ORIGINAL ARTICLE

Evolution of the Traditional Unani Medicine Research Methodology from Rational Science to the Evidence-based Science

Abstract

Unani medicine is one of the oldest systems encompassing the medical traditions from the Babylonian and Egyptian eras to the present Indian Unani tradition and Traditional Iranian medicine. It came to the Greeks through Egyptian civilization and was refined into a rational system by Hippocrates, Galen, Razi, and Avicenna.

The faithful translation of traditional practices into Arabic in the medieval era under a comprehensive frame based on logic and observations developed the research concept methodology much earlier, which was believed to be a modern concept. The present paper reviews the changing face of research methods adopted in Unani medicine.

The research concept was looked upon in the classical Unani literature. Several papers in this regard were also searched using search engines, namely PubMed, google scholar, and Science Direct.

The concept of research methodology is quite primitive and has undergone several transitions throughout development and advancement in science. The shift from rational to evidence-based science is quite evident from the history of research development.

Key words: Logic, Observation, Scientific methodologies, Unani medicine

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Introduction

The Unani System of Medicine, one of the traditional Indian Medicine systems, is the most ancient yet living tradition with a philosophical and experimental grounding. It is a rational science with a holistic approach to health and personalised medicine. It is a complete medical system that comprises physical, psychological, social, and spiritual health. In Unani medicine, each organ of the human body is inherent, an essential expression of a complete living that interacts with its environment perpetually. Unani medicine tries to interact positively with the body and its organs to help them maintain an optimal state of health. Hence, this science is also called self-healing science. (Ahmad, et al, 2021, p. ?). It intends to complete the partial, organize the scattered, amend the distorted, ease the difficult, and correct the disorder. The observations documented by the scholars of Unani medicine are spaced over a prolonged time in the history of humanity. These facts, subjected to the minute tests of logic, validated by the scholars and refined by the clinical/experimental experiences, summed up as systematic knowledge. Indeed, it involves teamwork because the strength and time of one single man are not enough for perfection, classification, and completion of a specialized art. (Masihi, 2008, pp. 23-25) The methodology employed by the scholars of Unani medicine reflects the various era of documented human history. Various aspects, such as documenting individual Babylonian health and disease experiences, preserving Asclepius' medical observations on the walls of his temple, (Garrison, 1913, pp. 39) and Hippocrates' emphasis on natural observations, were employed in ancient times. Galen's foundation of a logical medical system, faithful translation of Greek, Chinese, and Indian heritage by Arabs, and synthesis of enormous amounts of information using rational tools led to a clear understanding of the research methods in Unani medicine in the medieval period/era. Unani Medicine tried to blend these inquiry methods with current methods; however, the inability to solve the concerns led to a thorough re-examination of the methodology. With the rise of post-modern thoughts in medical science, Unani scholars once again looked back to the holistic nature of Unani medicine. The present paper reviews the changing face of research methods adopted in Unani medicine.

Methodology

The research methods adopted by Unani scholars were reviewed from Unani books written by renowned Unani physicians. Present trends of research in medicine were noted from various research reports surveyed from PubMed, Medline, and ScienceDirect, using keywords "Research methods', 'Holistic medicine', 'Logic', 'philosophy of medicine', etc. The observations were summarised and analysed from both Unani medicine and conventional perspective.

Observations

Herodotus quoted that during the Egyptian period, Egyptians used to place the patients in public places (as there were no physicians during that time) so that passers-by could give advice on their own experiences and encourage them to practice beneficial procedures adopted in similar cases. It was an obligation that nobody could pass by these patients without enquiring about the nature of their diseases. (Garrison, 1913, p. 45; Renouard, 1856, p. 30; Cumston, 1926, p. 31) This marks the real beginning of the practice

of medicine in the pages of medical history.

Medicine developed as science and art when men had gathered sufficient observations so that specific rules could be speculated regarding knowledge of diseases, symptoms of various morbid processes, and remedies suitable for cure or amelioration. (Cumston, 1926, p. 31) Whether those rules were accurate or not, beneficial or hazardous as per the present methods of inquiry, is not a matter of concern, but the need is to discover the epoch during which medicine developed to the level of science and art. This epoch begins with the first dynasty of the Pharaoh on the bank of the river Nile. Medicine had existed as science and art centuries before the advent of Hippocrates. (Cumston, 1926, p. 32) It may be added that Clement of Alexandria states that Moses learned his medicine from the Egyptians, indicating that medicine existed as a science of healing in the earliest times among its people. (Cumston, 1926, p. 34) For centuries, the Egyptians alone held the sceptre of science and art. (Cumston, 1926, p. 35)

In earlier times, myth and superstition were part of medicine. Hence, there were three forms of professions: magician, magic and medicine, and medicine. From the period of Imhotep, a celebrated physician of the third dynasty (4500 B.C.) and the earliest known physician (Garrison, 1913, p. 39; Magner, 1992, p. 26) Neuburger points out in respect of Babylonians, how the priestly interest in omens might have led to the collection and collocation of clinical observations. It included facial expressions, the appearance of the urine, saliva, and other body excretions, the blood drawn in blood-letting, and other observations which were used as indices of recovery or death. He further stated that the next step in scientific advancement was eliminating the supernatural aspect from the material aspect. (Garrison, 1913, p. 45) It is learned from the Code of Hammurabi (2250 B.C.) that the medical profession in Babylon advanced far enough in public esteem to be rewarded with adequate fees, careful prescription, and regulation by law. (Garrison, 1913, p. 45) Parmenides (5th cent, BC), (Russel, 1972, p. 48) a physician, included Syllogistic inference (*Qayās*) in it. Later, Pythagoras (532 B.C.) enhanced the rules of logic and made it assumption based, leading to a systematic framework. From the period of Plato, knowledge per se focuses on the combined approach of a *Qayās* and empirically tested observations. Therefore, the disciples of Plato specialised in different branches. His disciples promoted his concept and advanced it through their inductive approaches. Certainly, it was a Rational medicine that was used to diagnose the state of the body (health or disease) based on *Ḥawās-i-Khamsa Zāhira* (five external senses) (Adler, 1946, p. 8; Rahman, 2002, p. 308) and *Ḥawās-i-Khamsa Bāṭina* (Five internal senses of perceptions) or intuition. The diagnosis was based only on reasoning and facts. Thus, Hippocrates (560 B.C.) laid the foundation of research using both *Qayas* and *Tajraba* (Rahman, 2002, p. 308) that is, systemic observation and reasoning (Adler, 1946, p. 9; Rahman, 2002, p. 308), and even Galen (129-201 A.D.) carried this same protocol of research forwards. Abdul Lateef Baghdadi (13th century) on the account of Galen has mentioned that two types of physicians were found in the society: the empirical physicians (*Aṣ'hāb-I Tajārib*) that used an empiricist approach and the physicians *As'habe Qayās wa Tajraba* who involved both *Qayās* and *Tajraba* in treatment of a patient. Galen further advised that the medicine would be looked at from the approach of the latter group. Baghdadi emphasized a radical approach to sorting out heresy prevalent in his era from objective knowledge. (Al-Baghdadi, 1231, p. 62a) It is observed from the above that there was much more

emphasis on the methodology to systematize the knowledge of medicine along with the previously used observational method. Methodology and observation now have equal importance. It was necessary to collect data related to diseases, which would specify the aggravating and relieving factors besides the main presentation of the disease. This method of study not only enabled the accurate diagnosis but also minimised the chances of errors.

Hippocrates had written a book entitled "*Kitab al-Fusūl*" (Aphorism), later explained by Galen and translated into almost every language. He commenced his book with a famous quotation that guides the research methodology. The quote is as: "*Life is short, art is lengthy, time is limited, the experiment has risk/misleading, opportunity fleeting, and an absolute decision is difficult*" (Adler, 1946, p. 12; Rahman, 2002, p. 307).

There are always chances of error in observation, but logical reasoning protects from it as logical observation and experiment protect from analogical fallacies. Hippocrates considered that neither *Qayās* nor experiments can solely reach accurate inferences. However, he asserted the importance of both, and proper logic, in concluding. (Rahman, 2002, p. 310) Galen used wild chicken to assess the efficacy, correctness, and quality of *Tiryāq Farooq*. After administering the drug and getting them bitten by *Hāmā* (snake), if the chick survived the bite, it was credited to the purity of *Tiryāq Farooq*. On other occasions, he gave *Tiryāq Farooq* to a wild chick after being bitten by *Hāmā*. The chick's survival was associated with the good efficacy of *Tiryāq Farooq* against the snake bite. (Azmi, 2011, p. 60) Rufas (4th Century B.C.) promoted anatomical research through the dissection of monkeys and pigs. (Azmi, 2011, p. 60) As evidence regarding their mode of exhaustive work shows, these people were serious about designing the research protocol. (Adler, 1946, p. 8)

Research is classified into two ways: planned, and serendipity. Planned research starts after fixing a goal and serendipity, related to intuition, starts without fixing a goal. All the knowledge is the result of both planned and unplanned research. (Rahman, 2002, p. 311)

Serendipity has four sources

1) *Ilhāmāt* (Revelation) - During the state of awakening or sleep/dream of a person, any unknown thing is revealed on *Quwwat mudrika* (perceptive internal faculty) believed to be beneficial for a particular disease condition, without having any apparent proof. For example, a person who was suffering from vesicle calculus did not get relief with any medication. He saw a person in his dream who brought a bird *Itraghūlidūs* and suggested he make ashes of it and use it. He used it accordingly, resulting in the stone's expulsion, leading to his cure. (Rahman, 2002, p. 311)

2) *Ittifaqāt* (chance discovery) is when something is revealed unintentionally. Indromacheous described that a few labourers were sent somewhere for work, food and wine. A rotten snake was sighted in their wine, and they planned to give it to a leper, their neighbour, who was in severe torment for an extended period. They thought that this will ease his ailment! When the said person consumed it, his body began to swell up and the skin of the whole body peeled off until the next morning. After a few days, the new skin appeared, and the patient got cured forever. (Rahman, 2002, p. 311)

3) *Taqlīd Ḥaywanāt* (Imitation from animal behaviour) - Galen mentioned in *Kitab ul Huqna* that *Ibīs* bird revealed the procedure of enema; some people denoted it as Heron.

When the faecal matter accumulated in its gut, it went to the bank of the sea, filled its beak with water, and took an enema by itself. fennel seeds and *Māmira* have the property of tonic as well as a *Mujalli* effect for eyes, which was revealed from snakes. When the snakes used to live in the dark, their vision became weak and they found a favourable season to come out and rub their eyes with plants of fennel and *Māmira*, thus regaining their lost vision. (Rahman, 2002, p. 312)

4) *Tajrubāt* (Experiment)-In Egypt, a woman who suffered from pain, irritable mood and depression, stomach weakness, and a severe degree of amenorrhoea. Accidentally she took a herb named "*Rasan"* (*Inula helenium*) a few times and noticed that all her symptoms disappeared subsequently. Later, this medicine was tested on many other patients with the same symptoms and found curable and effective. This experimentation with unknown things is not the experiment we know now. (Rahman, 2002, p. 312; Usaiba, 1990, pp. 24-25)

According to Allama Qarshi, physicians should only know the functioning of pharmaceuticals and not their other features. "Knowing about drugs regarding their quality, purity, and adulteration is not vital for a practising physician as uneducated people believed, but if he knows these things as well, it comes under the category of pleasant to know or desired to know," this is quoted from Razi's Kitab as Saidala. Even if a person is only aware of the genus, species, forms/shape, colour, and purity of pharmaceuticals, he is not qualified to be a physician. Instead, he is referred to as *Tabīb*, who understands the functions/interactions of drugs in the human body. Since the functions are latent, these are referred to as *Khawāṣ* (qualities). (Al Qarshi, 2005, p. 17) The stanzas above indicate the level of learning: must know, nice to know, and desired to know were all used in the Arabic period.

Imam ibn Taymiyyah (1263-1328AD.), though a religious scholar and Ibn Ḥazm (994-1064AD), agreed that knowledge comes from perception and intelligence, and the inductive technique was acknowledged as a reliable ratiocination in opposition to the Greek and Egyptian hypotheses. Similarly, Al-Biruni and Al-Kindi have strongly emphasized observation, inductive logic, and analytical investigation. (Ahmad, et al, 2013, p. 76) As Unani Ṭibb considered observation the definitive evidence, any physician who relied solely on his experiments and ignored previous experiential knowledge and analogy would likely fail. (Ahmad, et al, 2013, p. 77)

Experimentation has remained a mainstay in Unani medicine for the enhancement of knowledge. Avicenna stressed the controlled conditions for experiments in his book *Al Qanoon Fit Tib*. He summarised the determinants for assessment of Human *Mizāj* and called them *'Alamāt Ajnās* '*Ashrah*'. It was developed as a standard and validated questionnaire for the assessment of *Mizāj* by Murtaza Mujahidi. (Salmannezhad, et al, 2018, pp. 1-9) Avicenna also developed a protocol for assessing *Mizāj* of drugs wherein he specified requisite conditions for validating *Mizaj bil Qayas* of a drug in humans under the title 'preconditions for testing a drug'. Also, in the same protocol, Avicenna clearly expressed protocol for the clinical testing of drugs in a disease, standardization of drugs, and norms to accept the observation obtained during the testing phase. (Sajadi, Mansouri, and Sajadi, 2009, pp. 640-643) He emphasized human trials before bringing a drug into use. Unani scholars emphasized clinical trials, but his protocol went further to lay the foundations for phase I and phase II of clinical trials. He explicitly stated that there must

be nomothetic evidence for the effect of a drug on a disease. (Rushd, 2017, pp. 230-233)

Similarly, Majusi has extended this approach for a broader purpose. He dealt in detail with publishing rules for writing a comprehensive book or monograph. For facilitating a straightforward approach towards research in manuscripts, several domains were considered by Majusi: Objective / *Gharaḍ*, *Manfa'at* (Purpose), *Tasmiyah* (Nomenclature), *Anḥaye Ta'līm* (Method of deliberation), *Martaba 'Ilm* (Status of Knowledge or Domain of Study), Scholar's School of thought, Validation, and How to read the classical books. The details are as follows: [18]

1) Objectives (*Gharḍ*): Every branch of knowledge aims to get to the essence of a given concept, which can be accomplished only when a person familiar with the art thoroughly understands the concepts and knows the method of preserving its essence. Further, the draft must have originality, and an understanding of the state of evolution of concepts, the favourable and unfavourable factors, and principles of objects - their types, and laws. It must be about health, disease, and neither health nor disease particularly. (Majoosi, 2006, pp. 84-89)

2) Purpose: It is essential as it relates to the human body. The human body is characterized by *Nuṭq* (power of speech) which implies human intellect. The function of the intellect cannot be accurate without *Seḥḥat Nafs Naṭiqa* (sound rational faculty). *Seḥḥat Nafs Naṭiqa* depends on *Seḥḥat Nafs Ḥaywani* (sound animal faculty), and it, in turn, depends on *Seḥḥat Nafs Ṭabī'ī* (sound vegetative faculty). The soundness of *Nafs Ḥaiwāni* and *Nafs Ṭabī'ī* depends on the state of a physical body and a sound body depends on moderation in humours (*Akhlāt*). It depends on equable *Mizāj*, the understanding of which depends on *Ṣana-'at Ṭibb* (Art of medicine). (Majoosi, 2006, pp. 84-89)

3) Tasmiya (Nomenclature): The concepts have been categorised in general and particular ones derived from Aristotle's categories of essence and accidents. As elaborated by Avicenna, the ten categories gave a comprehensive way of categorising all physical/abstract concepts. (Wedin, 2000, p. 583) Any person involved in research of the same must be familiar with these aspects so that one can evaluate the works of others and reach the conclusion of the exactness of the nomenclature. (Majoosi, 2006, pp. 84-89)

Nomenclature is needed for two reasons:

1) to know the topic of matter/things

2) The learner may be aware of the subject, such as knowing a person by his name, as it is discussed. (Majoosi, 2006, pp. 84-89)

4) *Anḥaye Ta'līm* (Method of Deliberation): The basic method involved:

I) *Ṭari'qah Taḥlīl bil 'Aks* (dissolution method from its opposite) interpolated from logic. It may be understood with the example of understanding the dynamics of a human body. It can be further categorised into subcategories like the Human body understood from *Ajzāye Āliya* (Compound constituents) that are composed of *Ajzāye Mutashabehtul-Ajzā'* (Simple Constituents) formed from *Akhlāṭ* (Humours)which ultimately come from *Nabāt* (Organic matter), and according to Unani medicine, they are categorised into *Arkān Arb'a* (First principles). The above statement has come from the idea of structural hierarchy and differentiating them from opposing premises. (Majoosi, 2006, pp. 84-89)

II) *Ṭarī'qah Tarkīb* (mode of composition): It is just the reverse of the above and involves conceptualising from the first principles and arriving at the human body. (Majoosi, 2006, pp. 84-89)

III) *Ṭarī'qah Taḥlīl Ḥādd* (Analysis of transitive premise phrase): One has to figure out the required knowledge based on the logic around the transitive phrase, confining it to the same limit. Then, he has to analyse the necessary transitive phrase from *Jins Ā'alā to Fuṣūl to Anwa'* (Genus to section to Kind), like Health, Disease, neither health nor disease to be analysed into sub-categories. (Majoosi, 2006, pp. 84-89)

IV) *Ṭarī'qahRasm* (customary rule): The chapters and objectives are derived from qualities as it is said in the perspective of human beings that there is one with straight stature and wide nails. In the art of medicine, these features give the benefit of physical health. (Majoosi, 2006, pp. 84-89)

V) *Ṭari'qah Qismat* (methods of division): It has several methods, as shown below:

a. *Qismat-ul-Jins-ilal Anwa'* (Division across genus to species): Genus to species, e.g., Division of Humma to Humma Yawm, which is derived from *Rūḥ* or *Ḥumma Khilṭī* from *Akhlāṭ* or *Humma Diq* from *A'ḍāye Aṣliya*. (Majoosi, 2006, pp. 84-89)

b. *Qismat ul Nau'ilal Ashkhāṣ* (Method of division across individual): Species to person e.g., *Humma Ghib Khāliṣa* to *Tap Ghib* as particular patient, i.e., Zaid or 'Amar or in *Humma Ghib* cases, there is a short paroxysm in some cases and long paroxysm in some other cases. (Majoosi, 2006, pp. 84-89)

c. *Qismat ul Kul ilal Ajza'*: (whole/total) to *Ajzā* (part/portion), e.g., the human body to head, hand, legs to *Āzā-i-Mutashabeht-al-Ajzā* or the whole-body divided into *Āzāy-i-Āliya* e.g., head, hand, leg. It further divides into *Aḍāye Mutashabiha* e.g., *I'ẓam, Ghazārīf*, *Laḥm*, *Aṣb* etc. (Majoosi, 2006, pp. 84-89)

d. *Qismat-ul-Mushtarak ila Ma 'nīn*: *Ism Mushtarak* (composite meaning) to *mukhtalifMa'āni* (different meanings) e.g., sometimes *Ṭabiyat* is termed *Quwwat Mudabbir Badan*, sometimes it is denoted as disposition/essence of the body, sometimes it is intended as *Mizāj*. like sometimes dog intends for *Kalb Muṣawwir* (the dog that is the guardian of the house), *Kalb Ṣāid* (hunting), *Kalb Khayān* (neighbour's dog). (Majoosi, 2006, pp. 84-89)

e. *Qismat-ul- Jawahar ilal A'rāḍ* (From essence to distinctive attributes): if someone says that the body is a kind of white, a kind of red, and a kind of black. This is as per the composition of the body. Similarly, there are many kinds of *Awrām* (Inflammations) like *Waram ṣulb* (Firm) and *Waram Rikhw* (soft). (Majoosi, 2006, pp. 84-89)

f. *Qismat ul A'rāḍ-ilal Jawahar* (From distinctive attributes to essence): if some say whiteness is either like snow or cotton, black is like that of crow or *tar* or *Duwār* is due to *Ṣafrā* or *Balgham*. (Majoosi, 2006, pp. 84-89)

g. *Qismat-ul-A'rāḍ-al-Aā'mma-ilal A'rāz-al-Mutabāyina* or *A'rāḍ Qarība* to *A'rāḍ Qarība* (proximate) e.g., *Ghashī* is due to pain or due to excessive *Istifrāgh* (evacuation), *A'rāz-al-Mutabāyina* (different) e.g., colour is divided into red or white. (Majoosi, 2006, pp. 84-89)

h. *Tariqa Qismat* is adopted in all teaching modes because the learner can memorize the meanings and understand them easily, and inference should be easier from *Juziyyāt* (particulars) and *Kulliyāt* (whole). And the *Fuṣūl* that is mentioned in the study and recitation of the book can be combined with the *Fuṣūl* that comes after it and memorize some of the *Fuṣūl* promptly. (Majoosi, 2006, pp. 84-89)

VI) *Martaba-i 'lm* (Status of Knowledge or Domain of Study): Anyone who wants to be an expert in *Ṭibb*, and other professions should learn *Uloom manṭaqiya* (logic), and

T'līm Arb'a: mathematics, geometry, astrology, and *Ilḥān* (music). (Majoosi, 2006, pp. 84-89)

Training Standard Procedures for Professionals

In the Unani system of medicine, an exhaustive mode of training was offered to the professionals to gain complete expertise in the art. This is evidenced by the classical Unani literature which is full of many such examples. Jurjani has described the training procedure of *Faṣd* (venesection) in detail: it should begin with practising on *Barg Karnab* (leaves) which must be kept overnight so that the vessels get prominent by the next day. Then, the procedure of *faṣd* is practised on these leaves by piercing them finely until complete expertise is achieved. After this, the practice should be done on the vessels of birds. The vessels are found under thighs, feathers, and arms. Feathers should be removed from the vascular area to visualise the vessels. When the hands become skilled and trained, practice on the vessels of lamb and its kids should be done. Their vessels are found inside the ears. When the hands become perfectly trained and skilled, then he/she should take seven pieces of *Barg Gul* and place them equally and pick one or two leaves by the point of lancet until the hand gets enough trained and skilled to perform the *faṣd* on humans. (Jurjani, 2010, p. 220)

Though we notice the seeds of scientific methods in Unani medicine, various important concepts have been analysed, using inductive and deductive logic. The concept of *Rūh* (Pneuma), which was considered a necessary cause for any motion or change (Arzani, 2019, pp. 98-100) was subjected to logical reasoning without dealing with its very nature. It proved to be too subtle, and explanations remained as diverse as the philosophical orientation of the scholars. The *Mizāj* (Constitution) concept (Constitution) has been widely explained through demonstrative proofs. Avicenna was able to devise a tool for *Mizāj* assessment in humans. (Avicenna, 980-1037, pp. 133-136) The same has been validated and standardised by Parvizi et al. (Parvizi, et al, 2018, p. e68950) The concept of humours in the human body, based on the functions of the body, indicates the four primary qualities of *Hār*, *Bārid*, *Raṭb*, and *Yābis*. Almost all the scholars have enlisted various signs (*'Alamāt*) in the body that are used to refer to a particular quality. Arshiya and others have listed the signs of dystemperament according to the above category of qualities. (Sultana, et al, 2015, p. 126) *Su'Mizāj hārr* is assessed by almost ten signs, *Bārid* by six signs, *Raṭb* by six signs, and *Yābis* by six signs. Table 1 summarises the given 'Alamāt.

The concept of *Arkān* is based on Empedocles' four elements. The nature of these *Arkān* from Empedocles' time has remained primordial with any of the four qualities stated above. (Russel, 1972, p. 48) Research/analysis of the same has led to Dalton's atomism and now it has further descended to corks and leptons along with several sub-atomic particles. Biological systems in Unani medicine deal with the basic unit of cells and they form four types of tissues, and four types of vital organs. Organs are the basic units of discussion in Unani medicine as they are the units that carry out the observable functions that a physician takes note of. With this organisation, the functions have remained the same that aid in nourishment, perpetuation, and defence. A living system cannot sustain itself without the aid of external systems. The faculty that keeps the body organised has been referred to by Arab scholars of Unani medicine as *Quwwat Mudabbira Badan* (Arzani, 2019, pp. 98-100) and Aristotle as Psyche (Lameer, 1996, pp. 90-98) The research in this field seems to be inductive logic and holistic research.

Table 1: Predictive signs as per the different types of dystemperament

Su' mizaj har **(heat)**	***Su' mizaj barid*** **(cold)**	***Su' mizaj ratb*** **(Moisture)**	***Su' yabis*** **(Dryness)**
A feeling of uncomfortable heat	Weak digestion	*Laxity*	Dry skin
Undue discomfort in fever	Less desire for drinks	*Excess of salivation and nasal secretions*	Insomnia
Quick exhaustion of energy as activity flares up the heat	Laxity of joints	*A tendency towards diarrhoea and dyspepsia*	Wasting
Excessive thirst	A tendency for catarrhal conditions and phlegmatic fevers	*Intolerance towards moist foods*	Intolerance of dry foods but an affinity for moist things
Weak quick pulse	Fondness for hot dishes and aversion to cold ones	*Excess of sleep*	Discomfort in autumn
Burning and irritation in the pit of the stomach	Greater discomfort in winters	*Puffiness of eyelids*	Ready absorption by the body of hot water and light oils
Bitter taste in the mouth	-	-	-
Intolerance of hot foods	-	-	-
Comfort from cold things	-	-	-
Distress in hot weather	-	-	-

Discussion

Research methodology in Unani medicine has a living tradition. It has got several elements. The collection of facts has remained mostly based on the method of observation. The experiences, which have been documented over the entire history of humans, are the basic analytical units. The use of logic along with the knowledge of Aristotelian categories lead to a comprehensive conceptual frame around Natural doctrines for existence (*Al Umūr Al Ṭabi 'īya*). Among the seven basic doctrines for the existence of a living being, there are three for structure, two for functionality, and two for the perfection of purpose. Since Humours (*Akhlāṭ*) are thought to be vital for both structure and function of the human body, and they are the result of the metabolism of food by the organs of the body, *Akhlāṭ* are directly influenced by environmental systems, (Ameen, 2011, pp. 6-16) Hippocrates viewed health and disease as the manifestation of the balance or imbalance of it.

Galen was the first to lay the conceptual frame of Unani medicine and his keen interest in anatomy gave him an observational and validation perspective. This frame was so comprehensive that it was not challenged for centuries.

Physicians of Unani medicine, like Avicenna, Razi, and Ṭabri, were polymaths but were Aristotelian in tradition. Therefore, the method of research was similar. Avicenna made great strides in making various concepts empirical like temperament (*Mizāj*), actions (*Af 'āl*) of drugs, a protocol for drug testing, etc. (Ameen, 2011, pp. 6-16) The major key of comprehensiveness was followed in all aspects from drug use, disease exposition, diagnostic methods and analysing the factual knowledge from the larger framework. The medieval physicians followed the logical dictum: contraries can never co-exist. This made it possible to give the method of demonstrative logic (*Burhān*).

With the advent of the modern era, medicine was refined on one side of the Western

world, and every detail of health and disease was enquired from the materialistic or physical aspect of the body. In contrast, in the Eastern part of the world, Unani medical legacy continued in the Indian peninsula. Unani scholars in the subcontinent tried to preserve it with the same flavour of being a comprehensive medical system. In the twentieth century, Hakim Ajmal Khan noticed the gaps in Unani medical education after observing the progress of conventional medicine. He introduced the concept of integrating Unani/ other traditional medicine with conventional medicine. His efforts led to the revalidation of Unani drugs using conventional methodologies like the work of Salimuzzaman on *Rauwolfia serpentine*, *Semecarpus anacardium*, and *Tinospora cordifolia*. (Siddiqui, 2016, pp. 201-205; Habib, and Ajmal Khan, 1996, pp. 54-56) His approach also led to the present institutionalization of traditional systems, including Unani and the establishment of various research councils. This integrative research approach was innovative, but the perspectives of Conventional and Unani medicine differed. Therefore, the approach had many flaws that surfaced with time despite much progress in the validation of various practices of Unani medicine.

Conclusion

Research in Unani medicine certainly began in ancient times, as evidenced by ancient medical writings. Unani medicine grew and developed as a full art and science based on the nature of research: reasoning, observation, intuition, and experimentation. Research methods have progressed from crude observations to logical inferences from robust observations. Presently, the integrated research approach has been adopted that considers conventional tools. Gaps in integrated approaches have led Unani scholars to investigate previous methods to work holistically.

Conflict of Interest

None.

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