

# Rhazes' pioneer viewpoints about psychiatry, neurology and neuroscience

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## Abstract

After the emergence of Islam and its advancement in the past three centuries in various countries and the Muslims' acquaintance with civilizations emanating from the empires of Iran, Greece, and India, a civilization emerged that affected different aspects of people's lives in Islamic lands and other countries. One of the components of this civilization was medical sciences that were collected and compiled by Muslims using the resources of other civilizations and their own experiences and resources.

Rhazes (Muhammad ibn Zakaryyā al-Rāzī), who lived in the ninth century AD (fourth century AH), compiled a comprehensive textbook of medicine (named in Arabic: *Al-Hawi fi al-Tibb*) in all specialized medical disciplines in accordance with the latest achievements of his era. This book has been published in the contemporary period as a 25-volume collection and contains knowledge and experiences from the medical resources of various civilizations and Rhazes' own knowledge and experiences. The first volume of this collection and some other volumes are devoted to the knowledge of neuroscience, psychiatry, and related diseases, illnesses, and disorders.

In this review, we cite topics from "Al-Hawi" and other Rhazes' manuscripts related to the definition and description of diseases and disorders associated with the nervous system as well as psychiatry and neurology and compare them with modern medical sciences in a comparative manner. This is intended to make their importance and validity clear in terms of usability as part of medical history as well as for some medical research that requires historical and contextual information.

**Keywords:** Rhāzes; Psychiatric disorders; Neurological diseases; History of medicine.

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**Received:** 20 Oct 2020

**Accepted:** 1 Nov 2020

**Published:** 12 Dec 2020

## Citation to this article:

Tabatabaei SM, Jafari-Mahdiabad A.  
Rhazes' pioneer viewpoints about  
psychiatry, neurology and neuroscience.  
*J Med Ethics Hist Med.* 2020; 13: 21.

## Introduction

The emergence of Islam and its advancement in different countries led to Muslims' becoming acquainted with other civilizations, especially those emanating from the empires of Persia, Greece, and India. As a result, a civilization emerged that not only affected all aspects of people's lives (both material and spiritual) in the Islamic caliphate but also spread to other countries. One of the most important branches of the Islamic civilization was medical sciences, compiled by Muslim scholars based on their own achievements as well as knowledge gained from other civilizations.

Rhazes (Muhammad ibn Zakaryyā al-Rāzī) was born in Ray City (near Tehran, Iran) in 865 AD (251 AH). While working in the goldsmith profession in his early life, he learned the chemistry of his era. In the fourth decade of his life, he started began learning medicine. After learning the basics, he emigrated to Baghdad, then the capital and scientific center of the Islamic caliphate, and got involved in medical activities at "Motazadi Hospital" for several years. Thereafter, he returned to Ray City, where he headed the hospital for a while (1,2).

He earned the nickname of "Clinical Physician" because of his earnest motivation and interest in taking care of patients and performing clinical activities (3). He compiled a comprehensive textbook of medicine (named in Arabic: Al-Hawi fi al-Tibb), which included all specialized medical disciplines in accordance with the latest achievements of his era. In the contemporary era, this book has been published as a 25-

volume collection and includes knowledge and experiences from the medical resources of various civilizations as well as Rhazes' own knowledge, clinical experiences, and theoretical achievements (4). In parallel with these activities, he has also studied and written numerous books in other sciences.

His other famous and valuable medical works are "Al-Mansouri fi al-Tibb" on somatic and organic diseases (5), "Al-Tibb Al-Ruhani" ("Spiritual Medicine") on mental health and standards for human ethics and behavior (6), "Qesas va Hekayat al-Marazi" ("Medical Histories of Patients"), a collection of medical records of several patients from diagnosis to treatment and their therapeutic outcome (7), "al-Jadri va al-Hasba" ("Smallpox and Measles") on smallpox and measles from symptomatology to treatment (8), and "Mehnat al-Tabib" ("Evaluation and Examination of Physicians") on the evaluation of practitioners' theoretical and clinical knowledge (9). It is worth noting that most prominent physicians and pharmacists of the past, such as Ali bin Abbas Ahwazi (10), Avicenna (11), Abū Rayḥ ān Al-Biruni (12), Ibn al-Bitar (13), Ashbili (14), Jurjani (15) and Aghili Khorasani (16) have used Rāzī's books as reliable sources for their scientific and clinical activities. In his books, especially in Al-Hawi, after discussing a disease or disorder, Rhazes also mentions the reason for naming it along with its causative factors, symptoms, differential diagnosis, and treatment plan from the perspective of the most prominent physicians such as Hippocrates, Galen, and other physicians of his era. After summing up, he also expresses

his own opinion, if different, giving the physician the chance to decide. As a result, it could be said that Al-Hawi includes all the authentic medical writings from Hippocrates to Rhazes (4).

Rhazes has, however, pointed out that all topics related to human anatomy in his manuscripts are taken from Galen's Anatomy book (4,17), stressing that he had no distinctive personal experience in this regard (18). Rhazes isolated himself in late life due to blindness caused by cataracts and died in Ray City in 925 AD (313 AH) (1, 2, 19).

In this review, we quote topics from the first volume of Al-Hawi and numerous other volumes devoted to psychiatry, neurology, neuroscience, and associating diseases, and try to compare them with modern medicine.

## Method

In this library research, we have carefully studied and compiled important topics related to psychiatry, neurology, and neuroscience from Arabic original manuscripts of Rhazes, especially al-Hawi fi al-Tibb, al-Mansouri, and al-Tibb al-Ruhani. Some of the works of Galen and other physicians or thinkers of the early centuries of Islamic civilization as well as some contemporary articles citing original sources of medical history have been carefully studied and compiled. In the following, we will make a comparative comparison of these works with modern medical knowledge to reveal their value and validity and the fact that Rhazes has been a pioneer in some cases.

## General Findings

Rhazes has emphasized on the evidence-based perspective in his studies and clinical experiences, particularly in the diagnosis and treatment of disorders. On the one hand, he has disapproved the influence of supranatural factors such as genies and the movement of the moon and stars on the onset of mental disorders. He has stressed that many mental and behavioral disorders are a direct or indirect cause of brain and nervous system damages, whereas others are caused by educational, social, or cultural factors. He believed certain psychological factors, such as suppressed basic needs, especially sexual ones, can also contribute to these disorder (4). Also, he has explained some of the basic psychiatry and neuroscience terminologies such as delusion, hallucination, depression, madness, lethargy, catatonia, uni- and bilateral facial palsy, migraine among others. He has also provided a primitive classification of psychiatric disorders and used cognitive psychotherapy for mental disorders such as obsessive-compulsive disorder.

## Some of Rhazes' Achievements in Neurology Discipline

The first volume of Al-Hawi, in 480 pages was published in 1990 (1369 AH) in octavo size and then translated into Persian, was devoted to brain, neurological and mental diseases (20). Some of the most interesting topics in this volume are:

1. A description of the anatomy of brain, spinal cord, cranial and spinal nerves, the

function of each nerve, the effects of trauma, inflammation or cutting the nerves.

2. Stroke: causes, symptoms, complications, treatment and prognosis.
3. Causes, symptoms and treatment of facial palsy (bell's palsy). The bilateral form of the disease, which has not been identified or described since Hippocrates to Rhazes, is one of Rhazes' discoveries (3, 20, 21).
4. Types of abnormal limb movements and corresponding diagnostic and therapeutic practices.
5. Epilepsy, seizure, status epilepticus (3, 20).
6. Types of headaches and their treatment (20).
7. Diagnostic and therapeutic methods of some sleep disorders such as night terror and nightmare (20).
8. Some of Rhazes' Achievements in Psychiatry Discipline

#### 1- Classification of Psychiatric Disorders:

Rhazes classified mental disorders into two categories:

A. Based on impaired thinking and perception:

- a) Impaired perception with healthy thinking.
- b) Impaired thinking with healthy perception.
- c) Concurrent impairment of perception and thinking (20).

B. Based on the persistence of mental disorder symptoms:

- a) Permanent: It is caused by damage to

the brain itself, its appearance is not sudden; it has a variety of primary and secondary symptoms.

- b) Non-permanent: This type is a complication of another disease such as encephalitis or meningitis, pneumonia or pleurisies, severe fever, dehydration, and severe heat exhaustion, all of which can be accompanied with symptoms of mental disorder.

The aforementioned classifications and corresponding treatment and prognosis were presented almost a thousand years before Emil Kraepelin, known by some psychiatry references as the pioneer in the classification of psychiatric disorders (22).

2. General Information about mental disorders: Rhazes believed that thinking, imagination and memory are powerful psyche tools. In line with the modern psychiatry references, he did not provide a definitive and accurate definition of human psyche but spoke in detail about mental health and mental disorders from different perspectives and dimensions. For example:

- A. He provided a comprehensive definition for delusion, hallucination, mania, melancholia, obsessive-compulsive disorder and several other mental disorders (3, 4, 20).

B. His diagnostic criteria for certain anxiety disorders such as obsession, mood disorders such as depression and mania, and a variety of psychotic disorders are in line with that of contemporary psychiatry. For each disorder, he has developed a treatment

plan that fits the pathology and knowledge of his era.

- C. Regarding the prognosis of mental disorders, he believed a mental disorder to be more benign when associated with a state of happiness and laughter than a state of sadness, depression, stupor, and/or aggression and violence.
- D. Rhazes believed that hospitalization for patients with persistent delusions and mania is the most important step of the treatment (3).

3. Melancholia and its types: In Rhazes' viewpoint, melancholia is described as a mental disorder with symptoms such as derealization and delusion; other symptoms including hallucination, disturbed or irrelevant speech, increased or decreased activities, insomnia, aggression and assault are not required for the diagnose.

He also presents another disease called Mesenteric Melancholia (Hypochondriac), which is related to gastrointestinal diseases. The affected person has odd tenderness and extreme sensitivity to his/her internal organs. He may have stomach, liver or other abdominal diseases, or think the has lost these organs even when they are healthy.

The other type of melancholia defined in Al-Hawi involves patient's with extreme mental activity with thoughts or imaginations that he cannot resist and or be released from, causing constant pain and distress. He mentions this type of melancholia does not always require pharmacological treatment and can be treated through talking to the patient and eliminating

the wrong thoughts. "A man came to me for an examination and asked me to treat him and relieve him from the black bile (melancholia) that he thought was infected with. I asked him, what do you see as a sign of this affliction and how do you feel? He said, I am caught up with an idea on where has the creator of the whole universe come from and how has he created all creatures that constantly harasses me and never sets me free. I convinced him that this thought occupies the minds of all wise people and should not be regarded as a melancholic thought. Thereafter, the man become relaxed and recovered. This is while he previously thought he was in a state of madness, and his personal life and daily work was totally disturbed (20)".

4. Relationship between psychiatric disorders, gender and sexuality: Al-Hawi presents a disorder called "Uterus Stuffiness" that appears as epileptic seizures, aphonia, deafness, apathy, movement disorders among others in young to middle-aged girls who have been deprived of sexual relationships. This condition does not originate from a medical or neurological lesion. This phenomenon was known as "Hysteria" in contemporary psychiatry until the end of the 20th century. While some psychoanalysts still consider it valid, it is replaced with "Conversion & Dissociation Disorders" in modern classifications.

5. Homosexuality: Rhazes stated in a special treatise on homosexuality, "We have seen womanish men and mannish women. It has also been found that some people have a male

and female sexual organ both at the same time; being male or female are not the extreme borders in a gender. One of the overlooked issues in medicine is a disorder in which a man experiences sexual pleasure only through being sexually passive in a sexual relationship, and enjoys a female having sex with a man (23).

6. Ethics & Spirituality: While living in Baghdad, Rhazes wrote a short treatise on ethics and behavior to supplement the book Al-Mansouri that he had previously written at the request of colleagues and on the recommendation of then-ruler Amir Mansour. The manuscript was dedicated to somatic medicine. In parts of this book, he talks about motivations and their modifications and sublimation, reinforcing the psychic potency, emotions and excitements, various ways of relieving grief and anxiety and the effects of dipsomania. The book considers the human psyche as an independent system that influences and masters his physical aspect.

Part of the book reads, "Many people are afraid of death, and to get rid of this phenomenon it is necessary to prove them that once the body is destroyed by death, the human psyche will not be destroyed." It also states, "Indeed, one of the causes of depression is lack of things that a person loves (5, 6)." The latter phrase is identical to "loss of loved object" phenomenon.

## Discussion

A historical manuscript is considered scientifically valuable when its content is accepted by academicians and modern scientific communities. Unfortunately, existing versions of Rhazes' manuscripts contain many mistakes, vague words and phrases that are known as historical texts by the majority of contemporary scholars and academicians who are unfamiliar with Rhazes' -era science and literature.

Regretfully, the non-qualified academicians who are not familiar with the general and specific conditions of research in the manuscripts of traditional medicine, either based on their taste or desire of a group of peers, rely on unfounded articles. They refute or substantiate the validity of ancient medical manuscripts and cultural heritage by publishing their work in the form of articles or books. The medical manuscripts of Rhazes are a comprehensive collection of theories and experiences of the most prominent Greek, Indian and Iranian physicians as well as his innovations.

A detailed and unbiased study of Rhazes manuscripts has important implications for the researchers as it shows that the medical knowledge has evolved since Rhazes. Also, he had questioned and criticized some theories of his most prominent earlier physicians such as Galen who was considered a saint. Rhazes evidence-based perspective has been crucial to the advancement of medical science as he emphasized that no general verdict should be issued based on limited diagnostic or therapeutic evidence.

## **Conclusion**

From the findings presented in this article, one can infer Rhazes' accuracy and precision in the identification, diagnosis, differential diagnosis, pharmacological and non-pharmacological treatment of neurological and psychiatric disorders. Most importantly, he considered physical and organic factors rather than supernatural ones in the emergence of diseases and disorders. This view is one of the important milestones in the history of medicine. As a result, it is recommended that Rhazes' manuscripts be read carefully by researchers, in the hope of finding useful and valuable points.

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