for building a new public health movement worldwide. Thus, the promotion of citizen health ceases to be an inherent responsibility of the "Health Sectors", and becomes a process that provides citizens and the community with the possibility of controlling their health through a change of lifestyle, in order to achieve a complete level of "well-being" (WHO, 1986).

Meeting a new perspective of thinking about health promotion and contrary to the notion of health from a biomedical perspective, that a person is fundamentally healthy and throughout his life is exposed to external agents that harm him and cause diseases (SABOGA-NUNES, 2000), a positive concept of health emerges that notifies personal resources, and physical capacities as precursors of Health Promotion. In congruence with this approach, Saboga-Nunes (2014b) unveils the concept of health literacy, "as the awareness of the learning person and active in the development of their understanding, management and investment skills, favorable to health promotion". In this sense, life is more than surviving and health promotion is about thriving and allowing people to increase control over their health" (SABOGA-NUNES; FREITAS; CUNHA, 2016).

Health literacy is a relatively new term and has become a focus of interest on the part of the scientific community. Still on the concept of health literacy, it is important to mention that the term health literacy was first mentioned by Simonds in 1974 in the context of health education in schools. However, academically, the first scientific paper appeared in the 1980s, the second in the early 1990s and in 2006 more than 100 articles had already been published (OKAN *et al.*, 2019, p. 5).

For the World Health Organization (WHO, 1998), the understanding of health literacy "implies obtaining a level of knowledge, personal skills and trust that allows taking measures to improve personal and community health, changing personal lifestyles and living conditions." Thus, health literacy represents more than a person's ability to read pamphlets and seek a health professional. Better levels of health literacy mean greater access of health information and the possibility of using this knowledge in order to effectively promote their own health (SABOGA-NUNES; FREITAS; CUNHA, 2016).

In any case, this concept, still under construction, allows people who are part of a community to unlink their active and passive roles when it comes to ensuring their own health. For, if on the one hand there are some health professionals who have their own statutes and languages and sometimes difficult to decipher, on the other, the citizen who finds himself with the possibility of understanding the information to manage and invest in health. In this context,

it is important to highlight that both professionals and users of the public health network respond to a health policy, whether municipal or federal, which regulates investments, establishes norms and procedures that, in most cases, do not stop enabling the well-being of the citizen, but only, in an emergency way, meet specific demands and does not offer individualized care and care.

In a first instance, health literacy is effective through the communication process so that one is convinced that the person understands what physicians and other health professionals are instructing him. It also involves the investment capacity of the citizen who becomes able to choose what will contribute to his health, and also covers the management competence of this individual, because it aggregates resources that will contribute to the search for his health and well-being (SABOGA-NUNES; FREITAS; CUNHA, 2016).

The study of health literacy shows an imbalance between what the Health System offers the person and what they really need to understand what would be best to become healthy. Healthy citizens make less use of medicines, health services, among others, dishonoring municipalities and consequently the State (MARQUES, 2015). Other studies such as those by Farinelli *et al.* (2017) and Lamanauskas and Augiene (2019) demonstrated that the scope of health literacy reaches public and private health systems as a guide and support to users and professionals. In addition to these levels, it can be said that health literacy is of interest, at various levels, such as social, cultural, economic, all people.

Dialoguing with Bachelard (1996), the concepts of health embedded in pathogenic thinking, that is, of only treatment of the disease, becomes an epistemological obstacle, which can, over time, impose limits on scientific research. The discussion of health promotion from the perspective of health literacy brings a new parameter that combines factors that instrumentalize the citizen for the identification, search and management of the issues that have determined and that can promote their health. When analyzing the levels of health literacy, it is possible to have a dimension of the quality of life, resilience and well-being of people in adverse living conditions (SABOGA-NUNES, 2014a).

The care of the population offered in the health sectors from the perspective of health literacy increases the possibilities of treatment and guidance for the citizen to make more conscious choices, since only the increase in health information does not collaborate with the person who cannot understand about the health issue that is transmitted to him. The concept of health literacy opens spaces for dialogue and comprises all social actors involved in the health system: population, managers, professionals and the State. Thus, the person becomes able to

enhance his decision making by maintaining an improvement in health due to a communication ability and use of the acquired information.

Final considerations

After the discussions, it is important to clarify that these pages did not intend to extenuate all aspects presented in Bachelardiana epistemology, but to present an overview of the theory of the formation of the "scientific spirit" and the concepts of epistemological obstacles with regard to health concepts proposing new questions and crossing conceptual and investigative barriers.

The present study elucidates that knowledge is not the result of a pure and simple idea of an author who dictates knowledge that refers only to wisdom. In other words, the product of science comes from previously existing knowledge that should not be ratified by early deeds, but to expand and allow discourses that reorganize the system of knowledge.

The development of the concept of health literacy broadens the look and actions as strategies for an effective health promotion and begins to meet a need for conscious management of the person about his own health in order to contribute to improvements in his physical, social, mental and emotional well-being.

Bachelard's studies contribute to a relevant dialogue in the field of concepts involving health and its promotion. And finally, as renewal of this knowledge consolidates research in the area of health literacy as the proposal to improve the level of information about health, seizure, investment and management.

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