



SOME CONSIDERATIONS ON THE DEVELOPMENT OF MEDICINE DURING THE MUSLIM RENAISSANCE

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Abstract. *Most of the medieval scholars in the article had encyclopedic knowledge. They were well versed in many sciences, including medicine. Analysis of many data in the field of medicine, which has a rich history, in the works of representatives of medical science of the Karakhanid period Muhammad al-Kaloniysi, al-Marwazi, Najibuddin Samarkandi, al-Razi and representatives of this field, methods of treatment, attention is paid to the analysis of data on the diagnosis, surgery and treatment of various diseases prepared from medicinal plants. In addition, there are many sources and data on various stages in the history of medical science, as well as scientific analysis. Because early medicine and its stages of development are the product of centuries of human thinking and experience, as well as a combination of skills. In short, the above-mentioned comments and analyzes show that the origin of modern medicine, the stage of development of which is due to the necessity of early medicine, through the observation of ancient history, that is, the primordial nature of mankind. Because from time immemorial, mankind has begun to focus on the gradual development of primary medicine to provide for their lifestyles, health, and life needs, and thus have been able to prepare the ground for understanding their place in society. Thus, the scientific views, treatments, and diagnostic practices that existed in the Middle Ages can be considered as the initial to modern medicine in the East and the West.*

Keywords: *Canons of medicine, scientific schools, exact and natural sciences, bending, education, look after, pharmacist.*

Introduction. *Most scholars of the Middle Ages possessed encyclopedic knowledge. They were well-versed in many sciences, including medicine. The*

analysis of numerous medical sources with a rich historical background highlights the works of representatives of the medical field from the Karakhanid period, such as Muhammad al-Kaloniysi, al-Marwazi, Najibuddin Samarqandi, and al-Razi. Their works focus on treatment methods, diagnostics, surgery, and the use of medicinal plants for curing various diseases.

Additionally, numerous sources and data related to different stages of medical history have been examined and scientifically analyzed. Indeed, early medicine and its stages of development are the product of centuries of human thought, experience, and accumulated knowledge.

In conclusion, the discussions and analyses presented above indicate that the origins and developmental stages of modern medicine stem from ancient history. The initial emergence of medicine was driven by necessity, as early humans observed nature and the diverse world around them. Since ancient times, humanity has paid attention to the gradual development of medicine to sustain their way of life, health, and daily needs. This, in turn, laid the foundation for their understanding of their place in society.

Thus, the scientific views, treatment methods, and diagnostic practices of the Middle Ages can be regarded as the precursor to modern medicine in both the East and the West.

Research Object and Applied Methods. According to scholars, the East, particularly the Central Asian region, served as the source of two powerful waves of scientific and cultural renaissance during the 9th–12th and 14th–15th centuries. These intellectual surges significantly influenced the Renaissance movements in other parts of the world. The period of the Eastern Renaissance has been rightfully recognized by the global academic community as a fundamental stage of intellectual revival.

As many researchers have noted, while the European Renaissance resulted in the emergence of literary and artistic masterpieces, medical advancements, and

new discoveries about human nature, the distinguishing feature of the Eastern Renaissance was its remarkable progress in exact and natural sciences such as mathematics, astronomy, physics, chemistry, and medicine. The German philosopher G. Herder aptly stated: *“In the fields of mathematics, chemistry, and medicine, the contributions of Muslims were immense. In these sciences, Muslims remained the teachers of Europe.”*

By the Middle Ages, significant progress had been made in medical treatments, diagnostics, and pharmaceutical developments. During the rule of the Karakhanids, particularly under the leadership of Bughrakhan, hospitals and specialized medical schools were established. These institutions, which flourished in Samarkand and many other cities, were justifiably regarded as centers of medical knowledge.

Within these institutions, renowned physicians of their time, such as al-Kaloniysi, al-Marwazi, and Najibuddin Samarqandi, not only educated students in medical sciences but also actively practiced in the fields of medicine and pharmacology. Their contributions extended beyond medicine, encompassing mathematics and other natural sciences. The study of their works has been carried out using analytical, comparative, and observational methods to ensure a comprehensive scientific examination of historical sources and data.

Results and Analysis. The Muslim Renaissance, as well as the research initiated by great scholars and physicians like Ibn Sina, was further developed during the reign of dynastic states, including the Karakhanids. The Karakhanid rulers actively worked to advance the economic, political, and cultural spheres of their state. Large-scale construction projects were undertaken in cities, particularly in the capital, Samarkand, where various buildings, including hospitals and medical institutions, were established.

For instance, in 1066, under the initiative of Samarkand's ruler, Ibrahim ibn Nasr Tamghach Bughrakhan, a hospital was built in the city. This institution

functioned not only as a medical center but also as a specialized madrasa (school) for teaching medical sciences. It was referred to as the "**Center of Medical Knowledge.**" The hospital and its associated school were financially sustained through income generated from waqf (endowment) lands and enterprises owned by the ruler.

According to the hospital's regulations, it provided medical care not only for the sick but also for the elderly and disabled who had no family support, effectively functioning as a charitable hospice. This initiative highlights the Karakhanid rulers' efforts to integrate medical education with social welfare, ensuring access to healthcare for all segments of society.

The funds allocated for the hospital were distributed across various areas. For example, 10% of the total budget was designated for physicians who worked permanently in the hospital, 15% for patients' food, 5% for firewood and coal, 2% for purchasing water jugs and candles, and 3% for the cook. Additionally, 2% was allocated for blood collectors, and 3% for gravediggers. This indicates that the hospital had specialized blood collection experts. The hospital administration was responsible for the burial of impoverished, lonely, and disabled patients who passed away.

Institutions similar to the Samarkand hospital and medical school existed in other cities as well. In these institutions, knowledgeable and experienced physicians taught students. Among them were Muhammad al-Kalonisi, Qattan al-Marwazi, and Najibuddin Samarkandi.

Muhammad al-Kalonisi (Bahriddin Muhammad ibn Bahram Kalonisi as-Samarqandi) was born and educated in Samarkand. His birth year is unknown, but he passed away in 1194. Kalonisi was an experienced physician and pharmacologist. He authored a work on pharmacology titled *Kitab al-Qarabadin (The Book on Compound Medicines)*. In this book, he explained the preparation and usage methods of compound medicines, including powdered medicine, tablets, decoctions,

infusions, and various ointments. Kalonisi's medical writings are not well-documented, as he primarily focused on pharmacology.

Qattan al-Marwazi (Ayn az-Zaman al-Qattan al-Marwazi) was one of the prominent physicians of his time. The exact years of his birth and death are unknown. According to historical sources, Marwazi was a student of the renowned 12th-century philosopher Abu Abbas al-Muqri, indicating that he lived during the 12th century. He was born in the city of Marv, which is why he carried the title "Marwazi."

In addition to medicine, Marwazi was engaged in astronomy, mathematics, and other natural sciences, but his primary profession was medicine. His known medical work is *Rasa'il al-Tibb (Treatises on Medicine)*, in which he provided relatively concise information on both theoretical and practical medicine.

Najibuddin Samarqandi (Najibuddin Abu Hamid Muhammad Ali ibn Umar as-Samarqandi) was one of the famous physicians who lived at the end of the 12th and the beginning of the 13th century. As his title suggests, he was from Samarkand, though the exact year of his birth is unknown. Toward the end of his life, Najibuddin Samarqandi lived in the city of Marv.

His life ended tragically in 1222 when Mongol forces besieged Marv, broke through its walls, and massacred the entire population. Najibuddin Samarqandi was among those killed in this massacre.

From a young age, Najibuddin Samarqandi showed a deep interest in various fields of knowledge, particularly natural sciences. He eagerly read books on these subjects and, after completing his studies at a madrasa, continued his education independently to expand his knowledge. He was especially fascinated by medical sciences and mastered them thoroughly. The renowned historian Ibn Abu Usaybi'a wrote about him:

"Najibuddin Samarqandi possessed a profound and comprehensive understanding of medical science. He diligently studied the works of medical

scholars from ancient Greece, Rome, India, and other great civilizations, ultimately becoming a distinguished physician himself."

Najibuddin Samarqandi was a versatile scholar, proficient in almost all the sciences known at the time. However, his primary profession was medicine, and most of his works were dedicated to this field. His known medical works include:

- *The Causes and Symptoms of Diseases*
- *The Treatment of Joint Diseases*
- *The Preparation of Compound Medicines*

These works played a significant role in the advancement of practical medicine during his era. In particular, *The Causes and Symptoms of Diseases* gained widespread recognition. This book primarily focused on diagnosis and treatment, beginning with an analysis of the origins of various diseases. The author not only discussed the general concept of bodily temperaments (*mizaj*) but also emphasized the role of environmental factors in disease development. He identified elements such as water quality and adverse climatic conditions as contributing factors to illness. Additionally, Samarqandi highlighted dietary imbalances as a cause of diseases.

He systematically described the symptoms of each disease, emphasizing that a thorough examination of these symptoms was crucial for an accurate diagnosis. According to Samarqandi, meticulous observation of a patient's condition was essential in determining the correct diagnosis and treatment. In modern terms, his work could be considered an early precursor to *propedeutics in internal medicine*.

The book *The Preparation of Compound Medicines* was of great importance in practical medicine, as it provided detailed methods for preparing complex medicinal formulations. At that time, many physicians, either due to ignorance or oversight, would mix substances that were incompatible or even contradictory in their effects.

In his book, Najibuddin Samarqandi addressed these issues and pointed out such uncertainties and mistakes. He wrote:

"Currently, there are very few books dedicated to the preparation of compound medicines, and those that exist are brief, superficial, and unclear. For this reason, I decided to write this book. I have made every effort to present the methods of preparing compound medicines as accurately and precisely as possible."

Another significant work of his was *The Treatment of Joint Diseases*, which focused on various disorders affecting the joints, such as arthritis and arthrosis. In this book, Samarqandi discussed different types of joint diseases and their treatments. He emphasized that, in addition to prescribing various medications, the use of heat therapy—such as steam baths—was beneficial for treating joint conditions.

Najibuddin Samarqandi left a significant mark on the history of medicine in Uzbekistan. Through his medical works, he greatly contributed to the development of medical science in the region. When discussing medieval Eastern medicine, one crucial aspect must be considered: many scholars of that time possessed encyclopedic knowledge, excelling in multiple fields, including medicine.

Historical sources indicate that medical sciences were taught alongside other disciplines in medieval madrasas. As a result, graduates of these institutions acquired foundational knowledge of medicine. Some scholars pursued the subject further and even wrote treatises on it. For example, prominent scholars such as Abu Rayhan Beruni, Abu Nasr Farabi, and Nizami Aruzi Samarkandi authored works related to medicine. Although they did not practice medicine themselves, they had a profound understanding of the subject.

Abu Rayhan Beruni conducted extensive studies on medicinal plants and compiled his knowledge and observations in *Kitab al-Saydana fi al-Tibb* (*The Book of Pharmacognosy*). In this work, he described the properties of over 1,000

medicinal substances and explained their uses. This book significantly enriched knowledge about medicinal substances and their applications in treatment.

Abu Nasr Farabi also studied medicine in depth and wrote works on the subject. One of his notable books is *The Structure of the Human Body*, in which he describes the anatomy and functions of various organs. Additionally, the book discusses the causes of different diseases, their symptoms, and the methods used to treat them.

Another important medical work by Farabi is *Theoretical and Practical Medicine*, where he explores the concepts of health and illness, emphasizing the influence of external environmental factors on human well-being.

Nizami Aruzi Samarkandi was also well-versed in medicine. His medical views are presented in his work *Majmu' an-Navadir (A Collection of Rare Thoughts)*, also known as *Chahar Maqala (Four Discourses)*. This book consists of four sections, with the first three covering various sciences. The fourth section, titled *A Guide for Physicians and Healers*, is dedicated to medicine.

In this part, Aruzi first defines medicine, stating that it is "a discipline that helps preserve human health, and if health is lost, aids in its restoration." This idea was originally expressed by Abu Ali Ibn Sina in his *Urjuza fi al-Tibb (Poem on Medicine)*, suggesting that Aruzi shared the same perspective as Ibn Sina on the fundamental principles of medical science.

Nizami Aruzi Samarkandi also expressed his views on the qualities of a physician. He emphasized that a good physician should be kind, observant, and thoughtful. Aruzi wrote: "If a physician is not observant and thoughtful, he will not be able to diagnose the disease correctly, and consequently, he will not be able to treat it properly."

Regarding diseases, Aruzi paid special attention to different types of fever. He described methods for diagnosing patients based on the type of fever they exhibited. Additionally, in his book, Aruzi provided valuable information about the

contributions of great physicians to the development of medical science. In his view, these details are highly beneficial for medical historians.

Although Nizami Aruzi's *Chahar Maqola* is not a voluminous work, it is highly significant in terms of content. At the end of the book, the author presents instructive stories about the lives and professional experiences of renowned physicians. He specifically highlights the contributions of great medical scholars such as Abu Ali ibn Sina, Muhammad ibn Zakariya al-Razi, and Abu Sahl Masihi, recounting events from their lives that can serve as lessons for others. Aruzi encourages readers to take inspiration from these scholars.

In his writings and narratives, Aruzi Samarqandi emphasizes the importance of patience and hope in treating patients. He asserts that even illnesses considered incurable may sometimes be healed, and he stresses that physicians must also pay attention to the psychological well-being of their patients. These ideas form one of the core principles of Eastern medicine, highlighting the significance of medical ethics and the physician's responsibility.

Conclusion. Throughout history, humanity has paid special attention to the gradual development of medicine to ensure a better way of life, health, and the fulfillment of daily needs. As a result, societies have not only gained a deeper understanding of their roles within their communities but also enriched and preserved medical knowledge across generations. The advancement of medicine is a product of human intellect, labor, and experience, reflecting the accumulated wisdom of different eras in the field of healing and treatment.

Notably, during the Middle Ages, particularly under the rule of the Qarakhanids, medical scholars such as al-Kalonisi and al-Marwazi significantly contributed to the precision of medical diagnoses, treatment methods, and the preparation of complex medicinal compounds. Their work played a crucial role in shaping and advancing Eastern medicine.

Thus, the scientific heritage of medieval medicine should not be seen as belonging to any single nation or people but rather as a shared intellectual treasure of all humanity. Recognizing its universal value and utilizing this knowledge effectively for the benefit of future generations remains of great importance for the progress of science and medicine.

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