

Abysmal Oddities of Brain in Neurological and Psychiatric Disorders Based on *Sū'-i-Mizāj Māddī* (Abnormal Substantial Temperament): Through the Lens of Greco-Arabic Medicine

Sana Kauser Ateeque Ahmed^{1*}, Tasfiya Hakeem Ansari², Osama Riyaz Ahmed³,
Patel Mohd Furqan Ahmad⁴

Abstract

The mesmerizing history of neurological and psychiatric disorders relates to the history of humanity. The Unani philosophers apprehend neurological and psychiatric disorders superbly. They gave a conceptual understanding of the Sū'-i-Mizāj dimag and diagnosed neurological and psychiatric disorders wonderfully. Contrariwise, the Babylonians associated epilepsy, anxiety, depression, mania, and other psychiatric disorders with deities and demons earlier. To understand, analyse, and explain a comprehensive patho-physiology of neurological and psychiatric disorders, it is necessary to know about the fundamental framework of USM, which is based on deep philosophical insights. Uniqueness of USM is in its holism as it considers the human body as a single unit where the organs of the body are functionally in intimate inter-relationship. Also, USM deals with states of the body, i.e., health and disease. In the state of health, mizāj (temperament) and tarkīb (structure) of the body are normal, and so are the functions. On the contrary, disease is an abnormal state in which the functions of the body are disturbed. The disturbance in functions is either due to an alteration in temperament or due to an abnormality in structure. Alteration in temperament is the most important cause of disturbance in functions, i.e., disease. However, prolonged alteration in temperament may produce abnormality in the structure of tissue or an organ as well. Literary material is collected from classical books of tibb-i-unani, their translations, previous theses and dissertations, souvenirs, journals, and proceedings, etc. Collected literature is systematized, and explanatory notes are added as observations and results, and based on behalf of literature review and observation, the discussion and conclusion are made. In the present study, an attempt is made to explain and compile the concept of Sū'-i-Mizāj, and its relationship with neurological and psychiatric disorders.

*Author for Correspondence

Sana Kauser Ateeque Ahmed
E-Mail: sanakauserateeqe@gmail.com

¹Assistant Professor, Department of Mahiyatul Amraz (Pathology), Mohammadia Tibbia College & Assayer Hospital, Malegaon, Maharashtra, India

²Lecturer, Department of Mahiyatul Amraz (Pathology), National Institute of Unani Medicine, Bengaluru, Karnataka, India

³Assistant Professor, Department of Pharmaceutical Analysis, Royal College of Pharmacy, Malegaon, Maharashtra, India

⁴Assistant Professor, Department of Moalijat, Mohammadia Tibbiya College and Assayer Hospital, Malegaon, Nashik, Maharashtra, India

Received Date: March 03, 2025

Accepted Date: March 10, 2025

Published Date: March 12, 2025

Citation: Sana Kauser Ateeque Ahmed, Tasfiya Hakeem Ansari, Osama Riyaz Ahmed, Patel Mohd Furqan Ahmad. Abysmal Oddities of Brain in Neurological and Psychiatric Disorders Based on *Sū'-i-Mizāj Māddī* (Abnormal Substantial Temperament): Through the Lens of Greco-Arabic Medicine. Research & Review: Journal of Unani, Siddha and Homeopathy. 2025; 12(2): 30–42p.

Keywords: *Sū'-i-Mizāj*, *Amrād Nafsāniyya*, *Quwā Nafsāniyya*, Psych, psychiatric disorders, neurological disorders

INTRODUCTION

The revival of Greco-Arabic (Unani) literature provides valuable insights into the historical understanding of neurological and psychiatric disorders. Classical texts reveal that the conceptualization and classification of brain and nervous system disorders date back to ancient and medieval times. Unani scholars, renowned for their keen observations of human health and behavior,

meticulously documented these conditions. However, their explanations often carried a philosophical dimension, necessitating further research to reinterpret their insights within a modern scientific framework. Tracing the evolution of neurological and psychiatric concepts from antiquity to the Renaissance is essential for revitalizing these classical perspectives. Unani scholars significantly contributed to this field, particularly through the concept of *Sū'-i-Mizāj Dimāgh* (altered temperament of the brain). Their descriptions of brain dysfunctions closely align with contemporary classifications of neurological and psychiatric disorders. In Unani medicine, mental disorders were primarily understood as disturbances in behaviour. Classical texts provide comprehensive discussions on conditions, such as epilepsy, stroke, psychoses, obsessive-compulsive disorder, phobias, psychopathic behaviour, depression, and anxiety [1–3]. In contrast, earlier Babylonian traditions attributed these disorders to supernatural influences, linking them to deities and demons [4, 5].

The rediscovery of the Greco-Arabic/ Unani literature is effective in understanding neurological and psychiatric disorders. An illustration of Unani literature shows that conceptualization and description of most disorders related to the brain and nervous system dates to the ancient and medieval eras. Unani scholars were outstanding observers and documentalists of human illness and behaviour. However, their explanation of disorders is slightly philosophical, necessitating the reestablishment of these facts through research. The study of fundamental advances and transitions in conceptual understanding of neurological and psychiatric disorders from the ancient and medieval era to the Renaissance is helpful in revitalization. The Unani philosophers apprehend neurological and psychiatric disorders superbly. They gave a conceptual understanding of the *Sū'-i-Mizāj dimag* and diagnosed neurological and psychiatric disorders wonderfully. They documented detailed and objective descriptions of abnormalities in the brain, which we can clearly recognize today as neurological and psychiatric disorders. In the Unani literature, mental disorders in large part, observed as disorders of behaviour. Disorders, like epilepsy, stroke, psychoses, obsessive compulsive disorder, phobias, psychopathic behaviour, depression, and anxiety, etc., were comprehensively described in the classical Unani literature [1–3]. Contrariwise, the Babylonians associated epilepsy, anxiety, depression, mania, and other psychiatric disorders with deities and demons earlier [4, 5].

Since neurological and psychiatric disorders are not just associated with the brain but can also to other organs and systems of the body, like the cardiovascular, gastrointestinal, and reproductive system. So, to understand neurological and psychiatric disorders, one should have a sound understanding of not only the nervous system specifically, but also other vital systems too. According to USM, the body has three major systems: nervous system (*nizam-e-asab*), cardiovascular system (*nizam-e-qalb*), and digestive system (*nizam-e-hadhm*) [6–8].

NERVOUS SYSTEM

The nervous system (*Nizam-i-a'sāb*), comprising *dimāgh* (brain), *nukhā* (spinal cord), and *a'sāb* (nerves), is meant for the functions of psychic faculties (*quwa nafsāniyya*). These organs are concerned with the perception of sensations, their conduction, integration, and conversion into motor signals [1, 2, 3, 9, 10].

According to Hippocrates, “the brain is the most influential/dominant/vital organ (*Uḍw-i- Ra'is*) of the body; the centre of *ḥiss-wa-ḥarkat* (sensations and movements) and seat of the nervous faculty (*nafs nāṭiqā*), origin of functions (*af'āl*) like *aql* (intellect) and *tameez* (distinguishing) [11]. Spinal cord and nerves (arise from brain and from spinal cord) are *A'da' Khādima* (auxiliary organs) of the brain. Further brain is a compound organ (*Uḍw Murakkab* or *Uḍw Āli*), composed of *Mukhkh*, *A'sāb* (nerves), *Urooq* (vessels), *Aghshiya* (membranes), and *Tajāwīf* (ventricles) [1, 12]. Temperament of *Uḍw murakkab*, i.e., brain depends on the temperaments of *A'da' mufrada*, i.e., *Mukhkh*, *A'sāb* (nerves), *urooq* (vessels), *aghshiya* (membranes), and *Tajāwīf* (ventricles) that form the brain. Unani physicians said that the temperament of *A'sāb* (nerves), *urooq* (vessels), and *Aghshiya* (membranes) is *Bārid Yābis* (cold and dry), while the temperament of *maghz dimāgh* (brain substance) and *nukhā* (spinal cord) is *Bārid Raṭb* (cold and moist)” [1, 2, 12].

The brain is one of the vital organs of the body. The whole body participates in intelligence, in proportion to the brain's activity, i.e., Eyes, ears, tongue, hands, and feet act in accordance with the judgment of the brain. Thus, when the brain is healthy, it interprets phenomena occurring in the surroundings very precisely. However, abnormality in its structure and constitution rears many diseases ranging from neurological to psychiatric disorders [2, 11, 13, 14].

PARTS OF THE BRAIN

The brain lies in the cranium. Inferiorly at the level of foramen magnum, it is continued as the spinal cord. The brain is divided into three parts. The anterior part of the brain is named as *muqaddam dimāgh* (forebrain), the middle part as *wast dimāgh* (midbrain) while the posterior part is called *muwakkhar dimāgh* (hindbrain) [2, 15]. Unani scholars attributed the frontal part of the brain to important sensations. Whereas the posterior part is associated with the operation of the *quwwat ḥafīza* (faculty of memory) [1, 2, 3, 12, 13, 14, 16, 17].

Maghz Dimāgh (Brain Substance)

As the major portion of the brain is made up of brain substance (*maghz dimāgh*). Accordingly, in this article, the discussion about brain in the brain mainly refers to the brain substance itself.¹² It is a fact that the allocation of *mizāj* to a compound is according to the need of that compound, in other words, according to their intended functions [18, 19].

Since the temperament (*Mizaj*) of the *maghz dimāgh* (brain substance) is *Bārid Raṭb* (cold and moist), therefore the brain is cold and moist (*bārid raṭb*) [12, 20]. This coldness (*burudat*) and moistness (*rutubat*) of the brain enable it for its delicate functions [1, 2, 3]. The coldness of the brain helps in the moderation (in terms of hotness and coldness) of psychic pneuma (*rūḥ-i-nafsāniyya*), which is necessary for the execution of the psychic functions (*af'āl nafsāniyya*), i.e., imagination, thought and memory. Not only coldness but moistness too, spare the brain from any damage because of the heat produced by execution of movements (*harkat*) including the execution of the *af'āl nafsāni*, such as function of *takhayyul* (imagination).⁷ Also, the brain is moist so that it is not dried out by the hot substances, with which it interacts.⁷ Moreover, an important characteristic of brain, the softness is because of its moistness. The softness of the brain not only allows it to imagine diverse form of things³ but also aids the rapid movement of *rūḥ-i-nafsāniyya* [1, 2, 13, 14, 21, 22]. In a nutshell when brain has normal temperament its functions are also normal, but deviation in its temperament leads to disorganised functions, i.e., mental / psychiatric disorders [1–3].

Psychiatric Disorders and *Sū'-i-Mizāj Dimāgh*

To identify, understand, analyse, and explain a comprehensive patho-physiology of diseases of the nervous system it is necessary to know about fundamental framework of USM which is based on deep philosophical insights and principles. Uniqueness of USM is in its holism as it considers the human body as a single unit where the organs of the body are functionally in intimate inter-relationship. Also, in USM much emphasis is given to individual's relation with the surrounding environment because it has a direct impact on individual's health [7, 23]. USM deals with states of the body, i.e., health and disease. In the state of health, *mizāj* (temperament) and *tarkīb* (structure) of the body are normal and so are the functions. On contrary, disease is an abnormal state, in which the functions of the body are disturbed [1, 7, 14, 17, 24]. The disturbance in functions is either due to alteration in temperament (*sū'-i-mizāj*) or due to abnormality in structure (*sū'-i- tarkīb*) [25]. Alteration in temperament is the most important cause of disturbance in functions, i.e., disease. However, prolong alteration in temperament may produce abnormality in the structure of tissue or an organ as well [7, 9].

Sū'-i-mizāj has a total of 16 types. Based on the number of qualities involved, there may be *sū'-i-mizāj muḥḥad* (abnormal simple temperament), or *sū'-i-mizāj murakkab* (abnormal compound temperament). Also, based on the matter involved, it may be either *sāda* (simple) or *māddī* (substantial) [6, 7, 25, 26]. Each type of *sū'-i-mizāj* can affect *jauhar-e-dimāgh*, *urooq-e-dimāgh* or *ghishā-e-dimāgh*

(membranes covering the brain) and thereby cause psychic disturbances [1, 2, 3]. So, depending upon the 'uḍw muḥḥad and part of the brain involved, different *alamāt* (sign and symptoms) appear. Likewise, each type of *sū'-i-mizāj* can affect the brain too [1].

Sū'-i-mizāj sāda usually occurs due to exposure to extreme environmental conditions, e.g., extreme hot air of summer causes *sū'-i-mizāj ḥār sāda* that leads to conditions like *humma-e-yaum* and *ṣudā ḥār sāda*. Contrary to this *sū'-i-mizāj maddi* occurs due to erroneous use of food and drinks in terms of quantity and quality, habit, age, season, etc. This may result in either production of bad humours or production of good humours but in excess. Sometimes, weakness of *quwā tabi'ya* result in production as well as accumulation of bad humours in the tissues or body resulting in *sū'-i-mizāj maddi* [1, 7]. Most of the *sū'-i-mizāj sāda* (simple dystemperament) of brain generally lead to trivial symptoms. However Abnormal Substantial Temperament of the Brain (*sū'-i-mizāj dimāgh maddi*) can lead to various grave neurological and psychiatric disorders. Owing these facts emphasis is given on *sū'-i-mizāj dimāgh maddi* and their psychiatric influences in the present study.

***Sū'-i-Mizāj Dimāgh Maddi* (Abnormal Substantial Temperament of the Brain)**

Deviation in temperament (*mizāj*) of the brain due to the involvement of *ghayr tab'i madda* (abnormal humor) is called as Abnormal Substantial Temperament of the Brain (*sū'-i-mizāj dimāgh maddi*). This alteration in temperament of brain may result either due to change in the quality and quantity of humor (*akhlāt*) that reaches the brain for its nutrition or sometimes due to abnormal simple dystemperament of the brain leading to abnormality in coming humors thereby resulting in *sū'-i-mizāj dimāgh maddi* [1, 2, 3, 12]. Then most of the Abnormal Substantial Temperament (*amrād maddi*) are provoked by the *akhlāt-e-ghayr tab'i* (abnormal humors) or *fudhlat-e-badan* (body wastes) [27] which are produced as a result of weakness of the *quwwat-e-hādhima* (faculty of digestion) [7] consequently produced wastes (*fudhlat*) that affect the brain thru their quality (*kaifiyāt*) or quantity (*miqdar*) and cause *sū'-i-mizāj dimāgh maddi* [27]. Since wastes (*fudhlat*) are formed by residues of the food; thus food plays a significant role in the causation of *sū'-i-mizāj maddi*. Yet often *asbāb-e-badaniya* (somatic causes) to cause *sū'-i-mizāj maddi* [28].

The brain is an organ where *bukhārat* (vapours) are being transferred from the stomach, heart, etc. on regular basis. Sometimes ascending *bukhārat* are thin but the abnormal cold temperament of the brain makes them viscid resulting in *sū'-i-mizāj maddi*. Many a time, these ascending *bukhārat* are already viscid and cause *amrād dimāgh maddi* (dytemperamental disorders) [1, 3, 28]. Following are the causes that result in the production of viscid vapours:

- Foods that produce black bile (*sawdā*) in excess, such as lentils, cabbage, dried meat and salted fish, etc.
- Sudden cessation of the natural evacuation (*istefragh*) of matter from the body, e.g., amenorrhea in normal menstruating females, quitting the *ḥijāma* (wet cupping), *faṣd* (venesection) and other ways of the *istefragh* in a habitual person
- Excessive thinking, *sū'-i-mizāj bārid mi'da* (cold dytemperament of stomach), *amrād-e-tiḥāl* (spleen diseases) may also result in excessive production of black bile in the body [28].
- The *ghayr tab'i balgham* (abnormal phlegm) or the *ghayr tab'i sawdā* (abnormal black bile), as well as *khoon-e-ghalīz sawdā'wī* (thick black bilious sanguine) produced by any of the above causes, are responsible for the formation of the *ghalīz bukḥārat*. These *bukḥārat* ascend towards the brain and cause many diseases ranging from *ṣudā shirkī* (secondary headache), *kābūs* (nightmare/incubus), *ṣar'a* (epilepsy), *mālankūliya* (melancholia) to *deewangi* (mania), etc. [3].
- Ahmed Ṭabari wrote that *madda* in *sū'-i-mizāj maddi* may be produced either locally or may come into the brain from some other parts of the body, such as *qalb* (heart), *mi'da* (stomach), *jigar* (liver), *tiḥāl* (spleen) and *raḥim* (uterus), etc.

These morbid matters ascend towards the brain from the following three places:

- From the stomach.

- From the heart and arteries of the body.
- From the periphery as well as the core of the body.

Mādda/mawād (morbid matter), which ascends towards the head according to Ahmed Ṭabari, are of three types:

- *Bārid ghalīz* (cold viscid / viscous).
- *Hārr la 'dā' wa ghair la 'dā'* (hot irritative and non-irritative).
- *Riyāh ghalīz* or *riyah hār* (viscid pneuma or hot pneuma).

The site of accumulation of *mawād* (morbid matter) in the brain is as follows:

- *Butoon-e-dimāgh* (ventricles of the brain)
- Parts of the external membrane are present in free parts of the head and around the brain (dural venous sinuses).
- The lower part of the membrane is present on the internal surface of the calvarium/ skull (cavernous sinus).

Considering these specifics, important points to be taken into consideration while diagnosing the *sū'-i-mizāj dimāgh* are as follows:

- Whether the cause external or internal?
- Which *kaiḥiyāt* is affected?
- Type of *mādda* involved, if there is any.
- Whether *marād* is *zātī* or *shirkī*?
- Part of the brain involved (involvement of *a 'dā'-e-mufrada* like *jauhar-e-dimāgh*, *urooq-e-dimāgh*, *ghishā-e-dimāgh*, etc.).

Depending upon the types of the *mādda* and their presence in different parts of the brain, various brain disorders occur. Also, depending upon the site of production of morbid matter, diseases of the brain may be *zātī* (primary) or *shirkī* (secondary) [28].

***Sū'-i-Mizāj Hār Māddī Dimāgh* (Abnormal Hot Substantial Temperament of the Brain)**

In this type of *sū'-i-mizāj māddī* only *hārrarat* is increased more than normal in *dimāgh* (brain) with involvement of *mādda*. Its causes are the presence of hot morbid matter in the brain and congestion of the brain because of ascending viscid vapours from the stomach and core of the body, e.g., *ṣudā hār māddī*, *shaqīqa hār*.

Causes may be either *asbāb badiya* (external causes) or *asbāb badaniya* (somatic causes). The *sū'-i-mizāj hār sāda dimāgh* may convert into the *sū'-i-mizāj hār māddī dimāgh*, as increased *hārrarat* in *dimāgh* transform the *kaiḥiyāt* of the *khilt* reaches to the brain for its nutrition. Excessive intake of *hār ghiḥā'* (hot food), e.g., garlic, ginger, mustard, black pepper, etc., and other body conditions, like fever, etc., lead to the production of hot humour in the body [1, 2, 7, 27]. These hot humours alter the temperament of the brain. Obstruction in the outflow of wastes may result in their accumulation; these wastes may alter the temperament of the brain. If wastes are hot in quality, they cause *sū'-i-mizāj hār māddī dimāgh*.

Signs and symptoms are like the *sū'-i-mizāj hār sāda*, but more intense.

- Patient complains of headache with heaviness in the head and a decrease in sleep.
- Irritability, impatience, short temper, and decreased cognitive and perceptive functions are seen.
- The patient feels pleasure from exposure to cold things.
- On palpation, the head is hot [1, 2, 8].

***Sū'-i-Mizāj Bārid Māddī Dimāgh* (Abnormal Cold Substantial Temperament of the Brain)**

In this type of the *sū'-i-mizāj māddī* only *burūdat* is increased more than normal in the brain due to morbid matter. Alteration in *mizāj* of *jauhar dimāgh* and *aghshiya dimāgh* due to accumulation of

mawād and *ruṭūbat* in *butoon dimāgh* leads to *sū'-i-mizāj bārid māddī*, e.g., *ṣudā bārid māddī*, *shaqīqa bārid*.

Causes may be either *asbāb badiya* or *asbāb badaniya*. Excessive intake of the *bārid ghiḍhā'* (cold food), e.g., *anar tursh* (sour pomegranate), apple, guava, pumpkin, *kasni* (chicory), cucumber, etc., leads to the production of the *būrudāt* in the body, thereby causing *sū'-i-mizāj*. Prolong *sū'-i-mizāj sāda* may convert into *sū'-i-mizāj bārid māddī* [1, 2, 7, 20, 27, 29, 30].

The following are the signs and symptoms:

- The patient of the *sū'-i-mizāj bārid māddī dimāgh* suffers from heaviness in the head and a runny nose [1, 8].
- The patient also experiences excessive sleep, watering of the eyes, forgetfulness of past events, and dizziness.
- On examination, altered pulse rate and white/turbid urine are seen.

***Sū'-i-Mizāj Raṭb Māddī Dimāgh* (Abnormal Moist Substantial Temperament of the Brain)**

In this type of the *sū'-i-mizāj māddī* only *ruṭūbat* is increased more than normal in *dimāgh* (brain) due to involvement of morbid matter, e.g., *subāt* (coma) is caused by the dominance of excessive moisture in brain and nerves [1–3]. The *ruṭūbat ghyr ṭab'i* (abnormal moisture) produces *imtilā*. This condition is caused by the *ghyr ṭab'i khilt* and *ghalīz bukhārat*, which are formed from those *jauhar-e-ma'ī* which are unable to dissolve and ascend to the brain [31].

Causes may be either *asbāb badiya* or *asbāb badaniya*. Excess intake of *raṭb ghiḍhā'* (moist food), e.g., *kaddu* (pumpkin), *ash ja'u* (barley water), etc., leads to the production of *ruṭūbat* (moistness) in the body, so in the brain. The *sū'-i-mizāj raṭb sāda* may also convert into *sū'-i-mizāj raṭb māddī* if the former prolongs [1, 2, 7].

The following are the signs and symptoms:

- The patient generally experiences excessive sleep and laziness.
- Oedema of eyelids is present in patients of *sū'-i-mizāj raṭb māddī dimāgh*.
- In addition, recurrent catarrh, unusual excretion of *fuḍhlat dimāgh* (i.e., flow of saliva and mucus), *nisyān* (amnesia) are seen [1, 8].
- After taking the *murattibat* (moistening things) many times patient suffers from dyspepsia and abdominal discomfort too.
- According to Hippocrates, humidity/excessive moisture of the brain arises from an excess of phlegm, which causes madness [32].

***Sū'-i-Mizāj Yābis Māddī Dimāgh* (Abnormal Dry Substantial Temperament of the Brain)**

In this type of the *sū'-i-mizāj māddī* only *yubūsat* is increased more than normal in *dimāgh* (brain) with involvement of *mādda*, e.g., *'ishq* (love sickness/ erotomania). There may be shrinkage in the tissues of *dimāgh* and a *'ṣāb* due to excessive *yubūsat*.

Causes may be either *asbāb badiya* or *asbāb badaniya*. Excess intake of *yābis ghiḍhā'* (dry/desiccative food), e.g., meat of birds, lentils, *bājra* (pearl millet), and *ashya tursh* (sour food) leads to the production of *yubūsat* in the body. According to Ibn Sina, excessive intake of sour food, e.g., tamarind, *zarishk* (barberry), *sirka* (vinegar), leads to increased *yubūsat* in the body, because the *ashya tursh* (sour food) has *mizāj yābis* [1, 2, 7, 29]. Similarly, overuse of hot foods, like black pepper, cinnamon, mint, *methī* (fenugreek), etc., may produce dryness in the body.

Following are the signs and symptoms:

- In *sū'-i-mizāj yābis māddī dimāgh*, sleep is decreased.
- Other symptoms are dryness of the skin and nostrils [1, 2, 3, 17, 28, 33, 34].

- *Nafsani harkāt* (psychic movements), like joy, sorrow, etc., are sustained in affected individuals [27].

***Sū'-i-Mizāj Hār Raṭb Māddī/ Sū'-i-Mizāj Damwī Dimāgh* (Sanguinous Dystemperament)**

It occurs when there is an increase in *ḥararāt* and *ruṭūbat* of the brain due to morbid matter [7, 9]. It is also called *sū'-i-mizāj damwī dimāgh*, because the associated *mādda* is generally *khilt dam*, which either by its quality or quantity causes the *sū'-i-mizāj dimāgh*. Sometimes there may be a morbid matter which has the same temperament as that of *khilt dam*, i.e., *ḥār raṭb*. *Sarsām ḥār damwī*, *dā'al-kalb*, *ṣudā ḥār damwī*, etc., are caused by *sū'-i-mizāj ḥār raṭb māddī* [1, 3, 8, 28].

It is caused by an abnormality in the quantity and quality of the *khilt dam* and other *ḥār mādda*. Abnormality in the *mizāj* of the *khilt dam* may occur by continuous intake of the *radiyyul kaimoos aghḍhiya*. Food that produces blood not good in quality and quantity is called *radiyyul kaimoos*, e.g., meat of rabbit or camel, spleen of cattle, etc. [1, 2, 25].

Sometimes food is of good quality and quantity, but *mizāj* of the liver is abnormal, which leads to the production of abnormal humour. Sometimes, *mizāj* of the liver is normal; it produces good humour, but due to abnormal *mizāj* of tissues, the incoming good humour is converted into abnormal humour or morbid matter. The same phenomenon happens when the *sū'-i-mizāj sāda dimāgh* is converted into *sue sū'-i-mizāj dimāgh māddī* [6, 7].

Unani physicians described the following signs and symptoms of *sū'-i-mizāj ḥār raṭb māddī /damwī dimāgh*:

- Drowsiness, lethargy, frequent yawning, and a feeling of pressure behind the eyes and headache.
- Frequent epistaxis/ nose bleeds [1, 2, 8].
- Presence of swelling in the eyes, conjunctivitis, and retro-orbital pain.
- The patient experiences excessive joy and euphoria.
- Inability to withstand hardship and inability to give prolonged attention and concentration to the serious concerns of life.
- An endless search for distractions, self-gratification at the expense of others, is also seen [1, 2, 8, 35].

***Sū'-i-Mizāj Hār Yābis Māddī/ Sū'-i-Mizāj Ṣafrā'wī Dimāgh* (Choleric/Bilious Dystemperament)**

It occurs when the *ḥararāt* and the *yubūsat* increase more than normal in *dimāgh* due to the involvement of morbid matter [7, 9]. It is also called *sū'-i-mizāj ṣafrā'wī dimāgh* because the associated matter is generally *ṣafrā*. *Sahr* (insomnia), *ṣudā ṣafrā'wī*, *sarsām ḥār ṣafrā'wī*, *deewangi*, *ṣubārā* (manic phrenitis) are examples of *sū'-i-mizāj ḥār yābis māddī* [3, 8, 28]. In some individuals, there is a predominance of the *ṣafrā*. In other words, their *mizāj* tends towards the *ḥararāt* and the *yubūsat*.

Therefore, little change in eating habits and sleeping patterns, etc., of that person leads to excessive production of *ṣafrā* and thereby *mizāji* deviation. Excess intake of *ḥār yābis aghḍhiya*, e.g., ginger, garlic, walnut, pine nut, basil, gram, *gandana* (spring onion), black cumin, etc., leads to the formation of morbid matter having abnormal *ḥār ysābis mizāj*. Sometimes, *ḥār ṣafrā'wī bukhārat* (hot bilious vapours) can ascend from the liver to the brain and head and disturb their functions [27, 30, 36, 37].

The following are the signs and symptoms which are seen in *sū'-i-mizāj ḥār yābis māddī/ ṣafrā'wī dimāgh*:

- Intense headache like migraine, epistaxis, giddiness, and nausea [28, 33].
- *Duwār* (vertigo), *taneen-wa-dawī* (ringing in the ears), redness in eyes, and sometimes the patient feels rigidity in neck and shoulders [28].
- Hippocrates described one of the causes of insanity as *khilt ṣafrā* [38].
- Exaggeration of heat and excessive *ṣafrā* is often associated with visual disturbances and

photophobia [3].

- According to Hippocrates, people having an excess of *khilt safrā* (yellow bile) are aggressive [32].
- The patient becomes irritable, moody, and impatient. This condition may often result in mania, delirium, mental agitation, and an inability to attain mental peace and composure [1, 2, 8].
- Excess of *safrā* and increased hotness *are* often associated with giddiness and nausea.
- These signs and symptoms are seen in *amrād dimāgh* like *mālan kūliya* (melancholia), *qutrub* (lycanthropy), *mānia* (psychosis), etc. [1, 3, 28].

Sū'-i-Mizāj Bārid Raṭb Māddī/ Sū'-i-Mizāj Balghamī Dimāgh (Phlegmatic Dystemperament)

It occurs when the *būrudāt* and the *ruṭūbat* increase more than normal in *dimāgh* due to the involvement of matter [7, 9]. It is also called as *sū'-i-mizāj balghamī dimāgh* because the associated matter is generally *balgham*, e.g., *lithārgas (sarsām bārid balghamī)* [39].

There are various causes of *sū'-i-mizāj bārid raṭb māddī* described by Unani physicians. Some of the dietary factors, age of an individual, and season of the year (winter) lead to the production of excessive *balgham*. Excess intake of the *bārid raṭb aghdiya* (cold and wet food), like *shaftaloo* (peach), *zardaloo* (apricot), *paneer* (Indian cottage cheese), butter, curd, *shiraz* (hermitage/ a variety of grape), pumpkin, cucumber, etc., leads to the production of the *balgham* in the body [12, 27, 30, 36]. Also, dominance of *bārid raṭb kaifiyāt* in the liver (excessive *būrudāt* in the liver) and winter season leads to the production of humour having *bārid raṭb mizāj*. According to Hippocrates, in the winter season, old age people often suffer from *nazlā*, *saktā*, and *fālij* [12]. According to Jalinoos, *saktā* (apoplexy), *fālij*, *tashannuj*, *junūn* are caused by the *khilt balgham* and *khilt sawdā'*. *Shar'a* (epilepsy) is close to *saktā* (apoplexy) in its pathogenesis [39].

The following signs and symptoms are described by Unani physicians:

- Drowsiness, sluggishness, lethargy, and sleepiness, especially in early mornings, after meals, and in evenings after excessive daily work.
- Heaviness in the head with a sense of pressure or of wrapping of a strip around the head is quite common.
- Senses become dull, there is decreased mental alertness, and decreased reflexes.
- Nose and sinuses are often congested; there is a feeling of congestion in the ears; watering from eyes and nose; drooling/salivation.
- Visual and auditory hallucinations, unrealistic and passive fantasies, illusions, and delusions are seen.
- There is a weakness of will and inability to differentiate inner fantasy from outer reality; therefore, individual is unable to take actions.
- In severe cases, vertigo, dizziness and wooziness, faintness, or syncope is observed. Sometimes, loss of consciousness may also occur.

Sū'-i-Mizāj Bārid Yābis Māddī/ Sū'-i-Mizāj Sawdā'wī Dimāgh (Melancholic Dystemperament)

It occurs when the *būrudāt* and the *yubūsat* increase more than normal in *dimāgh* due to the involvement of matter [7, 9]. It is also called *sū'-i-mizāj sawdā'wī dimāgh* because the associated matter is generally *sawdā'*, e.g., *jumūd/ shukhūs/ ākhidha/ qātūkhaṣ* (catalepsy), *mālan kūliya* (melancholia), *waswās* (insanity) [26].

The dominance of the *harārat* and the *yubūsat* in the liver leads to excessive burning of humour [6, 12]. Ibn Sina described this process as *ihṭirāq* (charring and burning) [1]. According to him, the process of *ihṭirāq* affects the humour present in the liver and converts it into morbid matter. Morbid matters have *bārid yābis mizāj*, generally, it is referred to as *ghyr tab'i sawdā'*. These morbid matters or their vapours ascend towards the brain and cause *sū'-i-mizāj bārid yābis* in the brain [14]. The following are the causes that help in the formation of abnormal black bile:

- External factors, like atmospheric air, water, and occupation, lead to disturbance in the temperament of the *khilt sawdā*.
- Dietary causes are excessive intake of the *bārid yābis aghdiya* (cold and dry food), e.g., raw and astringent food like lentils, dried meat, etc. [1, 7, 3].
- Emotional factors are an unbalanced emotional state, excessive grief, and loneliness, etc. [3].
- Other causes are prolonged retention of morbid matter in the brain, disorganized living habits like overwork, continuous awakening, etc.

The following signs and symptoms are observed in the *sū'-i-mizāj bārid yābis māddī/ sawdā'wī dimāgh*:

Signs and symptoms are similar to the *sū'-i-mizāj ṣafrā'wī* in many ways, but not as acute or intense as *sū'-i-mizāj ṣafrā'wī* (choleric temperament) [8].

- Excessive thinking and worrying drain valuable *ruṭūbat* (moistness) of the brain and nervous system, which leads to nervous agitation. Therefore, hyper-reactivity is seen in *sū'-i-mizāj bārid yābis* [33].
- Excessive dryness in the body, malaise, tremors, spasms, and neuralgias.
- Visual floaters are more common.
- Eyes become dry, irritated, or scratchy.
- The patient has an excessively cautious, prudent outlook and obsessive, rigid or strict thinking. The patient can be easily frightened and discouraged [3, 8, 35].
- Mental disturbances, like self-alienation, denial of one's feelings, depression, suspicious behaviours, and inability to trust others, are seen.
- Other signs and symptoms are dizziness, tinnitus, vertigo, chronic stress, insomnia, lightheadedness, poor appetite, and chronic indigestion (Figure 1) [1, 8, 28, 33, 34]. An infographic- Pathogenesis of *Sū'-i-Mizāj Dimāgh Māddī*.

METHODOLOGY

To construct an overview of the etiopathogenesis of neurological and psychiatric disorders, according to USM, a literature review has been conducted. Literary material is collected from classical books of *tibb-i-unani*, their translations, previous theses and dissertations, Souvenir, journals, and proceedings, etc. An extensive survey of existing literature regarding *Sū'-i-Mizāj* of *Nizam-i-A'ṣab* (nervous system) is carried out from the literature of Unani Medicine. Collected literature is systematized under various aspects related to *Sū'-i-Mizāj*. The above-mentioned sources of data are available in libraries and on different websites that will be visited for the collection of data. After collecting the material, explanatory notes will be added as an observation and result, and based on behalf of literature review and observation, the discussion and conclusion is made. Various themes under which the literature survey is carried out are:

1. *Nizam-i-A'ṣab* (nervous system) and *Maghz Dimāgh* (Brain substance).
2. Concept of *Sū'-i-Mizāj*.
3. Description of *Sū'-i-Mizāj* of *Nizam-i-A'ṣab* (nervous system) and its relation to neurological and psychiatric disorders.

RESULTS

Most historical accounts of neuroanatomy and neuro-pathophysiology transition quickly from the Greco-Roman period to the Arabic era and then to the European Renaissance. This often overlooks the significant contributions of Unani scholars, particularly in neuroscience, creating a gap in understanding between classical and conventional medicine. A comprehensive study of neuroanatomy and neuro-pathophysiology from a Unani perspective can help bridge this gap and establish a comparative understanding.

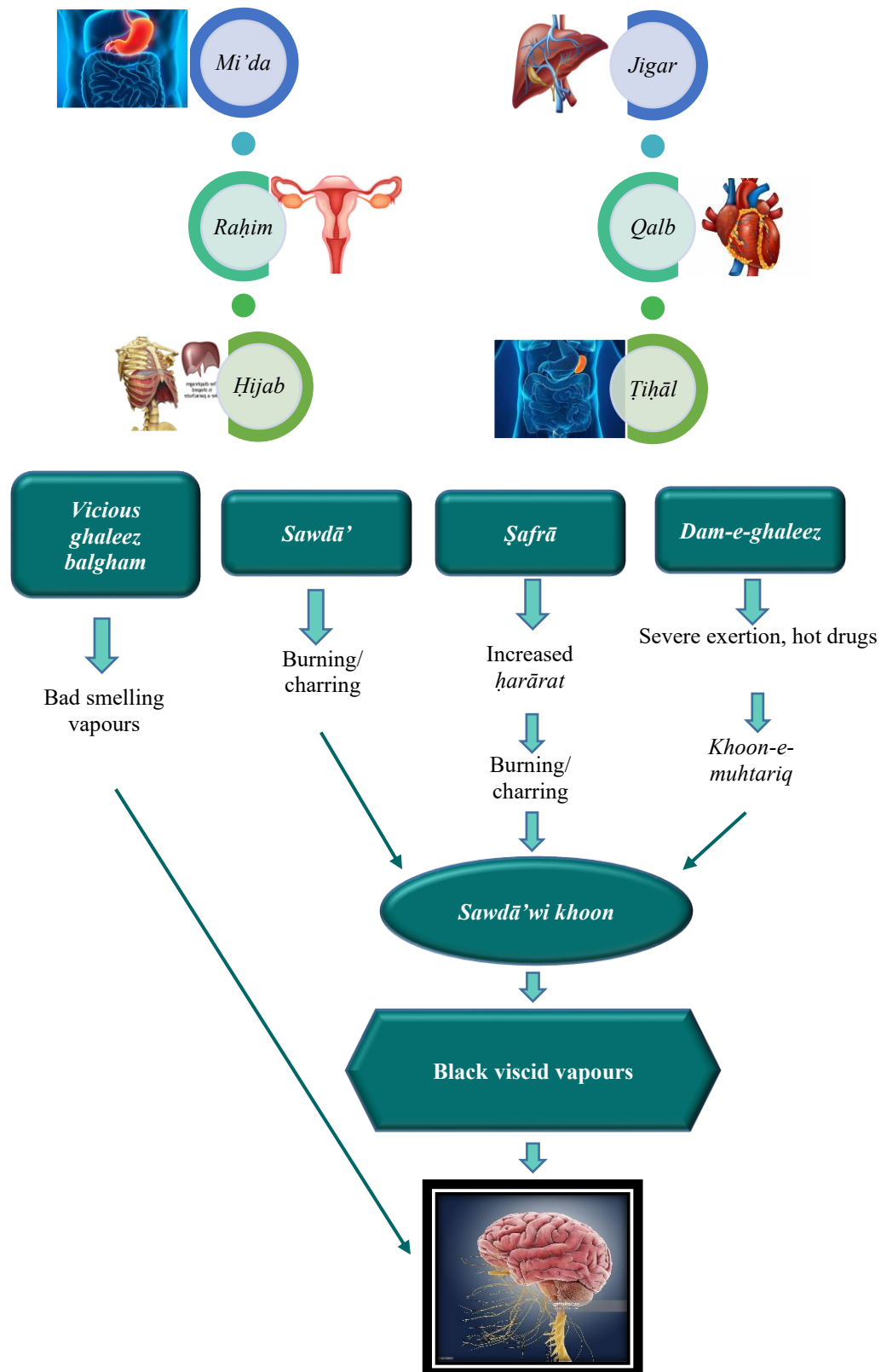


Figure 1. An infographic- pathogenesis of *Sū'-i-Mizāj Dimāgh Māddī*.

This study aims to explain the pathophysiology of neurological and psychiatric disorders, particularly through the lens of *Mizāj* (temperament) and *Sū'-i-Mizāj* (dystemperament) of the brain (*Dimāgh*). Since an individual's physical, psychological, and emotional well-being is influenced by temperament, any imbalance in *Mizāj* can significantly impact mental health. Therefore, maintaining a balanced temperament is essential for overall well-being.

Findings from this study indicate that various forms of *Sū'-i-Mizāj*—either in isolation or combination—can affect brain function. These imbalances may manifest as *Sū'-i-Mizāj Sada* (simple temperament) or *Sū'-i-Mizāj Maddī* (temperament with material involvement). The impact of *Sū'-i-Mizāj* on the brain depends on its type, severity, and the specific brain region involved. Different clinical features (*Alamāt*) emerge based on these factors, aiding in the diagnosis of neurological and psychiatric disorders. A mild deviation in *Mizāj* may result in minor functional disturbances, such as anxiety, while severe deviations can lead to significant dysfunction, as seen in conditions like *Mālankhūliya* (melancholia).

The review highlights that Unani scholars made substantial and original contributions to the fields of neurology and psychiatry, underscoring the need for greater recognition of their work in modern medical discourse.

Most accounts on the history of neuroanatomy and neuro-pathophysiology move rapidly from the Greco-Roman period to the Arabic and then European Renaissance. There is ignorance of the scientific contributions of Unani scholars at least in many fields of science, especially neuroscience, creating a gap in the understanding of classical and conventional medicine. A comprehensive study of neuroanatomy, neuro-pathophysiology by Unani scholars is helpful to overcome this gap and draw a parallel perception.

This study is carried out to explain the pathophysiology of neurological and psychiatric disorders. The explanation is particularly based on *Mizāj* (temperament) and *sū'-i-mizāj* (dystemperament) of *dimāgh*. It is a fact that the physical, psychological, and emotional profile of an individual is based on temperament, thus affecting mental health in a broader sense. Hence, for the maintenance of health, an individual's temperament must be maintained within the normal limits [1, 7, 14, 17, 3].

In the present study, it is found that all types of *sū'-i-mizāj* as well as a combination of these, may occur in the *brain*. It may be *sū'-i-mizāj sada* or *sū'-i-mizāj maddī*. So far as effects of *sū'-i-mizāj* on *dimāgh* are concerned, it depends upon the type as well as degree of *sū'-i-mizāj* itself and *the* type of *uḍw mufrad* as well as part of the brain involved. Depending upon above above-described factors, different *alamāt* (clinical features) appear, which help in the diagnosis of the type of *sū'-i-mizāj* of the brain, i.e., neurological and psychiatric disorders. If the deviation in *mizāj* is mild, then the effects will be mild too, and there will be slight derangements in brain functions, e.g., *anxiety*. Similarly, extreme deviation in *mizāj* of the brain leads to extreme dysfunction, e.g., *mālankhūliya* [1, 3].

The present review clearly shows that many Unani scholars contributed major original knowledge to neurology and psychiatry.

CONCLUSIONS

The Unani System of Medicine (USM) has been serving humanity for centuries, relying on empirical observations and experiential knowledge. It offers a vast repository of factual data and scientific insights that, when systematically analyzed and correlated with modern medical science, particularly molecular pathophysiology, can provide valuable contributions to contemporary medicine. While advances in diagnostic imaging and molecular studies have significantly improved the assessment of brain, spinal cord, and nerve lesions, they have also led to a decline in the emphasis on traditional neurological examinations.

This study marks a pioneering literary exploration of temperament (*Mizāj*) and dystemperament (*Sū' i-Mizāj*) in the context of neurological disorders, an area that has remained largely unexplored. The temperament-based diagnostic approach presents a valuable framework for understanding various neurological and psychiatric conditions, offering an alternative perspective that may complement modern diagnostic tools.

By investigating neurological and psychiatric disorders through the lens of ultra- and supra-molecular etiopathogenesis, this study aims to provide deeper insights into the fundamental mechanisms underlying these conditions. Integrating temperamental principles with contemporary neurological research could bridge critical gaps in understanding and potentially unlock solutions to unresolved complexities in the field. Furthermore, this approach may contribute to advancements in molecular pathophysiology, drug development, and neuroimaging techniques, ultimately leading to improved therapeutic strategies and better outcomes for individuals suffering from neurological disorders.

USM has been serving humanity for thousands of years based on experience and experimental observation. There are outstanding factual data, rich in scientific ideas which could be lucratively studied by suitable investigation and proper correlation with the parameters of modern medical science, such as molecular pathophysiology. So far, advances in diagnostic imaging and molecular examinations have allowed them to evaluate lesions in the brain, spinal cord, and nerves. As a result, the value of a neurological clinical examination has decreased. The present study is the commencement of literary work about temperament and dystemperament based neurological approach. A study on such a subject had never been attempted before. The temperament-based approach is a very important diagnostic tool in various pathological conditions, e.g., neurological and psychiatric disorders. So, it can be considered a level of choice for diagnosis. The present study instigates and formulates an in-depth understanding of the mechanisms of neurological and psychiatric disorders on the path of ultra/supra molecular aetiopathogenesis. It may pave the way for further understanding of neurological diseases at the molecular level. Acceptance of which would resolve many unresolved riddles in the field of neurology. Further, this study will also help recent researchers of molecular pathophysiology and in the development of effective drugs and neuro-imaging methods, if understood from the right perspective. Thus, it will give relief to sufferers of neurological diseases.

- *Source of Support:* There is no funding or support.
- *Acknowledgment:* The Authors acknowledge the authors/editors/publishers of all those articles, journals, books, and papers from which the literature for the present study has been reviewed and discussed. Special thanks to the librarian, National Institute of Unani Medicine, Bengaluru, India, for providing smooth access to the ancient Unani texts available in the library of the Institute.
- *Conflict of Interest:* The authors certify that there is no actual or potential conflict of interest in relation to this article.

REFERENCES

1. Ibn Sina AAHIA. *Alqanoon Fit Tib*. Kantoori GH, translator. New Delhi: Idara Kitab-us-Shifa. p. 489, 491–492.
2. Majoosi AHBA. *Kamil-us-Sana'a*. Kantoori GH, translator. New Delhi: Idara Kitab-us-Shifa; 2010. p. 126–128, 171–173, 448.
3. Jurjani I. *Zakhira Khwarizam Shahi*. New Delhi: Idara Kitab-us-Shifa; 2010. p. 24–26, 54, 55, 87.
4. Kinnier Wilson JV. An introduction to Babylonian psychiatry. In: Güterbock H, Jacobsen T, editors. *Studies in honor of Benno Landsberger*. Chicago: Chicago University Press; 1965. p. 289–298.
5. Reynolds EH, Kinnier Wilson JV. Neurology and psychiatry in Babylon. *Brain*. 2014;137:2611–2619.
6. Ibn Sina AAHIA. *Kulliyat-e-Qanoon*. Kabiruddin HM, translator. New Delhi: Aijaz Publication House; 2006. 31.
7. Nafis IB. *Kulliyat-e-Nafisi*. Kabiruddin HM, translator. New Delhi: Idara Kitab-us-Shifa; 1954. p. 56, 67, 157.

8. Khan MA. Aksir-e-Azam. Kabiruddin HM, translator. New Delhi: Idara-e-Kitab-ul-Shifa; 2011. p. 9–18, 111.
9. Zaidi IH. A textbook on Kulliyat-e-Umoor-e-Tabi'yah. 1st ed. Aligarh: Iqtidarul Hasan Zaidi; 2011. p. 22.
10. Ahmed SI. Introduction to Al-Umur Al-Tabi'yah. 1st ed. reprint. New Delhi: Central Council for Research in Unani Medicine; 2009. p. 15.
11. Tabari R. Firdaus-ul-Hikmat-Fit-Tibb. New Delhi: Central Council for Research in Unani Medicine; 2010. p. 138.
12. Rushd I. Kitab-ul-Kulliyat. New Delhi: CCRUM; 1987. p. 34, 40–41, 44, 57, 73.
13. Arzani A. Mufarreh-ul-Quloob. New Delhi: Idara Kitab-us-Shifa; 2002. p. 165.
14. Qarshi A. Afad-e-Kabeer Mujmal. New Delhi: Idara Kitab-us-Shifa; 2010. p. 41, 54, 75.
15. Masihi IQ. Kitab-ul-Umda Fil-Jarahat. Vol. 1. New Delhi: CCRUM. p. 104–106.
16. Masihi AS. Kitab-ul-Miah. Vol. 1. New Delhi: CCRUM; 2008. p. 123–127.
17. Gruner OC. The Canon of Medicine of Avicenna. New York: AMS Press; 1973. p. 135–141, 196–197.
18. Ahmed SI. Kulliyat Asri. 1st ed. New Delhi: New Public Press; 1983. p. 34.
19. Jalinoos. Kitab Fil-Mizaj. Aligarh: Ibn Sina Academy; 2008. p. 169.
20. Jalinoos. Kitab-fil-Anasir. Aligarh: International Printing Press; 2008. p. 106.
21. Saher SK. Explanation of pathophysiology of Amraz-e-Sawdawiyya in present perspective [dissertation]. Bengaluru (India): Rajiv Gandhi University of Health Sciences; 2020. p. 59.
22. Licholai PG. Galenic heritage in the neuroanatomy of Avicenna's Canon of Medicine [thesis]. New Haven: Yale Medicine Thesis Digital Library; 1995. p. 64.
23. Waris J. Tauzeehat Asbab-Sittah Zaruriya. Aligarh: Department of Kulliyat, Aligarh Muslim University; 2006. p. 31–5, 56.
24. Mubeen M, Khan TN. Concept of Sihhat (Health): A unique concept in Unani System of Medicine. *Int J Prev Nutr Public Health*. 2019;4(1):1364–1367.
25. Baghdadi I. Kitab-ul-Mukhtarat-Fil-Tibb. Vol. 3. 1st ed. New Delhi: Central Council for Research in Unani Medicine; 2004. p. 32–36.
26. Anonymous. Standard Unani Medical Terminology. New Delhi: Central Council for Research in Unani Medicine; 2012. p. 181–194.
27. Zulkifl M, Beg FM. Iqlaqi Kulliyat. 1st ed. Bangalore: National Institute of Unani Medicine; 2020. p. 39, 61, 70.
28. Tabari AH. Moalajat Al-Buqratiyah. Vol. 1. New Delhi: CCRUM; 1995–97. p. 322, 335, 420–425.
29. Harwi MY. Ain Al-Hayat. Aligarh: Ibn Sina Academy; 2008. p. 154, 257.
30. Zohr AM. Kitab-Al-Aghziya. New Delhi: Central Council for Research in Unani Medicine; 2009. p. 22, 39–50.
31. Zuhr I. Kitab-ul-Taiseer Fil-Madavat-e-Wa-al-Tadbeer. 1st ed. New Delhi: Central Council for Research in Unani Medicine; 1986. p. 54, 59, 84, 206, 210, 211.
32. Anonymous. Theories and Philosophies of Medicine. 2nd ed. New Delhi: Institute of History of Medicine and Medical Research; 1973. p. 81, 99.
33. Razi Z. Kitab-al-Hawi. Vol. 1. New Delhi: Central Council for Research in Unani Medicine, Ministry of Health & Family Welfare; 2007. p. 78–81, 91, 128.
34. Razi Z. Kitab-ul-Fakhir Fit-Tib. Vol. 1. New Delhi: Central Council for Research in Unani Medicine, Ministry of Health & Family Welfare; 2008. p. 50.
35. Arzani A. Tibb-e-Akbar. Deoband: Faisal Publications; 1890. p. 37, 58, 59–73.
36. Aqserai J. Tarjuma Aqserai ma Sharah-e-Mojaz. Lucknow: Matba Munshi Naval Kishore. p. 3–10.
37. Usmani MI. Tanqeehul Mufradat. Aligarh: Ibn Sina Academy. p. 11, 26, 41–63.
38. Jackson SW. Galen-On Mental Disorders. *J Hist Behav Sci*. 1969;5(4).