

ORIGINAL ARTICLE

Eastern Physicians' Perspectives on the Principal Vital Organs (*Azayeh Rāisa*) in Islamic Medicine (3rd-6th Centuries AH/9th-12th CE)

Abstract

In Persian medicine, the concepts of patient and disease, medicine, and treatment are based on the Iranian-Islamic worldview. In this kind of philosophy, they believed that in the human body, the three members (the heart, the brain, and the liver) are the chief due to the vital actions they perform for the body, and they are called the board members (Major vital organs or *Azayeh Reisch*). The remaining bodily organs operate as subordinates to these principal members.

Each of the Physicians examined in this study has different opinions about the priority of the board members. The main purpose of the research is to review and compare the Physicians' opinions about the priority of the board members, relying on historical sources and citations and using the library method. The findings of this research show that the sages of Eastern Islamic civilization do not agree with the members of the body board.

Key words: Board Members, Humans, Physicians, Human Soul, Human body

Received: 10 Apr 2024; Accepted: 5 Aug 2024; Online published: 1 May 2025
Research on History of Medicine/ 2025 May; 14(2): 155-164.

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Citation:

Karimi, M., Kasiri, M., 2025. Eastern Physicians' Perspectives on the Principal Vital Organs (*Azayeh Rāisa*) in Islamic Medicine (3rd-6th Centuries AH/9th-12th CE). *Res Hist Med*, 14(2), pp. 155-164. doi: 10.30476/rhm.2025.50699.



Introduction

This study intends to analyze and compare the perspectives of Physicians on the hierarchical organization of human body components between the 3rd and 6th centuries AH. By examining the writings and theories proposed during this period, we seek to understand how these Physicians conceptualized the importance and interaction of various bodily systems, offering valuable insights into the evolution of medical thought and its historical implications.

This research examines and compares the perspectives of Physicians, from the 3rd to 6th centuries AH, on the hierarchical organization of human body components. These physicians include Rohawi, al-Farabi, Al-Akhawyni Bokhari, Gorgani, Avicenna, and Fakhruddin Razi. While their perspectives have similarities and differences, all these physicians discuss the hierarchical organization of vital components within the human body, making them the primary focus of this investigation. The physicians investigated in this research believe that humans benefit from the rational soul that elevates the human body to a state of perfection. So, in the human body, there are board members that preside over other members. The purpose of this research is to find the differences and similarities in the opinions of these physicians, and to achieve this goal, it is tried to examine and compare the views of each of these Physicians about the board members. Despite the extensive studies and reviews conducted on the Physicians of the Islamic period, there is a noticeable gap in the comparative analysis of their views on the hierarchical organization of the human body's vital components. A thorough examination of the perspectives held by these Islamic Physicians, not only regarding the prioritization of bodily systems but also concerning other aspects of traditional medicine, can serve as a foundation for comparing their insights with modern medical knowledge. This comparative approach can contribute to advancing medical understanding and facilitate further dialogue between traditional and contemporary perspectives on human health and physiology.

Islamic medicine is one of the most renowned achievements of Islamic civilization and a field in which Muslim scholars demonstrated exceptional brilliance. This medical tradition, which developed during the early Islamic period, maintains significant value through its deep interconnections with other sciences - particularly philosophical knowledge (the nature of philosophy). This is why, in the past, in the Islamic world, the sage, who was the central and leading figure in spreading and transmitting knowledge, was generally a Physician as well. The connection between the *hakim* (wise scholar-physician) and the *tabib* (physician) was so profound that philosophers, sages, and historians were all commonly referred to by the title "*hakim*." (Kasiri, 2009, p. 34).

According to Persian medicine, the members of the human body are divided into two categories: simple and complex. They believe that members such as the heart, brain, and liver are the board members due to the vital activities they perform for the body, and the rest of the members are servants to these members. According to them, the soul has three forces: 1- the animal force in the heart, 2- the vital force in the liver, and 3- the rational force in the brain. A person's privilege is the rational soul, and a person with a rational soul benefits from reasoning, thinking, and planning. (Gorgani, 1966, p. 56)

Physicians in Islamic civilization universally acknowledged human superiority over animals through the rational soul residing in the brain. However, they debated which of the three principal organs—the heart, brain, or liver—was most essential to human life.



While some scholars emphasized the liver's vital functions, others maintained the heart's primacy for survival. Examining the works of Islamic civilization physicians in the field of classification and prioritization of the board members of the body led the researcher to the fact that their opinions can be divided into the topics discussed below. In this study, anthropology was first examined from the perspective of Greek sages. Then, the physicians' opinions were reviewed in the order of the century, followed by the analysis and explanation of their views.

Plato's philosophical framework heavily revolved around the concept of the theory of forms, which proposes the existence of an extrasensory realm. According to this theory, humans possess a physical body and an intangible soul. It suggests that the essence of human existence is not limited to the corporeal form but extends to the immaterial soul, which has an existence akin to the abstract concepts of life and being, even prior to an individual's birth.

Anthropology According to Ancient Greek Sages

Because the Physicians discussed in this study have benefited from anthropology and the philosophical opinions of Greek philosophers, it is necessary to explain anthropology from the perspective of these two sages briefly. Plato believed in the theory of forms (extrasensory world); it means that man has both a physical body and an intangible soul, and the human being is not fully embodied in nature, but the soul exists in the world like the concept of life and being, even before an individual's birth. Based on this theory, it is assumed that what we perceive with our five senses is nothing more than a surface or appearance; the main reality is something we cannot see. Plato's theory of forms was the foundation of his entire philosophical vision. In this theory, there is the assumption that although there is a fundamental reality, it remains imperceptible to our physical senses (Renan, 1988, p. 82). The universe has a spirit that is comparable to the human spirit. According to this perspective, upon a person's death, their spirit is believed to return to its divine origin. Humans are regarded as microcosms mirroring the universe's complexity and interconnectedness. The soul, as the essential component of human existence and the distinguishing factor separating humans from animals, comprises three key elements: intellect, will, and desires. He also believes that man has subjective and attributive knowledge because of his human soul. According to Plato, the mind is the guide and guardian of the body, and it is the mind that brings happiness to the human being. Plato's view of the relationship between the mind and body can be compared to that of a chicken and a cage, a captain and a ship, or a driver and a carriage (or car). In this perspective, the soul is seen as temporarily confined by the body, yearning for freedom to engage in rational pursuits. Plato believed that the head serves as the central hub for intellect and knowledge, acting as an overseer and regulator of desires while holding the potential to become the guiding force for the soul's journey, much like a captain steering a ship (Durrant, 1991, p. 39).

Aristotle (322-384 BC) believes in the theory of form, which means that man is fully present in nature and is not separated from the spirit. Aristotle's anthropology is based on the assumption that the human soul is defined and distinguished by the rational force and man is considered as a creature that has both involuntary actions, such as eating, and voluntary actions that come from the active intellect, which has life even after death; it



means that part of the human intellect that is related to memory is mortal because with the death of the body, the memory also dies, but the active intellect is not mortal and is distinct from the body and is separate and non-corporeal. Due to having a moral system, man can recognize the specific function of each part of nature. In Aristotle's philosophy, man is a rational animal. The characteristic of man that differentiates him from other animals is being wise, and the rational soul, which means the power of intellect and thought of the spirit, is the first level of actuality of that natural body that has life potentially in itself (Renan, 1988, p. 150). According to Aristotle, the soul is a special type of nature, and the soul and the body are not separate; he considers them as a whole, a whole that consists of form and matter, and Aristotle considered this to be a common characteristic of living beings, including plants, humans, and animals. Also, according to Aristotle, the soul is a series of abilities or characteristics of the body. Therefore, we can say that according to Aristotle, the soul is not the same as the body, and he believes that the spirit needs a body, just as sense needs sensory members to feel, we need a nose to smell, and a tongue to taste. Even though the soul is different from the body, it needs the body. (Lorenz, 2009, p. 12)

Board Members, According to the Eastern Physicians of Islamic Civilization

1- Sage Ishāq bin Ali al-Rohawi (3rd century AH)

Rohawi believed that the human body is the instrument of the soul, and the members of the body were created to serve the soul. The important and functional members of the human body are known as the board members. The liver, as the chief, causes the formation and production of blood, and it absorbs food from the stomach. The food is cooked for a second time in the liver, and finally, it turns into blood and sends it to other members. The stomach is the first cooking tool, the brain is the source of the sensual power, the heart is the source of the animal power, and the liver is the source of the appetitive power. The heart, which is the seat of a person's life, sends softened blood to the brain, which is like food for the brain. The heart is made in the shape of a cone. Vascular dilation and contraction provide diagnostic evidence of cardiac conditions. The lungs are servant members because they protect the heart, bring oxygen to the heart, and regulate cardiac heat; the gall bladder absorbs the foam in the liver during cooking. The kidneys and bladder absorb the liquid part of the blood and excrete the residual substances that are not useful to the body in the form of urine.

“A man is the most complete type of animal because he is made of a living body and a rational soul, because the rational soul indeed completes the human type, and the actions of that soul appear through its body. The heart is the source of life, the place of the animal spirit, and the source of instinctive heat. The liver, as a principal organ, was created for blood formation. The stomach serves as the primary digestive organ”. (Rohawi, 2011, pp. 129-243)

2- Abu Nasr Muhammad Al-Farabi (259-339 AH)

According to al-Farabi, the heart is the chief, and after that, the encephalon or the brain is placed. Instinctive heat is issued from the heart, and the rest of the members get help from the heart. The brain adjusts the heat in the blood that comes from the heart. Feeling and voluntary movement are issued from the brain, and these two forces separate the



animal from the plant and its solids. Humans have the power of free will. When the will arises from human feelings and imagination, we call it will, and when the will originates from the rational force, we call it free will. In this view, the imagination plays a vital role in connecting the body and rational forces, facilitating their integration and cooperation. The rational force maintains harmony within the body, ensuring proper functioning and balance. As beings endowed with active intellect, humans benefit from education and discipline to cultivate their rational capabilities. Moreover, humans have an innate inclination towards social living, driven by their desire for self-improvement and personal growth.

“Heart is the member board and holds the chief status, subservient to no other member. The brain follows a hierarchy, though its status is secondary rather than primary. (Al-Farabi, 1982, p. 225)

3- Al-Akhawyni Bokhari (373 AH, deceased)

In this perspective, human and animal organs are categorized into simple and complex. Complex organs comprise multiple simple organs working together, while simple organs comprise basic elements, such as bodily fluids or tissues. Bones serve as structural supports in animals and humans, akin to the pillars of a house, with humans possessing 248 bones. Humans are distinguished from animals by their cognitive abilities, including imagination, awareness, comprehension, and wisdom. These abilities are considered markers of their political nature, enabling them to organize, communicate, and make decisions collectively. The heart is also highlighted as a crucial organ, playing a significant role in human health and well-being, and is metaphorically compared to the fruit of the Nashk tree. (The fruit of the pine tree is cone-shaped” (Dekhoda, 2006, p. 56).) The liver is the third board member that produces blood; the stomach is where every food and drink collects and enters it. The duty of the medical industry at first is to maintain the health of the body for humans, and after that, if a person falls ill, to find the proper treatment for them. To find the cause of the disease, they investigate from head to toe. The doctor must know and observe seven natural things. The first thing is the knowledge of the elements and their qualities. Fire, air, water, and soil are the four primary elements. The sputums include bile, soda, blood, and phlegm. The nature of fire is hot and dry. The air is hot and wet, the force of the water is cold and wet, and the force of the soil is cold and dry. If the temperament of one quality prevails over the other, a temperament is formed.

“Humans are described as a composite of two essential parts: a physical aspect characterized by bodily strength and a spiritual aspect represented by the mind. This duality highlights the interconnectedness of the corporeal and the incorporeal in human nature, with the body serving as a vessel for the soul or the essence of life. Animal organs are divided into two categories: simple organs, composed of bodily fluids or tissues, and complex organs, formed by the combination of simple organs. In the context of medical interventions, there are two key objectives: first, to protect the integrity and proper functioning of the body, and second, to restore health to individuals afflicted by illness.” (Al-Akhawyni Bokhari, 1945, pp. 17, 37, and 165).

4- Abu Ali Al-Hussein Ibn Abdullah Ibn Sina (Avicenna) (370-428 AH)

Maintaining a balanced temperament is essential for overall health, with moderation



being key to avoiding extremes. This balance is considered transverse, emphasizing the importance of harmony between different aspects of human nature. The liver houses the natural power responsible for preserving life and promoting growth through its dual functions. In fact, natural power keeps the body alive and grows with its two types of work, and the place of this power is the liver. The animal power, whose place is the heart, works for the spirit, which brings the feeling and movement from the brain to the organs and enables the members to be receptive to this feeling and movement. He believes the board members are the brain, heart, and liver. Each organ has unique temperamental qualities. The brain's temperament is cold, though its coldness does not equal the heart and liver's warmth. The heart's temperament is dry, yet its dryness doesn't match the brain and liver's moisture.

Man needs to live in society and wants cooked food and clothes. Human communication employs both vocal signals and gestures. Gestures help people convey their meaning and intentions more effectively. Thought and imagination guide humans in creating suitable living environments, distinguishing them from animals through unique traits such as laughter, crying, embarrassment, anticipation of the future, and hope. While animals also possess imagination, human intellect combines this power with reasoning and contemplation for more complex cognitive processes. (Avicenna, 2007, p. 34)

“Elements are simple objects that form the basic components of the human body and other creatures. The primary substance of the organ or parts of the organ is the liver, and the birthplace of the gem of the spirit is the heart (Avicenna, 1984, p. 10). The brain is the seat of sensual force, and sensual actions are issued from the brain. The natural power of its actions comes from the liver. The primary function or vital power of animals is to maintain life. (Avicenna, 1984, p. 152)

5- Sayyed Ismaeil Gorgani (434-531 AH)

According to Gorgani, the liver is the most important member of nutrition in the body because it refines the blood. In practice, it is like a cauldron, and what settles in this cauldron is called soda. The liquid of this cauldron is blood, and the dilute substance of the cauldron is phlegm and bile. These actions are performed in the liver by natural forces that perform the work of nutrition and production. The animal forces cause blood flow and respiration, and this action is performed with the intervention of instinctive heat or body heat.

Regarding digestion, production, and division of sputum, Gorgani believes that after food enters the stomach, due to the gastric fluids and secretions, it transforms into a dense substance, and digestion occurs in the stomach. After this stage, the substances are divided into effective and ineffective. The ineffective components, known as soda, do not serve a specific purpose and circulate throughout the body. This process involves further breakdown and absorption of nutrients into the bloodstream. After the second digestion, the kidneys take the blood and excrete waste substances in the form of urine, which is the third digestion process.

The heart is the center of instinctive heat, sending heat to the organs through the veins. The body's heat combines air and blood, creating the essence of the spirit. Mental powers are the sum of voluntary movements and common emotions in humans and animals, but the powers of thinking and reasoning are specific to humans. The center of mental actions



is the brain. (Gorgani, 1966, p. 54)

“The purpose of natural power is of two types. First, it makes the effect of food appear; the source of this power is the liver. Second, it separates the egg gem from the plant and the sperm from the mixture and sputum of the animal’s body. Animal power is the power that allows the organs to be receptive to feeling and movement. His emotional power is two powers: one is the power of feeling, and the other is the power of movement.” (Gorgani, 2005, p. 63).

6- Muhammad bin Omar Fakhruddin Razi (543-606 AH)

Razi believed in the principle of four natures and considered six factors necessary for human health. These six factors are as follows: (1) air, (2) food and drink, (3) movement and rest, (4) sleep and wakefulness, (5) evacuation and retention, and (6) emotional states such as joy and sorrow. Also, sage Fakhruddin Razi believed that each factor is good for health if used at the right time and in the right amount. Humans need to drink water because water is a simple substance that causes food to flow in the veins, and because the heart is warm, humans need air to cool down. In a conscious state, humans employ various senses, such as sight and hearing, to process and interact with their surroundings. Sleep, however, offers a period of rest, during which innate heat accumulates within the body. This internal warmth aids digestion and supports the body’s natural detoxification process, eliminating harmful substances through sweat.

One must recognize six fundamental factors which, when properly administered in correct measure and at appropriate times, serve as the foundation of health (Fakhruddin Razi, 2011, p. 53). Like other doctors of Islamic civilization, he believed that the three members are the board members, and they have three forces: food, viability, and reproduction. He considered the heart to be the center of instinctive heat and animal power, and the brain was considered to be the mine of resourcefulness force. He believed that although three board members are in the human body, the heart is the absolute chief because human life and death depend on this member. “God created three members in the human body and made each of those members a mine of natural powers; although these three members are the heads, the absolute chief is the heart because it is the initial organ to form and the last to cease functioning at the end of life.” (Fakhruddin Razi, 2011, p. 55).

Discussion and Data Analysis

Here, it is necessary to analyze and explain the opinions of the mentioned Physicians in a general view. While all physicians of Islamic civilization agreed that humans surpass animals through intellect and rational faculty - that humanity is attained through reason - they held divergent views regarding the hierarchy of the body’s three principal organs. There were sages like Al-Akhawyni Bokhari, a doctor of the 4th AH, whose teacher was Sage Zakariyya Razi, who said that the brain is the chief for humans because this member has arteries, which are arranged in a reticular pattern. A person with the brain and the force of the rational soul is superior to other beings. Sage Al-Akhawyni Bokhari was a follower of his master, Sage Zakariyya Razi. Although Sage Zakariyya Razi does not directly discuss the prioritization of board members, he believes that man is superior to animals with his intellect, and intellect is God’s greatest blessing to mankind. Without the faculties of intellect and reason, humans would be indistinguishable from four-legged



animals. Without these higher cognitive abilities, human behavior would be governed by innate urges and desires, lacking the capacity for thoughtful consideration and deliberate decision-making. From Razi's point of view, every act that comes from a human being is subject to intellect. He also mentions in his moral philosophy that avoiding mental afflictions and achieving a healthy body and spirit is the same as moral philosophy.

Sage al-Razi maintained that humanity's ultimate purpose transcends material pleasures. Instead, this intellectually-endowed creation—possessing a rational soul—was designed to acquire knowledge and practice justice. This philosophical perspective contrasts with the medical view held by physicians like al-Farabi, Fakhr al-Dīn al-Razi, and Avicenna. While acknowledging the heart's physiological primacy as the seat of vital dynamics, they established its hierarchical supremacy through empirical observation: human life depends entirely on cardiac function, thus affirming its status as the ruling organ.

In his philosophy, Sage al-Farabi was affected by the ancient Greek philosophers (Aristotle and Plato) and influenced Avicenna's philosophy. According to medical scholars who consider the heart the central governing organ, innate heat originates from the heart, providing vital support to other organs. In this perspective, the brain plays a critical role in regulating the temperature of blood flowing from the heart, as described by al-Farabi. The heart is also believed to be the source of spirit, which, in conjunction with animal power, facilitates the transmission of sensations and movements from the brain to other parts of the body. In fact, this animal power in the heart sustains life. However, some physicians, such as the distinguished sages Rohawi and Gorgani, contend that the liver holds chief significance due to its critical role in the body's nutrition. These scholars posit that the liver's responsibility for nutrient processing and distribution throughout the body elevates its importance above other organs. After all, it refines the blood, separates soda, phlegm, and bile from the blood, and the liver absorbs the stomach's food. The food is cooked a second time in the liver and turns into blood, which flows to other members. In Islamic medicine's physiological framework, the liver performs the dual functions of blood generation and systemic nourishment—its operational power being termed the 'natural faculty.' Thus, while physicians of Islamic civilization universally recognized the brain as the seat of human superiority over animals, they diverged into three schools regarding vital primacy among the cardinal organs (heart, brain, liver). Some consider the brain the chief due to its crucial role in sustaining human consciousness and intellect, distinguishing humans from other species. Some other sages who believe in the superiority and vitality of the heart consider the heart to be the center of a human being's life because the spirit comes from the heart. Lastly, some physicians maintain that the liver is the body's most vital organ, attributing its importance to its function in producing and refining blood, thus providing essential nourishment and sustaining life (Table 1).

Table 1: Category of physicians opinions

| Physicians name | The Chief | The reason |
|----------------------------|--------------------|--|
| <i>Al-Akhawyni Bokhari</i> | Brain (encephalon) | Human perfection is attained through the rational soul, making the brain the chief. |
| <i>Al-Farabi, Avicenna</i> | Heart | The soul is produced and exported from the heart; since human life depends on this member, the heart is the chief. |
| <i>Rohawi, Gorgani</i> | Liver | Because the primary substance, blood, is produced and refined by this member, the liver is the chief. |



In summary, the failure of each of these three members poses a problem in human life. Therefore, Physicians who consider the brain the chief of the body are concerned with its role in supporting human rationality, sensibility, and cognitive abilities. Conversely, those who prioritize the heart and liver's roles tend to emphasize the physical, instinctual, and life-sustaining aspects of human existence.

Conclusion

The results show that according to Physicians, humans have three souls, or, in doctors' words, the soul has three forces under its control. 1) The sensual or natural soul is located in the liver, and this soul performs the actions of food digestion, body development, pleasure, and lust. 2) the animal or vital soul, whose place is in the heart, and the force of feeling, movement, and vitality depends on this soul. 3) Rational soul, which arms the brain with the power of reason, thinking, and discernment, and Physicians consider the rational soul to be the reason for the superiority of humans over animals.

- According to Physicians, the heart, brain, and liver are regarded as the body's primary organs due to their crucial roles in carrying out essential life-sustaining processes. Other organs and tissues serve to support and facilitate the functions of these members.

- Physicians such as Ishāq bin Ali al-Rohawi, born in the third century AH, and Sayyed Ismaeil ibn Husayn Gorgani (434-531 AH) consider the liver to be the chief because, according to them, the liver produces and refines blood and is the most important member for nutrition.

- Other Physicians, such as Abu Nasr Muhammad al-Farabi (259-339 AH) and Muhammad bin Umar Fakhruddin Razi (543-606 AH), consider the heart the chief. Their reason is that human life and death depend on this member. Instinctive heat is issued from the heart, and other members get help from this member.

- Sage Al-Akhawyni Bokhari (373 AH, deceased) deemed the brain to hold primacy among the principal organs because of its weblike arterial formation, which equips humans with reasoning, contemplation, and wakeful awareness.

Authors' Contribution

Masood Kasiri provided valuable assistance in analyzing and interpreting the data in this work. Marzieh karimi contributed to the collection, classification and interpretation of data. All authors read and approved the final version of the work.

Funding

None.

Conflict of Interest

None.

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