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Research Article

The Abbasid Era and the Dynamics of Medical Science

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Abstract

The peak of the glory of Islam can be seen from the progress of the Abbasid Dynasty during the leadership of Harun Ar-Rasyid. Because of the rapid progress in all fields, this era was nicknamed as *The Golden Age* (Golden Age). This progress is seen in various fields ranging from education, economy and infrastructure, making the Abbasid Dynasty highly respected by other nations. Progress is also seen in the field of health and the development of medical science. The Abbasid Dynasty government focused on developing science so that Muslim scientists and Muslim doctors emerged whose knowledge influenced the world of medicine in the world. Starting from Ibn Sina and Ar-Razi who are very famous as the fathers of modern medicine. The purpose of writing this article is to find out the development and progress of the Abbasid Dynasty in the field of medicine and health. The process of making this article uses the (Library Research) method by collecting a number of books, magazines, journals and relevant sources as well as in-depth analysis. Medical science developed rapidly in the Abbasid era where medical figures and techniques emerged that were very influential for the development of medical science and technology today. Ibn Sina became a pioneer in the advancement of health and medical science. he also wrote a book *At-Tibb Law* which is a reference for medical science throughout the world.

Keywords: Abbasid, Medical Science, Qanun fi al-tibb

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INTRODUCTION

The glory of the Abbasid Dynasty was the peak of the glory of Muslims at that time. The glory of science was very advanced when compared to the Western world at that time. The founders of the Baghdad Caliphate were Abū al-ʿAbbās ʿAbd Allāh bin Muḥammad al-Saffāḥ (721 AD – 754 AD) and Abu Jafar Abdullah bin Muhammad Al Mansur (714 AD – 775 AD) and reached a brilliant period during the leadership of the third caliph Muhammad bin Mansur al-Mahdi (744 AD – 785 AD) and the ninth caliph Abū Jaʿfar Hārūn bin Muḥammad al-Watsiq billah (812 AD - 847 AD).

Picture 1 : Map of The Abbasid Dynasty in its Golden Age
Source : https://mapsontheweb.zoom-maps.com/

The highest glory was during the caliphate of Harun Ar-Rasyid (786 M-809 AD) and his son al-Ma'mum. During the leadership of the Caliph Harun ar-Rasyid and his son, the Abbasid Dynasty experienced very rapid progress in almost all fields, ranging from politics, health, knowledge, and military.

The popularity of the Abbasid Dynasty reached its peak during the time of Caliph Harun Al-Rasyid (786 AD-809 AD) and his son Al-Makmun (813-833 AD) (Daulay et al., 2020). During the leadership of the two caliphs, priority was given to building the fields of education and science. The development of the education and science sectors was intended to foster Muslim scientists whose knowledge and studies could be used to advance science in the world. Many intelligent Muslim figures emerged such as Al-Khawarizmi who discovered algebra, not only that, other figures also developed chemistry, medicine and various other sciences whose theories and applications are still used today.

One of the driving forces behind the success of scientific progress during the Abbasid Dynasty was the translation of foreign literature into Arabic. This activity was pioneered by Abu Ja'far Al-Mansur. He was the first caliph to translate foreign language literature into Arabic such as the works of Aristotle, the book Sanad India and various other literatures. Abu Ja'far Al-Mansur was the person who pioneered astronomical activities and established the kingdom's work activities based on astronomical laws.

Baitul Hikmah has become a world library by storing thousands of foreign literatures of Roman, Greek, Persian and Indian which were then translated into Arabic. This progress was

followed by the birth of thousands of great scholars and writers. Baghdad has become the center of world civilization and a destination for scientists and seekers of knowledge from all over the country. Baghdad's progress later invited European nations to learn from Muslim scientists.I.

RESEARCH METHOD

This research is a type of historical research. The method used is the historical research method. In collecting data, the author uses the library research method, the Library research method is research using available literature sources ranging from physical books, e-books, journal articles, research reports and analysis of information from relevant and valid literature.

The selection of sources used is ensured to be valid and relevant by using literature search and analysis capabilities. These sources are based on the relevance, accuracy, and credibility of the information in the context discussed. The selection process is carried out carefully and thoroughly to ensure that the data and information collected can support the analysis and discussion that will be presented. In addition, the literature study method can also broaden the understanding of a particular topic, and provide a strong foundation for further research.

RESULTS AND DISCUSSION

During the leadership Caliph Hisham bin Abdul Malik started a movement to fight the Umayyad Dynasty in Andalusia. The change of non-Arab society to Arab is known from the leadership pattern. This can be seen from the lack of involvement of the Mawali and the nations that were controlled were given fines. Not only that, non-Muslims who lived in Islamic countries were also taxed and the government did not involve the Mawali and Shiites. This movement was initiated by Muhammad bin Ali, and he made the city of Kufa the new center of government.

Muhammad bin Ali's movement received support from the Mawali group, because the Mawali group was always placed as a second-class society. In addition, this resistance also received support from the Shiites who had not been friendly with the Umayyad Dynasty. The death of Marwan bin Muhammad in Fustat, Egypt in 132 H/705 AD marked the end of the Umayyad Dynasty's leadership and thus the establishment of the Abbasid Dynasty.

The Abbasid dynasty is proof of the glory of the Islamic Ummah in the past. No other nation or dynasty could match the progress of civilization and science of the Abbasid dynasty. It could be said that this era was the golden age for Muslims. So it is called (the Golden Age) or golden age (Amalia, 2022). The Abbasid Daulah had a big impact on the progress of science, giving rise to prominent figures of Muslim scientists. The progress of the Abbasid dynasty became an inspiration for Europeans in developing their science. Many of the relics of the Abbasid Daula are silent witnesses to the triumph of Islam in the Middle East, Asia and Europe for 300 years.

The Abbasid Daulah was founded by Abul Abbas As-Saffah who was assisted by a Muslim commander who came from Khurasan, namely Abu Muslim Al-Khurasani. Not only that, he was also assisted by Abu Ja'far Al Manshur (754-775 AD) who was instrumental in building the Abbasid dynasty. This Daulah was called the Abbasid Dynasty because the initiators and rulers of the Abbasid Daulah were descendants of Abbas, the Prophet Muhammad's uncle (Fadhillah, 2019).

At first the center of the Abbasid Dinasti government was in Al-Anbar (Al-Hasyimiyah), after some time the center of government and the capital was moved to Baghdad. Islam developed greatly during this period. During the time of the Caliph Al-Mahdi, there was a very large expansion of territory. The daulah controlled by the Umayyad dynasty was also controlled by the Abbasid dynasty, the Arabian Peninsula, Africa and parts of Asia to the border of West China.

Advances in Health Science in the Abbasid Era

The support given by the caliphs became an important factor in medical progress during the Abbasid era. These caliphs upheld science and had a high curiosity about science. So that the development of infrastructure for education was prioritized (Oktaviyani, 2018). The emergence of centers of knowledge, especially *Baitul Hikmah*, became the gateway to the advancement of philosophy, Mathematics, Physics, Astronomy, and military in the era of Caliph al-Makmum of the Abbasid Dynasty (Kawakip, 2016; Rosyidi, 2016). Baitul Hikmah functioned as a center for scholars in various sciences, including medicine (health sciences). Imam Muhammad bin Zakaria Ar-Razi (Death 313 H) became a pioneer for changes in more advanced and developing medical science. Mr. Ar-Razi is often referred to as Islamic medicine (Maryam, 2011). *Al-Hawi* became an important reference for medical science and to this day Al-Hawi is still used. The financial and political support of the Abbasid rulers was an important factor in the ease of translation of Greek and Persian medical texts into Arabic. This translation enriches medical literature which is used as a reference in the medical world.

Another important figure in the development and advancement of medicine during the Abbasid period was Ibn Sina (Death 1037 AD), also known in the West as Avicenna. His famous book, *al-Qanun fi al-Tibb* (Canon of Medicine), became the main reference in medicine throughout the Islamic world and Europe for centuries (Nurkholiza et al., 2024). In this important work, Ibn Sina discussed a variety of medical topics, including disease diagnosis, pharmacology, and surgical practice. The scientific methodology he used in the field of medicine illustrates that the discipline goes beyond traditional practices, and also integrates logistical scientific principles (Hemdi, 2019; Amiruddin, 2024). This shows that Ibn Sina, along with his contemporaries in the Abbasid era, had developed a more sophisticated understanding of medicine than was found in the previous period. Therefore, Ibn Sina has the nickname Father of Modern Medicine.

The Abbasid era witnessed significant progress in the establishment of hospitals, known as *bimaristan* (Abbasids, 2020). These institutions served not only as facilities for patient care but also as important centers for medical education and research. The apprenticeship system was instituted by physicians in bimaristans, allowing medical students to hone their clinical skills under the guidance of experienced physicians. Furthermore, during this period, hospitals offered free healthcare to the general public, a concept that was highly progressive for its time. The model set by these hospitals later influenced the development of healthcare facilities in Europe, which adopted many of the principles originally implemented in the Abbasid bimaristans.

In addition, the field of pharmacy also experienced rapid development during the Abbasid era. Researchers began to discover, group, and create various types of drugs from natural sources, such as plants, minerals, and animals. The increasingly advanced field of pharmacology helped doctors in creating more efficient drug formulations. In the bimaristan, there were special pharmacists who were tasked with making medicines according to doctor's

prescriptions. Advances in pharmacology not only had a positive impact on public health, but also increased the status of medicine as a respected discipline.

Thus, the contribution of the medical world during the Abbasid era had a significant impact on the development of modern medical science. The support of the Abbasid government for knowledge, the establishment of the bimaristan, and the contributions of scientists such as Al-Razi and Ibn Sina, laid a strong foundation for the development of medicine later on.

During the Umayyad period, the translation of scholarly books from other languages into Arabic also began in order to spread the message of Islam. It was during the Umayyad period that the translation movement began, reaching a very rapid development during the Abbasid period. The first person to undertake translation work was Caliph Khalid bin Yazid (Death 84 H) (Azzahro, 2024).

Then, their influence even spread to Europe, where their works were translated into Latin and became references in European universities for centuries. This shows that the development of medicine during the Abbasid era not only left a legacy for the Islamic world, but also for the Western world as a whole.

The following are some of the major achievements in the field of health and medicine during the Abbasid era, including:

1. Hospitals and Health Services

The Abbasids are also known for the establishment of *Bimaristan* (hospitals), which were one of the great innovations in the history of medicine. Unlike previous institutions, Bimaristans were designed as general hospitals open to all levels of society, regardless of religion or social status. These hospitals were equipped with a variety of facilities, including operating rooms, pharmacies, and specialist clinics. Some Bimaristans also served as centers for medical education, where medical students learned directly from senior doctors and practiced. One of the most famous hospitals of the period was *Bimaristan Adudi* in Baghdad, which was founded in the 10th century by Caliph Adud al-Dawla (Death 983AD). This hospital was equipped with advanced facilities for its time, and maintained high standards of cleanliness.

2. Pharmacy and Medicines

Pharmacists such as Ibn al-Baytar, a botanist and pharmacologist who compiled important works on the use of herbs and natural medicines. In addition, Abbasid hospitals also have well-organized pharmacies, where medicines are prepared and distributed scientifically. *Saydalani* Pharmacists developed the art of mixing medicines from natural ingredients such as plants, minerals, and animals. They created standardized methods of medicine, developed different types of pharmaceutical preparations, including pills, ointments, and syrups. Advances in pharmaceutical science and medicine were also developed by the scientist Ibn Sina. In the book authored by him entitled "*al-Qanun fi al-tibb*", it is about the manufacture of simple and traditional medicines. The medicinal ingredients come from medicinal plants such as garlic, pepper, lemon, cinnamon and ginger as well as several other medicinal plants. Not only plants, but medicines can also come from animals such as honey, deer antlers, pearls, musk and several other useful animals.

3. Surgery

Al Zahrawi (Abulcasis) Compiled an encyclopedia of medicine and surgery that was used in the Western world for centuries. He introduced many surgical techniques and surgical instruments that were ahead of their time.

4. Medical Theory

Ibn Sina wrote the book *al-Qanun fi al-Tibb* (The Canon of Medicine), which became the standard reference in medicine throughout the world until the 17th century. This book covers various aspects of medicine, including diagnosis, treatment, diseases, and pharmacology, and combines Greek, Persian, and Indian knowledge with insights gained through direct observation.

Influential Figures on Medical Science and Health

The Abbasid period gave birth to many medical figures whose works became important references for centuries, both in the Islamic world and in Europe (Al-Attas, 1993). Some of them are:

A. Ar- Razi (Rhazes) (Robi'aqolbi, 2020)

A Persian physician and philosopher who is famous for his work in the field of Health. Medical science Ar-Razi, or Rhazes, is one of the leading figures in the history of Islamic medicine. Born around 865 AD in Persia (now Iran), Ar-Razi is known as a physician, alchemist, and philosopher. His most famous work is "*al-Hawi*" a medical encyclopedia that summarizes the medical knowledge of his time.

Ar-Razi's Major Contributions in Medical Science:

1. *Al-Hawi*: This work is a complete description covering various diseases, diagnosis, and treatment. Ar-Razi compiled the essence of *al-Hawi* systematically and completely. In his book, al-Razi criticized the Greek philosophers, Aristotle and Plato and developed innovative ideas on many subjects. He also criticized Galen on the theory of fever because many cases he encountered did not match Galen's description of fever. He also criticized Galen on how to distinguish one disease from another that was not by urine but using the humoral system in his book *al-Shukuk Ala Jalinus* (Doubts on Galen) (Robi'aqalbi, 2020)
2. Observation and Experimentation: Ar-Razi is known for his observation and experimentation-based approach. He emphasized the importance of direct observation of patients and not just relying on theory.
3. Classification of Diseases: He developed a system of classification of diseases, which helped him in diagnosis and treatment. Ar-Razi distinguished between different types of diseases, including infectious and chronic diseases.
4. Use of Medicine: In "*Al-Hawi*", Ar-Razi lists various herbs and medicines used to treat diseases. He also developed techniques for extracting medicines from plants and natural substances.
5. Medical Ethics: Ar-Razi emphasized the importance of ethics in medical practice. He believed that doctors should have empathy and care for the welfare of patients.
6. Influence: Al-Razi's work and thoughts were very influential in the Islamic world and Europe. He is considered one of the founders of modern medicine and many references to his work were made in European universities during the Middle Ages.

B. Ibn Sina (Avicenna)

The history of health records one of the Islamic figures who played a role in the science of medicine is Ibn Sina (980 AD - 1037 AD), who has written several books on methods of

collecting and storing medicinal plants and how to make medicinal preparations such as pills, suppositories, syrups and develop medical knowledge from various countries to produce better treatment (Hakim, et al., 2021). His work *al-Qanun fi al-tibb* (Canon of Medicine), became the main reference book in medical science until the 17th century in Europe. This book discusses various aspects of medicine, including anatomy, physiology, and pharmacology, and provides explanations for the diagnosis and treatment of various diseases, and combines Greek, Persian, and Indian knowledge with insights gained through direct observation.

C. Al-Zahrawi (Abulcasis)

compiled an encyclopedia of medicine and surgery that was used in the Western world for centuries. He introduced many surgical techniques and surgical instruments that were ahead of their time.

Al-Zahrawi's Major Contributions to Surgery:

1. Surgical Innovations: Al-Zahrawi introduced a variety of surgical techniques that are still relevant today. He developed methods for surgery, including techniques for treating wounds, cysts, and fractures (Ahmad, 2007).

2. Surgical Instruments: He designed and described many surgical instruments, some of which were tools for suturing, removing kidney stones, and treating wounds. Some of these instruments became the basis for modern surgical tools. This shows that Abbasid scientists had modern knowledge.

3. Medical Education: Through his work, Al-Zahrawi educated the next generation of physicians. He provided detailed explanations of surgical and medical procedures, including the importance of cleanliness and preventing infection.

4. Diseases and Therapies: Al-Zahrawi discusses various diseases and therapies used at that time, and emphasizes the importance of proper diagnosis.

5. Cultural Context: His works also reflect advances in science and technology during the heyday of Islam, where science was highly valued and developed rapidly.

CONCLUSION

From the discussion of the development of science and health during the Abbasid Dynasty, it can be concluded that the Abbasid Dynasty experienced very rapid development of science and health. The Abbasid Dynasty became a center of science, encouraging translations, and the development of scientific works. There were significant advances in various fields, including astronomy, mathematics, and philosophy. In the field of health and medicine, the Abbasid era witnessed advances in medical science with the establishment of hospitals and medical schools. Figures such as ar-Razi and ibn Sina contributed greatly through research and writing influential medical works.

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AUTHOR CONTRIBUTIONS

Moch. Said: Conceptualization; Supervision; Validation; correction

Ajeng Dwi Fatmawati: Conceptualization; Validation; Writing - review and editing.

Muhammad Amiruddin: Supervision; Conceptualization; Validation; correction

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