

Were the Founders of Ancient Hospitals Asclepiions Aware of the Definition of Current Health?

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ABSTRACT

The ancient hospitals established in honor of Asclepius, the god of medicine and health in mythology, were called “Asclepion”, meaning “the house of Asclepius”. Throughout antiquity, approximately three hundred and twenty Asclepiions were built, particularly in present-day Western Anatolia (Türkiye) and Greece. These institutions functioned from the 6th century BC until the 6th century AD. Today, health is defined not merely as the lack of disease or disability, but as a good in health for physical, mental, and social points. The aim of this study is to reveal the relationship between the therapeutic approaches and practices in ancient Asclepiions and the current conception of health. An examination of patient care and treatment methods in these institutions demonstrates practices remarkably advanced for their time. Evidence indicates that centuries ago, patients in Asclepiions were regarded as biopsychosocial beings, approached holistically in their physical, psychological, spiritual, mental, social, and environmental dimensions, with the provision of comprehensive health services aimed at achieving well-being. Moreover, Asclepiions

also served as centers of medical education, nurturing some of the most prominent physicians of the era, including Euryphon, Hippocrates, Galen, Herodicus, and others. In modern medicine, one of the greatest obstacles to achieving true health is the mechanistic approach that views patients solely as biological entities whose disorders need correction. As in the modern definition of “health,” the path to health requires considering the human being as a biopsychosocial whole. This holistic understanding was already implemented in its entirety in the ancient hospitals known as Asclepiions.

Keywords: Asclepiions, Ancient hospital, Definition of health, Biopsychosocial, Holistic medicine.

INTRODUCTION

Asclepiions built in ancient times were temple hospitals dedicated to “Asclepius”, the mythological god of medicine and health [01]. Throughout antiquity, approximately three hundred and twenty Asclepiions existed, particularly in present-day Western Anatolia (Turkey) and Greece, and they functioned from the 6th century BC to the 6th century AD. These ancient medical

institutions were called "Asclepion" meaning "house of Asclepius" and the priests and physicians who practiced there were called "Asclepiads" [02]. Asclepions were considered centers of healthcare in ancient Greek society. Asclepions were special places both in terms of their location and their architectural features. The most important Asclepions are Epidauros, Pergamon, Kos, Athens and Knidos [03-05]

(Figure 1). These centers played a crucial role in sharing medical knowledge, focusing on healing, and improving public health. These centers should be viewed not only as treatment centers but also as places where medical knowledge was shared and medical education was implemented. In these places, ideas about medical teachings, education and practice were shared [06].



Figure 1: General view of the Epidaurus Asklepeion.

Beginning approximately 2,600 years ago, "Asclepion", which resembled a health campus, provided a holistic form of healthcare for approximately 12 centuries, based on the understanding that illnesses result from the synergy of physical, psychological, social, and environmental aspects [07]. The healthcare services implemented at Asclepion, along with the transformation of healthcare, the history of hospital development, and its modern meaning, offer lessons that will help us complement our understanding of health and serve as a prototype foundation for better understanding the concept of a healing environment [02,08].

The current definition of "health" by the WHO is as follows: "Health is not merely the absence of disease or infirmity but a state of complete physical, mental, and social well-being" [09,10]. The concept of "mental" here encompasses all psychological, spiritual, and emotional states. The definition of health has evolved over time. While health was initially viewed as a normal functional state that might occasionally be impaired by disease, it has been defined more broadly in the modern era [10]. Consequently, healthcare services have evolved over time from a one-dimensional approach -treating illness- to a holistic approach to the patient, encompassing all aspects of health. This

study aims to demonstrate the relationship between the treatment approaches and practices in ancient Asclepion hospitals and the modern definition of health. Explaining such a relationship will reveal the role of ancient healthcare services in achieving health and healing in the modern era and its legacy.

Architecture of the Asclepions

The locations where Asclepions were built were carefully chosen. They were built in green surroundings, in areas with plenty of trees, in airy, quiet, and slightly distant from residential areas. Areas were generally chosen near natural hot or cold springs (sometimes both), making them suitable places for healing and cleansing [11,12]. They were built on slopes, often out of direct wind. This location, because the wind blows downhill in the summer, ensures fewer mosquitoes and fewer cases of malaria. Furthermore, the air temperature is generally pleasant [11].

Numerous studies have recently demonstrated the psychological impact of hospital architecture, design, and layout on patients. Baker et al. [13], Morrison et al. [14], Parthasarathy et al. [15] and Berg [16] have conducted research on the physiological (blood pressure, heart rate) and psychological (sleep disturbance, psychosis in intensive care units, pain) effects of ambient sound and noise. Some studies have found that increased sound levels contribute to increased heart rate, stress and tension [17-19]. Similarly, some studies suggest a significant relationship between sunny and inactive patient rooms, length of hospital stay, and mortality rates [20,21]. Leather et al. indicate that the physical structure of waiting areas is related to psychological state and satisfaction [22]. As in the case of Epidaurus, Asclepions featured ample seating and patient waiting areas [12]. Blackburn et al. found a clear correlation between the level of illumination in patient rooms and heart rate and respiratory rate [23]. Asclepions were located some distance from the city, quiet, constantly exposed to

sunlight, well-lit, close to hot and cold-water sources, and with clean air. It can be argued that psychologically supportive designs in hospitals aid the healing process by helping patients cope with the stress known to accompany illness.

Treatment Methods in Asclepions

Patients arriving at the Asclepion were first admitted to the patient reception area. After the patient's complaints were heard [2], practical treatment and/or religious ceremonies were performed for each illness [12]. This disease-specific treatment was quite advanced for the time, when similar rituals and ceremonies were applied to each patient, and healing methods were employed. A wide variety of treatment options were available, depending on the patient's complaints. Treatment methods at Asclepions primarily included herbal remedies, dream and suggestion therapy, diet, water (thermal) and thermal treatments. Mud baths, diet, vomiting, gargles, ointments, suppositories, eye drops, and various herbal medications were also used. Surgical treatment was less common [2,5,24]. The primary diseases treated at Asclepions were various neuropsychological disorders, dermatological diseases, and chronic pulmonary diseases. Gynecological, ophthalmological, and surgical conditions were also treated [25].

Visitors to the Asclepion would first wash in water depicted as sacred, receiving their rings, belts, jewelry, and other accessories [26], and then be given a white robe [12]. These garments can be thought of as the hospital gowns worn by modern patients. The traditional treatment method was for patients to sleep in an abaton (sacred dormitory) [12]. Meanwhile, attendants would release harmless snakes among the patients, believed to aid treatment [25]. Once patients entered a deep sleep (currently known as "REM", rapid eye movement, sleep), they would wait for Asclepius, the god of medicine and health, to tell them or show them the cure. The dreams were interpreted by physicians to diagnose the illness.

Treatments were based on diagnoses derived from dream interpretations [27,28]. Interestingly, some patients claimed that Asclepius (Figure 2), with his snake-entwined staff, wandered between beds, spoke to them, and treated them [29]. This is a significant example demonstrating the extent of belief in psychological healing in healing processes. Furthermore, physicians helped patients recover through suggestions, and procedures such as surgery were performed when necessary. Patients believed they would recover in the dreams they

experienced as a result of suggestions, and as a result, they worked with hope to recover. It is understood that Asclepiads conducted psychotherapy sessions using creative dream interpretations [30]. Sources also indicate that the hospital had dedicated and separate sleep therapy departments [31]. For this reason, Asclepians became the most important health centers of their time with their medical, herbal, surgical and paramedical treatments intertwined through suggestion and belief [3,26,27,32].

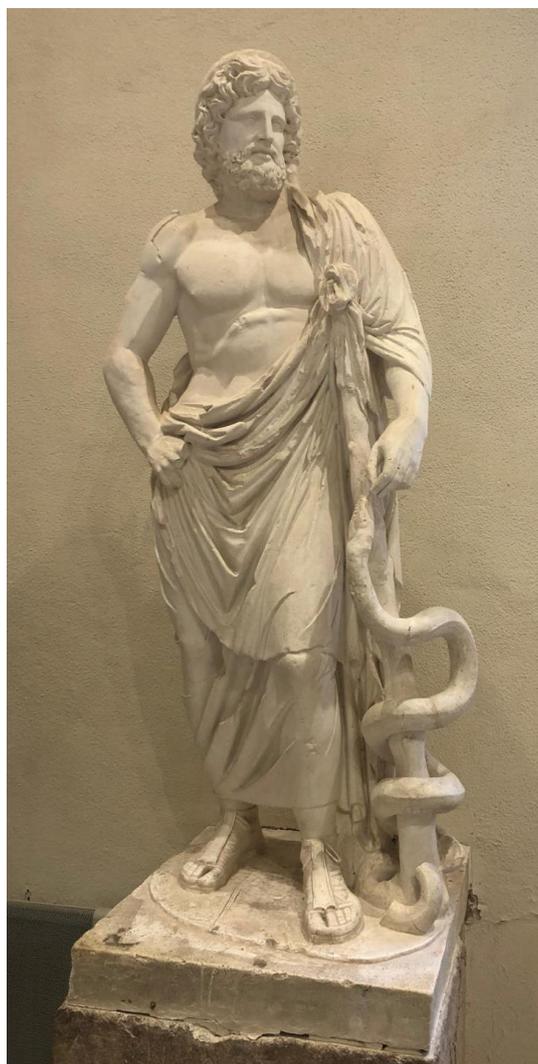


Figure 2: Statue of Asclepius, god of medicine and health.

Asclepius and the Components of Health Practices to Achieve the Physical Component of Health

Upon arrival at the Asclepion, patients would bathe in water considered sacred. This practice was important for hygiene.

Patient toilets were also located in a separate area. Patients were examined in the abaton area. Mud baths, hot water baths, thermal spring treatments, sunbathing, and massage were among the treatment methods applied, especially to patients with muscle and joint

diseases [5,25,27]. Patients were encouraged to participate in sports and physical exercise. There was a stadium for walking, running, and athletics. The stadium served both as a personal sports field for patients and as a social setting for watching competitions [2,25]. As in the case of the Asclepion of Epidaurus, the "Gymnasion" structures within the Asclepion were used for both sports and educational purposes [11].

Practices to Achieve the Mental Component of Health

Psychological and Spiritual Dimension

From the moment they entered the Asclepius, patients believed they were entering a healing environment. Upon entering, they were greeted by attendants and led inside amidst a sea of offerings, gifts to Asclepius, and votives. Attendants were constantly present. These attendants would hand the patient over to the physicians for examination. The presence of specially dressed attendants upon arrival and the attentiveness of the physicians were important factors in ensuring the patients' sense of security. When patients were admitted to the sacred sleeping chambers, they were indoctrinated with the suggestion that the god Asclepius would appear to them in their dreams and assist them in the treatment of their illnesses [12]. These practices helped to make previously healed patients aware of their presence, boost their morale, and foster the belief that they would be psychologically cured of their illnesses. For a comfortable sleep, patients were placed in separate rooms. This separate room practice made patients feel valued [12,27].

Dream interpretations were conducted with patients, and treatment was planned, fostering a collaborative approach between patient and physician, in line with contemporary understanding. Creative dream interpretations bear similarities to psychotherapy sessions today [30]. In some Asclepians, such as the Pergamon Asclepion, a tunnel was located between the sacred structures and the patient rooms. This

tunnel had holes that allowed sunlight to pass through, and small channels through which one could hear the sound of water. Patients who passed through this tunnel, accompanied by physicians, were assured of their recovery. Persuasion and reassurance were crucial steps in this practice [32]. The emphasis on patient psychology and the creation of an atmosphere of belief in recovery were quite advanced practices for their time.

Emotional Dimension

Patients knew they had come to a sacred temple hospital. Rituals, votive and thank-you inscriptions from previously healed patients, and the constant presence of physicians and attendants helped create an atmosphere of spiritual healing [12]. Music therapy, hydrotherapy, and various games were complementary and practical treatment methods employed at Asclepians [24].

Mental Dimension

The libraries in Asclepians generally contained non-medical books, and some of these were specially selected and read to patients to help them relax mentally [25].

Practices to Achieve the Social Component of Health

Asclepians were places that prioritized the importance of social interaction and social activities in the patient's recovery and healing process. Asclepians provided environments for social interaction. Theaters were essential for almost all Asclepians (Figure 3). Theaters provided not only moral support for patients but also a social environment. Theaters staged both theatrical plays and musical performances. Periodic festivals, fairs, and festivals were held at Asclepians, and patients were encouraged to participate in these events. Libraries, like theaters, served both as moral and social centers [12,24]. As we observe in the example of the Asclepion at Epidaurus, stadiums were also places where patients socialized (Figure 4). Furthermore, patients had the opportunity to socialize in addition to

shopping for their daily needs in a marketplace-like area within the Asclepion [12].



Figure 3: The theater of the Asklepion of Epidaurus.



Figure 4: The stadium of the Asklepion of Epidaurus.

Practices to Achieve the Environmental Component of Health

Today, living in a clean environment has become a fundamental component of health. The environment is as crucial for maintaining and improving health as it is for restoring lost health and the healing process. In this respect, the location and architectural structures of Asclepiions ensured their construction aligned with the environmental dimension of health. Sites with abundant trees and greenery, as well as clean air, were specifically chosen [5,27]. In addition to environmental cleanliness, personal hygiene and cleanliness were also among the practices. Upon arrival at Asclepion, patients were bathed, given special, clean clothing, provided separate toilets for men and women, placed in separate patient rooms within abaton, and treated with spa treatments, all of which were important for personal cleanliness and care [12]. At this stage, we would like to express our belief that the "right to live in a clean environment" and its achievement could be added to the WHO definition of "health," which is a state of good in health for physical, mental, and social aspects. We observe that this characteristic and right was sought to be achieved centuries ago at the Asclepius, and we believe it contains elements that can be used as a model for today.

Pioneering Approaches Implemented in Asclepius and Famous Physicians Trained

In this section, famous and pioneering examples of ancient physicians who worked in Asclepiions are given below in detail.

Euryphon (5th century BC)

Euryphon was a renowned ancient Greek physician born around the first half of the 5th century BC, who trained and practiced at the medical center of Knidos in Caria [33]. Euryphon of Knidos is known as the first physician to emphasize the crucial role of nutrition in health. His treatment recommendations included dietary modification, physical exercise, the

ingestion of herbal extracts, and, as a last resort, surgical intervention [34]. Euryphon was among the pioneers of using the obstetric stool during general obstetric examinations. He also described some interesting therapeutic options for gynecological diseases, including succussion and the washing of a dislocated uterus with wine. He defined succlusion as follows: "The procedure involves placing the patient in an inverted position on a ladder-like platform to restore the prolapsed genital organs to their normal position. From the inverted position, the prolapsed genital organs are brought back to their normal position by the force of gravity and a swinging motion". It is noteworthy that physicians working at Asclepiions perform obstetric, genital, and vaginal examinations of female patients, and offer treatment options [35,36].

Hippocrates (460-370 BC)

Hippocrates (460-370 BC), who practiced medicine and later became an educator at the Asclepius of Kos, was an innovative physician who brought the scientific understanding of medicine to medicine. His father, a priest and physician (Asclepiad), Hippocrates first received medical training at the Asclepius of Kos. He later practiced medicine and trained students at the Asclepius of Kos. During the Hippocratic period, the Asclepius of Kos transitioned from the method of healing solely through the worship of Asclepius to the Hippocratic medicine based on observation and cause-and-effect, what we today call scientific medicine [37]. It is undeniable that the Asclepion of Kos, situated in a verdant and verdant environment, contributed to the development of treatment methods during this process. The use of herbs naturally grown on the island of Kos as herbal drugs was used in dietary therapy. The Asclepion played a significant role in the implementation of treatment options [4]. As reported by Hippocrates, the physician had to investigate the patient, meticulously pay attention to the symptoms, make a correct

diagnosis, and then manage the problem of the patient. As a result, Hippocrates built the foundations of holistic medicine as it is practiced even now [38,39].

He proposed many medical terms always used by medical doctors, such as symptom, diagnosis, treatment, trauma, and sepsis. Hippocrates also laid the foundations of medical ethics [38]. Hippocrates, known for prescribing dietary therapy to his patients, was actually recommending the treatment methods implemented at the Asclepion. This is because the word "diet" (diaita) in Ancient Greek had a much broader meaning than today; it meant "way of life" and encompassed many aspects of lifestyle: food and drink, physical exercise, baths and massage, sun therapy, sleep and sexual practices, "passions of the soul" habits, and generally, one's entire lifestyle. These therapies were actually methods practiced at the Asclepions, and the treatment approach of Hippocrates, who served at the Asclepion, aligns perfectly with modern medicine's rediscovery of the role of lifestyle in the prevention and treatment of disease [40].

Galen (129 AD - c. 216 AD)

Galen (129 AD - c. 216 AD), one of the most prominent physicians in medicine for centuries until the Renaissance, was born in Pergamon. Galen, who influenced Western medicine for centuries, worked at the Pergamon Asclepius and in Rome, becoming known as the physician of emperors and gladiators. There, he studied medicine, philosophy, and mathematics. He visited important medical centers of antiquity, broadening his knowledge, experience, and professional experience. Upon his return to Pergamon, he was appointed physician to the gladiators. During this period, his experience in orthopedics and surgical diseases and his knowledge of anatomy increased. He conducted numerous animal dissections and became a physician and anatomist whose work was cited in anatomy for centuries. Later, as physician to three Roman emperors, including Marcus Aurelius, Galen was interested in nearly

every field of medicine and wrote books on his areas of interest [41]. He became the first practitioner of experimental physiology with his animal experiments [41]. Galen used herbal mixtures prepared from plants grown in the Pergamon region in his treatment. In this respect, he is considered one of the first practitioners of natural nutrition and one of the founders of pharmacology and pharmacy. Galen, who prioritized surgery in treatment, advocated for surgery when diet and pharmaceutical treatment failed. He employed physical therapy with hot water. He outlined the need for ligation of veins in cases of arterial bleeding, outlined the principles of amputation, and emphasized the necessity of radical surgery if surgery is necessary in cancer cases [42].

Herodicus (5th century BC)

Herodicus was a Greek physician who lived in the 5th century BC. He is considered the first physician to practice the method known as therapeutic gymnastics. Before beginning his medical career, Herodicus was a sports instructor, and by this time he had developed a comprehensive understanding of physical exercise and its effects on the body, particularly the consequences of its absence. Later, aspiring to study medicine, Herodicus studied at Cnidus, one of the most important schools of antiquity, and his education was rooted in the teachings of Hippocrates. Hippocrates' approach, which posited lifestyle, environment, and nutrition as fundamental elements of a healthy life, aligned with Herodicus's belief that both exercise and nutrition were fundamental to maintaining optimal health. Herodicus earned a significant place in medical history by incorporating strict diets, regular physical activity, and regular exercise into effective treatment methods [43]. Pioneering contributions of Herodicus to medicine, particularly his integration of physical exercise with medical treatment, established the foundational principles of current sports medicine. Thus, combining his prior knowledge as a sports instructor with his extensive medical training, he formulated an

innovative approach to health that emphasized the critical balance of nutrition and exercise and the importance of maintaining bodily homeostasis [44]. Emphasis of Herodicus on the integration of nutrition and physical exercise in therapeutic processes may be influenced by the holistic medical approach practiced at the Asclepions.

In addition to these important physicians, Rufus of Ephesus (c. late 1st century AD - early 2nd century AD), who wrote treatises on dietetics, pathology, anatomy, gynecology, and patient care, and Soranus of Ephesus (c. 1st-2nd century AD), who studied gynecology and dermatology, are known as two distinguished physicians at the Health Center and Medical School established during the Roman Empire in Ephesus, located within the borders of present-day Türkiye. No remains of this center have yet been found. However, evidence regarding the names and practices of the physicians from inscriptions found during the excavations of the Church of the Virgin Mary (near Ephesus) indicates that this was a health center in ancient times, and that two prominent physicians practiced at the center [45].

Attaining Health in Asclepions

In ancient times, Asclepions were places where efforts were made to heal patients not only biologically but also biopsychosocially. In this section, an attempt will be made to relate the treatment environment and practices in Asclepions to the dimensions included in the modern definition of health in order to achieve health. The sections given in parentheses are the dimensions included in the current definition of health.

When patients approached the Asclepion, they encountered a quiet, peaceful environment surrounded by greenery, close to hot and cold springs [12] (environmental and psychological dimensions of health). Inscriptions expressing gratitude and thanks from previous patients were found at the entrance [46]. Upon entering the Asclepion, patients were greeted by attendants, often dressed in white, who escorted them to a room [5] (spiritual dimension of health). There, patients were asked about their complaints, and their responses were listened to carefully. The Asclepians gave patients specific action plans and instructions to follow. They then toured the exterior of the Asclepion, examined anatomical presentations (votives) (Figure 5), read the descriptions in the inscriptions, and conversed with other patients [31].



Figure 5: An example of a votive (in Epidaurus Asklepion).

The patient being cared for was cleaned. This practice provided a kind of purification,

both hygienically and spiritually [26] (the physical and psychological dimensions of

health). The patient, wearing hospital clothing, was placed in a hotel (kataklintyrio), a long building with private rooms, and then taken to the sleeping room [25]. The night's dreams were interpreted by priests and the treatment began. In this way, the patient was psychoanalyzed (the psychological and emotional dimensions of health). Isolated from the environment that could be the source of their illness and admitted to the hospital room, the patient's priority was diet, diet, or herbal treatment. If they were in pain, they were then given herbal herbs or mixtures to alleviate the pain [24] (the physical dimension of health). In addition to biological treatment, the patient was played music to improve their psychological well-being (the emotional dimension of health). The patient's hygiene was taken into consideration, he was given access to toilets located in a separate place, and he was given regular baths in hot water [42] (the physical dimension of health).

Priest doctors (Asclepiads) would offer suggestions to the patient that they would recover. Because this practice was conducted collectively, it is generally accepted that the earliest applications of group psychotherapy occurred in Asclepiads [30] (the psychological dimension of health). The patient's psychology was also positively affected by the sight of votive statues left or hung in various parts of the Asclepiad by recovered patients (the psychological dimension of health). Social support for the patient at Asclepiad was provided by the theater, library, and stadium located within the Asclepiad. Periodically, plays and musical entertainments were held in the theater. The library contained a wide range of works in addition to medical textbooks (the social dimension of health). Patients who were called guests rather than patients, rested in a clean and green environment, had their daily needs met, had their nutrition regulated biologically and pain alleviated, were supported psychologically with suggestions and recommendations, and were in a social environment, regained their health, which was defined as a state of

complete well-being from a biopsychosocial perspective [4] (physical, psychological, social and environmental dimensions of health). What was lacking in the Asclepians was the lack of patient rights, as seen in modern medicine, that not every patient had access to treatment. Terminally ill patients were not admitted to the Asclepiion after a preliminary examination. Similarly, pregnant women were forbidden from entering the Asclepiion and giving birth [7,25].

Conclusion

For approximately 12 centuries in ancient times, Asclepians were health centers that provided holistic healthcare services, focusing on the treatment of diseases resulting from the relationship of physical, psychological, social, and environmental aspects [8,47]. Asclepians also functioned as medical schools where medical education was provided and medical practices were taught [6]. Furthermore, considering the locations and architectural designs of Asclepians in terms of hospital architecture, it is clear that designing today's hospitals in a clean, natural, and quiet environment with a human-centered and ergonomic approach, and reevaluating existing structures from this perspective, will contribute to the improvement of health, and in this respect, Asclepians serve as important models [4].

In the Asclepians, a person (patient or guest) was treated with profound respect as a complete being, possessing mental, moral, emotional, social, ethical, and natural qualities as an inseparable whole. Illness was not seen as a single-dimensional process, but as the result of complex, adverse environmental, social, and psychological interactions. Spiritual, emotional, and natural factors, as well as health services and additional assistance through medical intervention, surgery, or pharmacy, seemed to aim to resolve all these contradictions and restore them [2,31].

Asclepians were places that utilized what is now called the placebo effect in a highly positive way [31]. The placebo effect, as is well known, relies heavily on patients' belief

and hope for rapid recovery; in the case of healing processes, this can be based on both previous personal successful treatment experiences and the dissemination of specific medical procedures that yielded positive results [48]. When an Asclepion was built in a region, patients from nearby and far away, depending on its reputation, would visit it seeking healing. Healing processes, advertised in inscriptions and anatomical votive offerings, and various rituals aimed to manipulate patients' mental and physical functions and transform their hopes into expectations of recovery. It is clear that the combination of therapeutic narratives and motivational development through physical development had significant physical and cognitive consequences. In this respect, the placebo effect had been used centuries earlier in Asclepians [31].

Considering that the treatment options at the Asclepians, in the same period, were places where magic, rites, rituals, and evil spirits were exorcised, it becomes clearer how advanced these hospitals and health campuses were, where healthcare practices could serve as models even today. Today, patients are treated with a mechanical approach that merely addresses biological disorders. It seems that the patient's "human" nature, a spiritual and social being as much as a physical one, has been forgotten. However, as with the modern definition of "health," the path to healing and maintaining health requires considering the human being as a biopsychosocial whole living in a clean environment. This holistic and humanistic approach to health was implemented centuries ago in the Asclepians. Therefore, we believe it is necessary to boldly ask the following question: "*Were the founders of the Asclepians aware of the current definition of health?*" Or perhaps it would be more accurate to ask: "*Is the biopsychosocial holistic medical approach to health, as practiced in the Asclepians, present in today's modern medical understanding and practices?*"

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