Chapter 14

Health

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The definition of health has legal, social, and economic implications for states of health and illness. Undoubtedly, the most widespread definition is that found in the preamble of the Constitution of the World Health Organization: health is a state of complete physical, mental and social well-being and not merely the absence of disease. Therefore, the present work broadly presents the definition of the concept of Health.

14.1 Contextualization

Different visions and definitions of health and disease permeate the history of humanity, especially the insertion of these concepts in cultural, social, political, and economic contexts. This whole set of ideas shows an evolution of human thinking since a greater degree of complexity of intersections of these ideals is now considered. Still, it is worth noting that the meaning of evolution attributed here is associated with a Darwinian vision of the process, i.e., it does not necessarily reflect a scenario of constant improvements throughout history [1, 2, 3].

Since antiquity, humanity has committed itself in different ways to face certain pathologies, given that mummies keep in themselves signs of some diseases. However, the terms health and disease primarily belonged to a conception focused on the magical-religious field, starting from an assumption that diseases were caused by an external evil, being, therefore, seen as a sin or some curse. An example of this would be the design of ancient Hebrews, which, unlike other religions of the time, believed that the disease was not the action of external agents such as demons or human curses, but represented, however, the sign of divine wrath towards its people, due to the sins of humanity, as we can see in some biblical passages, highlighting: "If you do not listen to me and do not put all these commandments into practice if you despise my laws (...) I will put terror, consumption and fever on you... " (Leviticus, 26:16). But those who fulfill the divine precepts have another destiny: "You will

serve the Lord your God and he will bless your bread and your water and remove infirmities from among you" (Exodus, 23:25) [4, 5]. It is also worth mentioning that just as diseases were a sign of divine punishment, God also played the role of Great Physician [1, 6, 7].

In the bible, there are still detailed descriptions of certain diseases such as leprosy, for example, well portrayed in the book of Leviticus, but there was no sign for the treatment of these diseases, first because, as already said, they were forms of divine punishment and the only way to treat these diseases was through purification rituals since if the evil was caused by sin, it was enough to get rid of the sin to get rid of the evil, as in the case of women who were in their menstrual period (in this specific case they stayed in their homes for a few days and after the period ended they had to purify themselves), in more serious cases, however, people were removed from society in some way, as in the case of lepers [8]. The second reason was the absence of the scientific knowledge necessary for the treatment or understanding of certain illnesses. This conception was extended for a long time, being common even in the Middle Ages. It is important to say that these religious precepts expressed more explicitly in the first five books of the bible, had a more evident purpose of maintaining a certain unity among the Hebrews and distinguishing them from other peoples of the surrounding region, despite these purposes, they may have helped in the containment and prevention of various pathologies of a transmissible nature, at the time, even if this was done unconsciously [6, 9].

When looking at other cultures, we can see that in several tribes that believed that diseases were caused by evil spirits, the local shaman should perform the rituals of expulsion of these evil spirits, which also had the objective of reuniting the microcosm (the body) with the macrocosm (universe). In some tribes, such as the Sarrumá indians, located on the Venezuela-Brazil border, there is no concept of natural death, and accidental or natural deaths are supposed to be caused by enemy curses, or reckless conduct [1, 10]. The shaman in these societies is an individual who undergoes extensive training, filled with periods of abstinence, where he learns his craft, is introduced to the shamanic songs and the knowledge of herbs used in rituals, generally in hallucinogenic herbs that help in summoning new spirits capable of eradicating the disease. The main task of the shaman in these rituals is to summon spirits capable of fighting the illnesses of the people [1, 10].

Greek medicine represents an important milestone for changes that occurred in the way of thinking about the logic of the disease process. The mythological persists, associated with various deities linked to health such as Asclepius (god of medicine), Nigeria (health), and Panacea (cure). The cult of these mythological figures shows the appreciation of hygienic practices. In addition, the healing process is initially associated with the use of medicinal plants and natural methods, such as opium as an analgesic and antitussive (from the Poppy), showing that it goes beyond cults and rituals [1, 11, 12].

The break with this religious view about the health process occurs with Hippocrates (460-377 BC). In his work called “Corpus Hippocraticus”, the texts translate a rational perspective regarding medicine, very different from the magical-religious conception that until then permeated the thinking of man. Hippocrates attributes the existence of four main fluids (humor) in the body: yellow bile, black bile, phlegm, and blood. For him, health was therefore based on these four elements. The human being was an organized unit, so the disease represented a disorganization of that state. In addition, the work reveals the insertion of a new concept in the health-illness process: epidemiology [13]. The appreciation of an empirical view of the clinical cases described in the texts reveals that the observations permeated the patient, with

the environment being an important element to be considered [1, 14, 15].

Further ahead, in the century II, there is the figure of Galen (129-199), responsible for including the endogenous concept in this health-disease process. Physician and philosopher, Galen revisits the humoral theory of Hippocrates and reinforces the importance of the four temperaments in the state of health. For him, the disease was endogenous to the body, it constituted man as physical matter, and his habits, therefore, could or could not lead to an imbalance in life. Titled "Father of Pharmacy", Galen systematized for the first time in history which raw materials were needed to prepare medicines and how they were handled in a way that had never been seen before [1, 16, 17].

In Eastern culture, the concept of health still has an aspect that differs from the West, but in a certain way, it is possible to establish an analogy to the Hippocratic conception. In essence, it addresses the existence of vital forces responsible for acting in the human body: Ying and Yang. If harmonious, what is manifested is health; when not, what prevails is disease. Some therapeutic measures are aimed at restoring the body's normal flow of energy when in disharmony, such as acupuncture, yoga, massage, and the use of medicinal herbs [1, 18, 19].

In the European Middle Ages, the concept of health was permeated by the Christian religion and resulted in health as a result of faith and disease as a result of sin. On the other hand, the Hippocratic ideals were maintained, such as dosing food and drink; performing sexual containment, and control of passions. They tried to avoid what they called "*contra natura vivere*" – living against nature –, obeying religious principles [1, 20].

In the 15th and 16th centuries, a Swiss physician and researcher named Paracelsus, already stated that agents external to the organism caused diseases. This occurred in parallel with the development of chemistry and medicine from the alchemy, it was due to this development that Paracelsus began administering doses of metals and minerals to patients - as is the case with mercury in the treatment of syphilis - based on the assumption that if the processes occurring in the human organism were chemical, the treatments should also be [1, 21, 22].

Already in the seventeenth century there was the development of mechanics and with it a concept very widespread by Rene Descartes, where the body would function as a machine capable of performing different actions independently of the mind (or soul), however, the mind would be able to regulate some parts of the body most of the time. This concept was called mind-body or soul-body duality [1, 23].

With the development of anatomy, the humoral theory of disease developed by Hippocrates and Galen, began to be replaced by what would be called "silence of the organs" since, when studies were carried out with bodies, it was found that most diseases were located in them. However, even with this change, there was not much progress in the treatment of diseases. They were accepted as part of the understanding of the meaning of life, they were part of a path towards the acceptance of death, of ideas such as the ephemerality of life, this idea was widespread in the period of romanticism. Romantics like Castro Alves and Chopin believed in death as an expression of art, a way to refine art, as it brought a new conception of life, so many young people at the time yearned for premature death, many artists died of tuberculosis at that time. In this regard, it is worth mentioning that this ideal still permeates society, to this day many young people are seen with philosophies that represent the ephemerality of life, such as YOLO (you only live once) and the concept of *carpe diem*,

among others [1, 24].

In the 19th century, however, the so-called Pasteurian revolution took place. A series of factors contributed to its occurrence, there was the discovery of microscopes and with them, several laboratories began to identify microorganisms present in different culture media, which later also contributed to the development of sera and vaccines. In parallel, John Snow, in England, decided to study the transmission of cholera, an epidemic in effect at that time. Until then, it was believed that cholera was caused by water, and he found that it was not caused by it, but by something present in the water, and therefore from a sick person to a healthy one, and that something was still capable of multiplying in the human body, it is noteworthy that despite all these discoveries, there was still no idea that microorganisms such as viruses and bacteria were the cause of these diseases. Such findings of John Snow caused great controversy at the time because they evoked the concepts of contagion and quarantine, terms much defended by Adrien Proust, however, many were against this deprivation of liberty, among them classes such as the bourgeoisie, radical pathologists, and liberals were present. Such resistance occurred even when Louis Pasteur attributed the fermentation to microorganisms [1, 23, 25].

With the knowledge that microorganisms were responsible for diseases, the so-called tropical medicine had great growth, since the treatment of diseases in the tropics was a very important issue. The colonizers and traders saw a lot of economic potential in the region, but the diseases, both endemic and epidemics, were a major obstacle. Therefore, the development of epidemiology, also developed by John Snow in the same study on cholera, gained space. It was based on the idea that, if individual health was expressed in numbers, social health could also be, i.e., health indicators would be accounted for [1, 26, 27].

The idea of using some numerical method to express pieces of information dates back to antiquity, more than 2000 BC in China, however, the attempt to print some reflection from these numbers became clearer from the 17th century onward, with John Graunt and William Petty. Petty developed his study called political anatomy, where he collected data on education, production, population, and diseases, while Graunt conducted the first studies of vital statistics from obituaries of the time, where he was able to identify differences in mortality within different population groups, correlating factors such as sex and place of residence, this type of analysis gained great momentum in the 19th century, where there are records of studies such as that of Louis René Villerme, who analyzed mortality in different neighborhoods of Paris and concluded that the greatest differences were related to income. There are also records dating back to the period of the industrial revolution in England where the effect of urbanization and the condition of living could be clearly seen [1, 28, 29, 30].

From 1840 onwards, a great parallel began to exist between statistical indices of health and the living conditions of the population, in addition to the emergence of statistical surveys and blue books (statistical almanacs). William Farr, a pioneer in health statistics, assumed his position as director general of the newly established General Register Office in England, where, in his annual reports, he drew a very large parallel, starting from reports between the mortality of the population and the location of their residences to the point of being able to delimit healthy and unhealthy districts [31, 32, 33].

In 1842 Edwin Chadwick, a lawyer, wrote a report on the health conditions of the working population in Great Britain. His report was responsible for impressing the current parliament and boosting the enactment of a law in 1848 that created the General Direc-

torate of Health, mainly in charge of proposing public health measures and recruiting public health doctors, which was able to officially carry out public health work in Great Britain [1, 34, 35, 36].

Before the creation of the World Health Organization (WHO), some attempts were made to establish a universal concept of what "Health" was. In 1941, the National Health Service was designed to offer comprehensive health care to the population with government resources. Despite its creation there was still no universal concept of Health, as there was a need for consensus among nations [36, 37]. The first attempt was made by creating the League of Nations, after the First World War, however, it was not successful. Right after the Second World War, the United Nations was created, bringing agreement between nations, Subsequently, the World Health Organization (WHO) was created. On April 7, 1948, it was published the concept of health. The concept of health proposed by the WHO says that: "Health is a state of complete physical, mental, and social well-being and not merely the absence of infirmity" [38].

In 1974, the concept of "health fields" was created, which defined several areas of well-being, such as the environment and lifestyle, for example, which caused an expansion of the concept of health. This expansion generated dissatisfaction and criticism from both the political and technical areas, which questioned the fact that health became something unattainable in this way, making it impossible for it to be charged only to health professionals. Thus, in 1977, a new concept of health was suggested by Christopher Boorse, who called health only the "absence of disease", thus simplifying this concept [39].

The International Conference on Primary Health Care brought a response to this new concept of health addressed only as the absence of disease. During this event, which took place in Alma-Ata (1978), some topics discussed were considered surprising. The international classification of diseases was discussed, and international health regulations and standards for water quality were elaborated. By the time of this conference, the World Health Organization had developed programs to combat two very notorious diseases, malaria and Smallpox, with the support and collaboration of member countries [40].

To fight malaria, the WHO used as a strategy the use of insecticide Dichloro-Diphenyl-Trichloroethane (DDT). Its use has been banned over time because it is associated with impairment of the organism, such as cancer, accumulation in tissues, and contamination of babies through lactation [40]. By the 1960s, the fight was turned to smallpox. During this period, the Eradication Program for Smallpox was created. The choice to fight this disease was mainly linked to the large number of people with the disease (millions of cases) and its ability to be eliminated from the population. This is because the vaccine against Smallpox, which already existed, was highly effective. Thus, as the transmission occurred from person to person, when a large number of immunized individuals were obtained, the virus responsible for the disease would no longer have its host for the development and consequent spread of the disease. Soon, expectations with these actions were achieved and the last case of smallpox occurred in 1977, proving to be a historic milestone [41].

After this achievement, the WHO expanded its objectives due to the intense demand for development and social progress. Therefore, during the International Conference on Primary Health Care, the great inequality in the area of health between developed and underdeveloped countries was emphasized, as the responsibility of the State in promoting health and the importance of individual and community action from planning to implementation of health

care. Therefore, the services that provide primary health care should be the basis for the health system, and the national health system should be integrated into the country's social and economic development process since health can be considered both a cause and a consequence of it [42].

Also, during the Conference, it was discussed that primary health care should be of a broad spectrum, including health education, adequate nutrition, basic sanitation, maternal and child care, family planning, immunizations, prevention and control of endemic diseases, provision of essential medicines, and integration with other sectors, such as agriculture and industry. Therefore, it is a rationalizing proposal, but also a political one. That is, based on an ideology of utility, and social relevance to the detriment of high standards and costs of services. This conception is loaded with value judgments, which are rejected by those who have an objective view and without social criteria regarding the health area [42].

14.2 Definitions

When the World Health Organization was created, shortly after the end of the Second World War, there was a concern to draw a positive definition of health, which would include factors such as food, physical activity, access to the health system, etc. The definition's "welfare" came from a concern for the devastation caused by war, as well as optimism about world peace - the Cold War had not started yet. The WHO was also the first international health organization to consider itself responsible for mental health, not just the health of the body [43].

The definition adopted by WHO has been the target of numerous criticisms since then. Defining health as a state of complete well-being makes health something ideal, and unattainable, and thus the definition cannot be used as a goal by health services. Some even claim that the definition would have enabled the medicalization of human existence, as well as abuses by the State in the name of health promotion [43]. On the other hand, the utopian definition of health is useful as a horizon for health services as it encourages the prioritization of actions. The non-restrictive definition gives necessary freedom for actions at all levels of social organization [43].

Christopher Boorseset defined health as the simple absence of disease; intended to present a "naturalistic" definition. In 1981, Leon Kass questioned that mental well-being was part of the field of health; his definition of health was: "the well-functioning of an organism as a whole", or even "an activity of the living organism according to its specific excellences." Lennart Nordenfelt defined, in 2001, health as a physical and mental state in which it is possible to achieve all vital goals, given the circumstances [43].

The above definitions have their merits, but probably the second most cited definition is also from the WHO, more specifically from the European Regional Office: The extent to which an individual or group is able, on the one hand, to realize aspirations and satisfy needs and, on the other hand, to deal with the environment. Health is therefore seen as a resource for daily life, not the goal of it; encompassing social and personal resources as well as physical capabilities is a positive concept [43].

This functional view of health is of great interest to healthcare professionals, including doctors, nurses, physiotherapists and sanitary engineers, and primary health care, as it can

be used to improve the equity of health services and basic sanitation, that is, to provide care according to the needs of each individual or group [44].

Mental health (or sanity) is a term used to describe a level of cognitive-emotional quality of life or the absence of a mental illness. From a positive psychology or holism perspective, mental health can include an individual's ability to appreciate life and seek a balance between activities and efforts to achieve psychological resilience. The World Health Organization states that there is no very clear definition of what mental health is. Cultural differences, subjective judgments, and competing related theories affect how "mental health" is defined [44].

14.3 Health Determinants

The Lalonde report suggests that there are four general determinants of health, including human biology, environment, and lifestyle health care. Thus, health is maintained and improved not only through the promotion and application of health science but also through the efforts and intelligent life choices of the individual and society.

Alameda County Study analyzes the relationship between lifestyle and health. It discovered that people can improve their health through exercise, sleep enough, keeping a weight healthy, limiting the use of alcohol, and avoiding smoke. One of the main environmental factors that affect health is water quality, especially for the health of infants and children in developing countries.

Studies show that in developed countries, the lack of leisure spaces in the neighborhood that include the natural environment leads to lower levels of satisfaction in these neighborhoods and higher levels of obesity and, therefore, lower general well-being. Therefore, the positive psychological benefits of natural space in urban agglomerations must be taken into account in public and land use policies.

According to the World Health Organization, the main determinants of health include the social and economic environment, the physical environment, and the person's characteristics and behaviors. In general, the context in which an individual lives is of great importance for their quality of life and their state of health. The social and economic environment are essential factors in determining the health status of individuals given the fact that high educational levels are related to a high standard of living, as well as greater income. Generally, people who finish higher education are more likely to get a better job and therefore are less prone to stress compared to individuals with low education.

The physical environment is perhaps the most important factor that must be considered in classifying an individual's health status. This includes factors such as water air clean, houses, communities, and roads safety, all contributing to good health.

The WHO defines further sanitary engineering as a set of technologies that promote physical, mental, and social well-being. It is known that without sanitation basics (systems of water, sewers toilets, and urban cleaning), public health is completely impaired. The WHO also recognizes that every monetary unit (dollar, euro, real, etc.) spent on sanitation saves around four to five units in health systems (posts, hospitals, treatments, etc.) and that around 80% of the world's diseases are caused by lack of potable water enough to serve the populations in need.

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