ORIGINAL ARTICLE

Unani/Persian Medicine: A Comprehensive Review of Historical Evolution, Philosophical Foundation, and its Legacy in Global Health Care

Abstract

Unani/Persian medicine, originating from Greco-Arabic traditions, is a time-honoured holistic medical system that integrates philosophical, empirical, and ethical principles, its foundation lying in the Hippocratic-Galenic theories later enriched by Islamic scholars such as Avicenna (Ibn Sina), Razi, and others; the system emphasizes the balance of humours, temperament (*mizāj*), lifestyle (*asbāb-e-sitta zarūriyya*), and ethical responsibility. This review aims to systematically explore the historical evolution, philosophical doctrines, diagnostic paradigms, and therapeutic modalities of Unani/Persian medicine, assessing its scientific contributions and relevance in modern integrative healthcare. A narrative literature review was conducted using historical texts, classical treatises (e.g., *Canon of Medicine*, *Kitāb al-Hāwī*), peer-reviewed scientific publications, and regulatory documents from WHO, AYUSH, and traditional medicine councils, with sources selected for their relevance to historical, philosophical, and clinical dimensions of Unani/Persian medicine. The results show that Unani/Persian medicine is based on a unique epistemological framework incorporating the theory of four humours (*akhlāṭ*), temperament classification (*mizāj*), and the role of *tabiʿat* (vis medicatrix naturae) in self-healing; historical milestones include translation movements during the Abbasid Caliphate, institutionalization in the Mughal era, colonial suppression, and post-independence revival through governmental support, while the system presently faces challenges in research validation, standardization, and international integration. In conclusion, the historical continuity and philosophical coherence of Unani/Persian medicine affirm its potential in contemporary integrative and preventive healthcare; with evidence-based research, interdisciplinary collaboration, and preservation

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of epistemological integrity, Unani medicine can contribute meaningfully to global health discourse.

Key words: Unani/Persian Medicine, Mizāj, Humoral Theory, Greco-Arabic Tradition, Traditional Medicine, Integrative Healthcare, Global Health, Temperament

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Introduction

Unani/Persian medicine, also known as *Unani Tibb*, is one of the oldest surviving systems of traditional medicine that continues to be practiced globally, particularly in South Asia, the Middle East, and parts of Europe and Africa. Derived from the word "*Ionian*," which refers to the Greek origin of this medical tradition, Unani/Persian medicine represents a synthesis of classical Greek medical theories and the intellectual heritage of Arab, Persian, and Indian scholars.

During the Islamic Golden Age, the Greek medical system was significantly expanded and systematized by Persian and Arab scholars, most notably Razi (Rhazes) and Avicenna (Ibn Sina), who introduced detailed clinical observations, pharmacology, and holistic treatment methods. Ancient Iran was a great civilization that extended from Europe to North Africa, the Middle East, and parts of the Indian subcontinent. This civilization developed its own unique methods of health and medicine, now known as Persian medicine. In 540 BC, the Ionian Islands in ancient Greece were conquered by the Iranians and remained part of Greater Iran until at least 499 BC, when the Ionian Islands revolted against Darius the Great. During this time, all the governors there were appointed by the kings of Iran. This period provided them with a valuable opportunity to become acquainted with Iranian medical practices.

The system developed through centuries of translation, commentary, and original contributions, evolving into a coherent framework of medical knowledge during the Islamic Golden Age (8th–14th century CE) (Nasr, 2006, pp. 181-201; Pormann, and Savage-Smith, 2007, pp. 5-16).

Philosophically, Unani/Persian medicine is deeply rooted in the teachings of Hippocrates and Galen, whose humoral theory (*Nazariyah-e-Akhlat*) posits that the human body is governed by the balance of four cardinal humors, *dam* (blood), *balgham* (phlegm), *safra* (yellow bile), and *sauda* (black bile), each associated with specific temperamental qualities: hot, cold, moist, and dry (Rahman, 2008, pp. 45-50; Wujastyk, and Smith, 2008, pp. 150-190). These humors correspond to both physical and psychological traits, forming the basis for the theory of *mizāj* (temperament), which remains central to Unani diagnosis and treatment.

Unani/Persian medicine embraces a holistic view of health that extends beyond mere disease management to optimize lifestyle, diet, environmental exposure, mental well-being, and spiritual balance. This integrative framework is operationalized through six essential factors known as *Asbāb-e-Sitta Zarūriyya* (six essential causes), which include air, food and drink, sleep and wakefulness, physical activity and rest, mental states, and retention and evacuation (Basic Principles of Unani Medicine, 2010). The individual's unique *mizāj* dictates how these factors influence health and disease, making Unani/Persian medicine inherently personalized.

Therapeutically, the Unani system employs a wide array of interventions, categorized

broadly into:

- *Ilāj bil-Ghidhā* (dietotherapy), *Ilāj bil-Dawā* (pharmacotherapy using natural medicines), *Ilāj bil-Tadbīr* (regimental therapy, such as cupping, leeching, massage, and venesection), and *Ilāj bil-Yad* (surgical intervention) (Ahmad, Akhtar, and Khan, 2015, pp. 292-296; Zulkifle, and Husain, 2001, pp. 92-126).

The system also stresses ethical practice, preventive care, and harmony with nature attributes that resonate with modern principles of sustainable and integrative healthcare.

Historically, Unani/Persian medicine witnessed significant growth in the Indian subcontinent during the Delhi Sultanate and Mughal eras, supported by royal patronage and scholarly exchange. Post-colonial India institutionalized Unani medicine within formal healthcare frameworks, culminating in the establishment of the Ministry of AYUSH, which promotes its practice and education alongside other traditional systems like Ayurveda, Siddha, Yoga, and Homeopathy (Unani System of Medicine: An Overview, 2020; Rizvi, 2000, pp. 20-24).

Despite challenges related to standardization, scientific validation, and integration with contemporary biomedical systems, Unani medicine continues to offer valuable insights into preventive health, chronic disease management, and patient-centred care. With increasing global interest in complementary and integrative medicine, the epistemological richness and therapeutic diversity of Unani medicine merit renewed scholarly attention.

This review aims to comprehensively examine the historical evolution, philosophical foundations, theoretical constructs, and clinical methodologies of Unani medicine. By contextualizing its development within broader intellectual and cultural paradigms, the paper also explores its relevance to modern integrative healthcare and the ongoing challenges of globalization, regulation, and scientific validation.

Historical Evolution of Unani/Persian Medicine

1- Greek Origins

The roots of Unani/Persian medicine lie in classical Greek thought, primarily in the works of Hippocrates (460–370 BCE) and Galen (129–216 CE), whose medical philosophies laid the groundwork for humoral theory. Hippocrates proposed that human health is governed by the equilibrium of four bodily humors: blood (*dam*), phlegm (*balgham*), yellow bile (*safra'*), and black bile (*sauda'*), a concept that became central to Unani epistemology. Each humor was associated with specific qualities (hot, cold, moist, dry), and their balance (*mizāj*) within the body determined an individual's physical and psychological health (Nasr, 2006, pp. 181-201). Galen refined these ideas through detailed anatomical and physiological studies, which influenced not only Unani but also medieval European medicine. These early contributions formed a holistic and systematic view of the human body, emphasizing personalized care based on temperament (*mizāj*) and environment (Pormann, and Savage-Smith, 2007, pp. 33-48).

The four elements: wind (air), water, earth, and fire, occupy *a sacred cosmological role* in Zoroastrianism, a religion rooted in ancient Iranian culture. According to Mazdean cosmogony, all things emanate from the "Endless Light" (divine essence) via fire, and subsequently through air, water, and earth (Shaki, 1998, pp. 357–360). In Zoroastrian tradition (as reflected in the *Bundahišn*), the four elements are not merely physical substances but spiritual-cosmic principles. They are venerated: fire (*Ātar*) especially is

central to ritual purity, and other elements (air, water, earth) also have divine associations (Shaki, 1998, pp. 357–360). Historically, Greek historians confirm the importance of elemental worship among Iranians. Herodotus, for instance, reports that Persians "*sacrifice ... to the Sun and Moon, to the Earth, to Fire and to Water and to the Winds ... these are the only gods to whom they have sacrificed ever from the first*." He further notes that these sacrifices are made without altars or libations; instead, the sacrificer leads the animal to a "pure" open spot, calls on the deity, and a Magian (priest) chants a theogony over boiled meat.

In contrast, the ancient Greeks' medical philosophy (especially in its early, cultic form) was strongly bound with religion and myth rather than a systematic elemental cosmology: healing was deeply connected to Asclepius, the god of medicine, and his cult temples (Asclepieia) where people made prayers and offerings to secure health (e.g., via dream incubation). While the Greek philosophical tradition (from Empedocles onward) proposed a formal four-element theory, the early Greek medical cult does not reflect a doctrine of elemental metaphysics.

Modern scholarship argues that the Greek theory of four elements may, in fact, derive from or have been significantly influenced by the older Iranian (Zoroastrian) elemental cosmology. Habashi (2000), for example, traces the "sacred elements" of air, water, earth, and fire to Zoroaster's teachings, predating their philosophical adoption by Greek thinkers.

According to the Encyclopaedia Iranica (Shaki, 1998, pp. 357–360), in later syncretic (Middle Persian) texts, the four elements (called *zahag* for "offspring, generated" and *tōhmag* for "seed") are explicitly aligned with Greek philosophical principles (e.g., Aristotle's four-element theory), yet they retain a religiously sacred status in Iranian tradition.

Thus, rather than seeing the four-element theory as purely a Greek invention, there is a strong historical and scholarly support for a deep Iranian origin. After Alexander invaded Iran, it appears that Greek philosophers may have appropriated or reframed this Iranian cosmological doctrine, presenting it as a purely Hellenic philosophical innovation.

2- Development in the Islamic World

The Islamic Golden Age (8th–13th centuries CE) catalysed the transformation of Greco-Roman medical traditions into what would become Unani medicine. During the Abbasid Caliphate, particularly in Baghdad, a vigorous translation movement flourished under caliphs like Al-Mansur and Al-Ma'mun. Greek medical texts were systematically translated into Arabic by scholars at the Bayt al-Hikma (House of Wisdom), thus preserving and disseminating Hippocratic and Galenic thought (Gutas, 1998, pp. 20-34).

Islamic physicians did not merely translate; they synthesized and expanded upon classical texts. Razi (Rhazes, 865–925 CE), for instance, introduced novel clinical methods and emphasized the importance of evidence-based observations (Rahman, 2008, pp. 46-48). Avicenna (Avicenna, 980–1037 CE) wrote *Al-Qānūn fī al-Ṭibb* (The Canon of Medicine), an encyclopaedic work integrating Greek philosophy with Islamic medical ethics, pharmacology, and diagnostics. It remained a core curriculum text in European medical schools for over five centuries (Ullmann, 1978, pp. 119-123). Al-Zahrawi (Albucasis) developed surgical techniques and instruments, while Ibn Rushd (Averroes) critically commented on Galenic doctrines, laying the groundwork for empirical scepticism and

rational medical inquiry (Amr, and Tbakhi, 2007, pp. 9-13).

3- Introduction to the Indian Subcontinent

Unani/Persian medicine was introduced to the Indian subcontinent during the 12th century CE, primarily through Persian and Central Asian scholars accompanying the Delhi Sultanate. Its practice gained prominence under the Mughal Empire, which patronized Hakims (Unani physicians) and established royal dispensaries (*dār-ul-shifā'*) and gardens for medicinal herbs (Rizvi, 2000, pp. 71–98). Notably, Indian Unani physicians began integrating local materia medica with classical Unani pharmacology, enriching the system through cross-cultural medicinal exchange.

In the colonial era, Unani medicine faced systemic suppression under British policies favouring Western allopathy. However, the late 19th and early 20th centuries saw a revival led by figures such as Hakim Ajmal Khan (1868–1927), who emphasized both traditional scholarship and institutional reforms. He played a pivotal role in establishing educational institutions like the Jamia Tibbiya in Delhi and contributed to the formulation of national health policies recognizing indigenous systems (Qureshi, and Zulkifle, 2011, pp. 45–50).

4- Postcolonial and Modern Era

Following India's independence in 1947, the Indian government formally acknowledged Unani medicine as one of its recognized systems of healthcare. The formation of the Ministry of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy) provided administrative and financial support to revitalize Unani practice (Rizvi, 2000, pp. 20-24). The Central Council for Research in Unani Medicine (CCRUM), established in 1978, and the National Institute of Unani Medicine (NIUM) in Bangalore, have since spearheaded clinical trials, pharmacological standardization, and postgraduate education in Unani medicine.

Contemporary developments have focused on integrating Unani principles into global complementary and integrative health frameworks, while preserving the epistemological and ethical foundations of the system. Research initiatives in preventive care, herbal pharmacology, and lifestyle medicine reaffirm Unani's relevance in managing chronic, metabolic, and lifestyle-related disorders (Annual Report 2018–2019, 2019, pp. 1-7).

Philosophical Foundations of Unani/Persian Medicine

Unani/Persian medicine is deeply embedded in a philosophical framework that blends metaphysical concepts with empirical observations. Rooted in Greco-Arabic thought, its philosophy is anthropocentric, emphasizing equilibrium, harmony, and natural healing. The Unani worldview posits that the human body is a microcosm (*al-'ālam al-saghīr*) of the universe (*al-'ālam al-kabīr*), governed by the same cosmic laws. Disease is not merely a pathological event but a manifestation of disruption in the body's inherent balance, which must be addressed holistically through personalized intervention.

1- Theory of Temperament (*mizāj*)

The concept of *mizāj* (temperament) is central to Unani/Persian medicine. It denotes the unique psychophysiological constitution of an individual, formed by the interaction of the four elemental qualities: hot (*ḥarārat*), cold (*barūdat*), moist (*rutūbat*), and dry (*yubūsat*).

These qualities are derived from the four basic elements, air, fire, water, and earth, that compose all matter in Unani cosmology.

Each individual inherits a dominant temperament (e.g., sanguine, choleric, melancholic, phlegmatic), which determines their baseline health, predisposition to disease, and therapeutic needs. Importantly, every organ in the body also possesses its own *mizāj*, contributing to the integrated functional harmony of the system. Any disturbance in this equilibrium, either due to external factors (diet, climate, emotions) or internal changes, results in illness. Therapeutic interventions aim to restore this balance through oppositional qualities (i.e., treating heat with cold remedies, dryness with moisture, etc.) (Nasr, 2006, pp. 181-201; Qureshi, and Zulkifle, 2011, pp. 45–50).

2- Humoral Pathology

Closely linked to *mizāj* is the theory of the four humors (*akhlāṭ*): blood (*dam*), phlegm (*balgham*), yellow bile (*ṣafrā'*), and black bile (*sawdā'*). These humors are not merely fluids but complex bioenergetic substances with specific qualities that maintain physiological processes and influence personality traits.

Health (*ṣiḥḥat*) is achieved when these humors exist in a state of qualitative and quantitative equilibrium relative to the individual's temperament. Disease (maraḍ) arises from the predominance (*ghalaba*) or corruption (*fasād*) of one or more humors. For example, an excess of yellow bile may result in inflammatory conditions with symptoms of heat and dryness, while a corrupted black bile may contribute to melancholic states or chronic diseases.

Diagnosis in Unani medicine involves identifying the humor involved, the affected organ, and the direction of imbalance. Treatment strategies include *ilāj bi'l-ghidhā'* (dietotherapy), *ilāj bi'l-dawā'* (pharmacotherapy), *ilāj bi'l-yad* (manual therapy), and *tadbīr* (regimental therapy), all designed to restore humoral balance (Pormann, and Savage-Smith, 2007, pp. 5-16; Basic Concepts of Unani Medicine, 2015, pp. 32-41).

3- *Tabi'at* (Natural Healing Force)

A fundamental axiom of Unani philosophy is the belief in *tabi'at mudabbira badan*, the body's innate self-regulatory and healing force. Often compared to the concept of *vis medicatrix naturae* in Hippocratic medicine, *tabi'at* functions as an intelligent, internal governor that maintains homeostasis and initiates healing in response to disease.

The role of the physician (*ḥakīm*) is not to override *tabi'at* but to support and facilitate its function through appropriate interventions. This philosophical stance imparts a highly ethical and non-invasive orientation to Unani therapeutics. It emphasizes patient-centered care, prevention through lifestyle regulation (*ilm-i-hifẓān-i-ṣiḥḥat*), and the cautious use of drugs to avoid suppressing natural healing responses (Rahman, 2008, pp. 46-48; Rizvi, 2000, pp. 20-24).

This tripartite foundation, temperament, humors, and *tabi'at*, underpins every aspect of Unani clinical theory and practice, fostering an integrative model that resonates with modern paradigms in personalized and holistic medicine.

Diagnostic and Therapeutic Methodologies in Unani/Persian Medicine

Unani/Persian medicine emphasizes a holistic diagnostic framework and individualized

therapeutic strategies, deeply rooted in centuries of empirical observation and philosophical reasoning. Diagnostic procedures aim to understand not just the pathological condition, but the entire psychophysiological context of the patient. Treatments are prescribed based on restoring humoral balance, modifying lifestyle, and strengthening the body's innate healing capacity (*tabi'at*) (Qureshi, and Zulkifle, 2011, pp. 45–50; Basic Concepts of Unani Medicine, 2015, pp. 32-41).

1- Diagnostic Approaches

The diagnostic system in Unani/Persian medicine is both clinical and philosophical, involving comprehensive assessment tools that go beyond identifying symptoms to include temperament, lifestyle, environment, and psychosocial conditions (Nasr, 2006, pp. 181-201; Pormann, and Savage-Smith, 2007, pp. 5-16; Ahmad, 2008, pp. 126-142).

- Pulse Examination (*Nabz*): Pulse examination is considered a key diagnostic tool. It involves assessing the rate, rhythm, tension, volume, and character of the arterial pulse to determine the dominant humor, organ function, and presence of imbalance. Different types of pulse are associated with specific humoral excess or deficiency (e.g., fast and strong for excess heat, slow and weak for cold) (Rizvi, 2000, pp. 20-24; Khan, and Khatoon, 2013, pp. 1-8).
- Urine Analysis (*Baul*): The physical characteristics (color, consistency, odor, sediment) and timing of urination are evaluated to assess the digestive and metabolic functions. Changes in urine appearance are interpreted as signs of humoral imbalance or organ dysfunction (Khan, and Khatoon, 2013, pp. 1-8).
- Stool Examination (*Barāz*): Stool is assessed for frequency, color, odor, and consistency to understand gastrointestinal health, humoral activity, and presence of toxic accumulation (*sū'-i-mizāj* or morbid matter) (Khan, and Khatoon, 2013, pp. 1-8).
- Temperament Analysis (*Mizāj-i-fardī*): The foundational diagnostic component includes evaluating the individual's *mizāj* (temperament) through observation of physical features (e.g., body build, skin texture), psychological disposition (e.g., emotions, behavior), and habitual responses to environmental changes. This aids in disease prediction, prevention, and personalized treatment (Qureshi, and Zulkifle, 2011, pp. 45–50; Rizvi, 2000, pp. 20-24; Basic Concepts of Unani Medicine, 2015, pp. 32-41).
- Physical Examination: A general physical exam including inspection, palpation, and auscultation complements traditional methods. The Unani physician (*ḥakīm*) also considers signs like facial complexion, tongue coating, voice quality, and body odor to build a diagnostic profile (Rizvi, 2000, pp. 20-24; Khan, and Khatoon, 2013, pp. 1-8).

This multifactorial approach ensures a patient-centered, constitution-specific diagnosis that considers the person in totality rather than as a set of isolated symptoms (Rizvi, 2000, pp. 20-24; Alam, 2012, pp. 45-59).

2- Therapeutic Modalities

Unani therapeutics are guided by the principle of *ilāj bi'l-ḍidd* (treatment by opposites) and aim at correcting the underlying *sū'-i-mizāj* (deranged temperament). Treatments

are classified into four principal categories, each serving a specific therapeutic purpose (Nasr, 2006, pp. 181-201; Basic Concepts of Unani Medicine, 2015, pp. 32-41; Ahmad, 2008, pp. 126-142).

A. *Ilāj bi'l-Tadbīr* (Regimental Therapy)

This includes non-pharmacological methods designed to restore balance and improve physiological functions by modifying daily routines (Ahmed, and Kafeel, 2020, pp. 15-22).

- *Hijāmah* (Cupping Therapy): Applied to remove stagnant or corrupted humors, especially in inflammatory or musculoskeletal conditions (Rizvi, 2000, pp. 20-24).
- *Riyāzat* (Exercise): Prescribed according to the individual's temperament and disease to improve circulation, digestion, and metabolic functions (Basic Concepts of Unani Medicine, 2015, pp. 32-41).
- *Dalāk* (Massage): Enhances blood flow, reduces muscular tension, and restores humor balance (Basic Concepts of Unani Medicine, 2015, pp. 32-41; Ahmed, and Kafeel, 2020, pp. 15-22).
- *Fāsd* (Bloodletting) and *Hammām* (Bath Therapy): Used for detoxification and restoring humoral equilibrium (Basic Concepts of Unani Medicine, 2015, pp. 32-41; Ahmed, and Kafeel, 2020, pp. 15-22).

B. *Ilāj bi'l-Ghidhā* (Dietotherapy)

Ilāj bi'l-Ghidhā involves using food substances as therapeutic agents. Foods are categorized based on their innate qualities (hot/cold, moist/dry) and their effects on the humors. Dietary recommendations are personalized to an individual's *mizāj* and specific disease (Nasr, 2006, pp. 181-201; Rizvi, 2000, pp. 20-24). For example, cold and moist foods are restricted in cases of phlegmatic excess. The diet is not just supportive but often the primary form of treatment in early or mild disease (Ahmad, 2008, pp. 126-142).

C. *Ilāj bi'l-Dawā* (Pharmacotherapy)

Ilāj bi'l-Dawā includes the use of simple and compound formulations derived from:

- Botanical origin: Herbs like *Aslānṭūṣ* (liquorice), *Zanjabīl* (ginger), and *Sana Makki* (senna) are commonly used (Basic Concepts of Unani Medicine, 2015, pp. 32-41; Ahmad, 2008, pp. 126-142).
- Mineral origin: Substances like *Shibb Yamānī* (alum), *Hajār al-Yahūd* (stone of Jews) are utilized (Basic Concepts of Unani Medicine, 2015, pp. 32-41).
- Animal origin: Products such as honey, milk, and certain animal fats serve both nutritive and curative purposes (Nasr, 2006, pp. 181-201; Basic Concepts of Unani Medicine, 2015, pp. 32-41).
- The Unani pharmacopoeia is rich in polyherbal formulations, carefully developed over centuries, often with synergistic and detoxifying agents to ensure efficacy and safety (Rizvi, 2000, pp. 20-24; Ahmad, 2008, pp. 126-142).

D. *Ilāj bi'l-Yad* (Surgery)

Although not the primary focus, Unani medicine historically recognized surgical in-

tervention when necessary. Classical texts by Al-Zahrawi (Albucasis) included detailed surgical procedures like cauterization (*kayy*), wound care, fracture setting, and lithotomy (Zahrawi). Today, surgical practices are less emphasized in mainstream Unani, but historical contributions are acknowledged in medical historiography (Zahrawi, 1973; Pormann, and Savage-Smith, 2007, pp. 5-16).

Institutional and Global Developments

Unani medicine has seen a significant transformation from a classical traditional system to a regulated and institutionalized model of healthcare. India has been at the forefront of this evolution, particularly through initiatives by the Ministry of AYUSH, which has taken major steps to formalize education, research, and clinical practice.

The establishment of key institutions, such as the Central Council for Research in Unani Medicine (CCRUM) and the National Institute of Unani Medicine (NIUM), has played a pivotal role in promoting evidence-based Unani research, standardizing formulations, and preserving classical knowledge (Annual Report 2018–2019, 2019, pp. 21-38). Furthermore, Unani pharmacopoeias and formularies have been published to codify medicinal substances, dosage, and preparation methods, enhancing safety and reproducibility (Pharmacopoeia of Unani Medicine, 2020, pp. 46-87).

On a global scale, efforts have been made to align Unani medicine with the World Health Organization (WHO) traditional medicine strategies. WHO's collaboration with AYUSH seeks to integrate Unani into global health systems by encouraging quality assurance, research protocols, and policy development for traditional systems (World Health Organization, 2013). Additionally, Unani medicine has found representation in international integrative medicine curricula, particularly in South Asia, the Middle East, and parts of Europe, through student exchange programs, international conferences, and inclusion in complementary medicine departments of universities (Rizwan, and Haider, 2022, pp. 55-63).

Challenges and Future Prospects

1- Challenges

Despite its rich philosophical foundations and historical legacy, Unani medicine faces several critical challenges in the modern healthcare environment:

- Scientific Validation: There is a lack of large-scale, randomized controlled trials (RCTs) to validate the efficacy and safety of Unani formulations. The reliance on traditional experiential knowledge often does not meet modern evidence-based standards, limiting its global scientific acceptance (Qureshi, and Zulkifle, 2011, pp. 45–50; Nasir, and Alam, 2018, pp. 45-59).
- Regulatory and Legal Hurdles: Many countries lack regulatory frameworks for Unani products, and their classification often falls under general herbal or dietary supplements. This regulatory ambiguity restricts export and wider clinical application (Qureshi, and Zulkifle, 2011, pp. 45–50; Rizwan, and Haider, 2022, pp. 55-63)
- Epistemological Dilution: In adapting to modern biomedical paradigms, there's a risk of eroding Unani's core principles, such as its holistic temperament-based diagnosis. Over-medicalization and over-standardization may compromise its in-

tegrity as a distinct healing tradition (Qureshi, and Zulkifle, 2011, pp. 45–50).

• Educational Disparities: Variability in curriculum standards, infrastructure, and research output among Unani colleges weakens the academic rigor and global competitiveness of Unani graduates (Qureshi, and Zulkifle, 2011, pp. 45–50; Rizwan, and Haider, 2022, pp. 55-63).

2- Opportunities

Amid these challenges, there are promising pathways for the growth and modernization of Unani medicine:

• Personalized and Preventive Medicine: Unani's temperament-based approach aligns closely with the emerging field of precision medicine. *Mizāj* analysis provides a framework for individualized care, potentially enhancing patient outcomes in chronic and lifestyle-related diseases (Rizwan, and Haider, 2022, pp. 55-63; Nasir, and Alam, 2018, pp. 30-38; Ahmad, and Siddiqui, 2020, pp. 15-22).

• Non-Communicable Disease (NCD) Management: With its emphasis on diet, regimens, and herbal pharmacotherapy, Unani medicine can play a role in preventing and managing NCDs such as diabetes, obesity, cardiovascular conditions, and psychosomatic disorders (Ahmad, and Siddiqui, 2020, pp. 15-22).

• Phytochemical and Pharmacological Research: Advancements in biotechnology and analytical chemistry offer tools for identifying and characterizing bioactive compounds in Unani formulations. Standardizing and validating these constituents can bridge traditional wisdom and modern pharmacology (Nasir, and Alam, 2018, pp. 30-38).

• Global Health Integration: Through structured collaboration with global health agencies, medical universities, and cross-cultural research initiatives, Unani medicine can expand its reach and enrich integrative healthcare practices worldwide (World Health Organization, 2013; Rizwan, and Haider, 2022, pp. 55-63).

Conclusion

Unani/Persian medicine, with its fusion of Greek rationalism, Islamic scholasticism, and South Asian empirical traditions, represents a comprehensive system of health rooted in the balance of humors and the harmony of the body, mind, and environment. Its emphasis on temperament, natural healing, and lifestyle correction offers enduring value in the age of chronic diseases and personalized healthcare. However, its future depends on rigorous scientific validation, preservation of epistemological foundations, and meaningful integration into contemporary global health frameworks. A balanced strategy that embraces innovation while respecting tradition will ensure Unani medicine's sustained relevance in the 21st century and beyond.

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Authors' Contribution

Showkat Bashir Lone conceived the idea and provided the overall concept and frame-

work of the manuscript; Khalid Rahim Wani and Aaqib Ashraf did the literature review of Unani text, searched and retrieved appropriate articles from electronic databases, and wrote the manuscript. Showkat Bashir Lone and Khalid Rahim Wani edited and reviewed the manuscript. All authors approved the final version of the manuscript.

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Conflict of Interest

None.

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