



***Mizaj* (Temperament) and Personalized Medicine: Bridging Unani Medicine with Modern Precision Healthcare**

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Abstract

Precision healthcare seeks to tailor risk assessment, prevention, diagnosis, and treatment to biological variation, environment, behavior, and patient preference. Unani medicine has long used *Mizaj*, or temperament, as a constitutional framework for individualizing diet, regimen, and medicines. *Mizaj* is understood through the qualitative interaction of *Arkan* and *Akhlat* and is assessed from physical, physiological, and psychological features. This narrative review examines possible points of dialogue between *Mizaj* and modern precision medicine. Classical sources, including *Al-Qanun fi al-Tibb*, *Kitab al-Kulliyat*, *Kamil al-Sana'ah al-Tibbiyah*, and *Kitab al-Mansuri*, were considered with biomedical literature from PubMed, Scopus, Web of Science, Google Scholar, and ScienceDirect. Both approaches recognize that people with the same diagnosis may differ in susceptibility, course, treatment response, and adverse effects. The resemblance is nevertheless conceptual. *Mizaj* is a whole-person clinical phenotype, whereas precision medicine uses defined molecular, physiological, environmental, and social

measurements. Preliminary studies have associated temperament categories with body composition, metabolism, inflammatory variables, and psychological characteristics, but small samples, inconsistent instruments, and circular classification limit inference. *Mizaj* should not be equated directly with a genotype, biomarker, or pharmacogenomic profile. Progress requires validated and reproducible assessment, blinded classification, diverse cohorts, longitudinal outcomes, and multi-omic studies that test rather than assume biological distinctions.

Keywords

Mizaj; Unani medicine; personalized medicine; precision healthcare; *Akhlat*; constitutional medicine; pharmacogenomics

1. Introduction

Precision medicine develops prevention and treatment strategies from differences in genes, molecular pathways, exposures, lifestyle, and clinical phenotype [1]. It recognizes that a shared diagnosis can conceal meaningful variation in disease risk, mechanism, response, and adverse effects [2]. The

approach is most useful when measurable differences lead to better decisions, not merely finer classification.

Unani medicine places comparable emphasis on the individual through *Mizaj*. In classical theory, interaction among *Arkan* and *Akhlat* produces a qualitative constitution that influences body build, thermal preference, digestion, sleep, behavior, susceptibility, and response to treatment [3]. Diet, medicines, and regimental therapy are adjusted to the patient as well as to the disease.

The parallel is attractive but requires restraint. *Mizaj* arose from a humoral and qualitative framework, whereas modern precision medicine uses testable molecular and population methods. Existing studies of temperament are often small and employ different assessment tools [4]. A credible bridge must preserve the classical construct while avoiding claims of equivalence unsupported by evidence.

Aim and Objectives

The review aims to examine *Mizaj* in relation to personalized and precision healthcare. It describes the classical theory and temperament categories, compares them with modern phenotype, multi-omics, and pharmacogenomics, reviews possible clinical applications, and identifies methodological priorities for research.

2. Methodology of Literature Review

A narrative review used *Al-Qanun fi al-Tibb*, *Kitab al-Kulliyat*, *Kamil al-Sana'ah al-Tibbiyah*, *Makhzan al-Advia*, and *Kitab al-Mansuri*. PubMed, Scopus, Web of Science, Google Scholar, and ScienceDirect were searched using combinations of “*Mizaj*,” “Unani temperament,” “constitutional medicine,” “precision medicine,” “pharmacogenomics,” and “personalized healthcare.” Classical material, peer-reviewed reviews, observational and clinical studies, and systems-biology publications were considered. Duplicate, non-evidentiary, and unrelated reports were excluded. This is a conceptual narrative synthesis rather than a diagnostic-validation meta-analysis.

3. Historical and Theoretical Background

The theory developed from Greco-Arabic medicine and was elaborated by Hippocrates, Galen, Al-Razi, Al-Majusi, and Ibn Sina [5]. Earth, water, air, and fire were described through paired qualities

of hot, cold, moist, and dry. Their interaction gives rise to *Mizaj* [6]. The four *Akhlat*—*Dam*, *Balgham*, *Safra*, and *Sauda*—also carry characteristic qualities. Health reflects an appropriate individual balance rather than an identical state in every person [7].

4. Principal Temperament Patterns

Damvi Mizaj is traditionally described as warm and moist, often with robust build, active circulation, and sociability. *Balghami Mizaj* is described as cold and moist, with slower activity and a tendency toward weight gain. *Safravi Mizaj* is hot and dry, commonly associated with leanness, quick response, and irritability. *Saudavi Mizaj* is cold and dry and is described with analytical, reserved, or sensitive features.

Lists that assign hypertension, diabetes, gastritis, depression, or other modern diseases to these categories should be presented as hypotheses derived from traditional observation, not as validated predictions. Disease risk depends on many genetic, behavioral, environmental, and social factors. Temperament assessment cannot replace blood pressure measurement, laboratory testing, or mental-health evaluation.

<i>Mizaj</i> pattern	Classical qualities	Research interpretation
<i>Damvi Mizaj</i>	Warm and moist	Hypothesized phenotype; not a validated hypertension or obesity predictor
<i>Balghami Mizaj</i>	Cold and moist	Hypothesized phenotype; metabolic associations require prospective validation
<i>Safravi Mizaj</i>	Hot and dry	Hypothesized phenotype; inflammatory or digestive links remain exploratory
<i>Saudavi Mizaj</i>	Cold and dry	Hypothesized phenotype; psychological associations require careful assessment

5. Mizaj as a Functional Phenotype

Mizaj encompasses growth, digestive behavior, thermoregulation, activity, sleep, emotional pattern, reproductive function, and response to climate or food. In this sense, it resembles a composite clinical phenotype rather than a single biological variable [8]. It may be relatively stable yet modified by age, season, occupation, illness, and lifestyle. Research instruments should therefore distinguish baseline

constitutional *Mizaj* from temporary disease-related changes.

6. Modern Precision Medicine

Modern precision medicine combines genomics, epigenomics, transcriptomics, proteomics, metabolomics, microbiome data, imaging, environment, behavior, and clinical history [9]. It may identify subgroups with different mechanisms or treatment response. Molecular detail alone is insufficient: affordability, ancestry, social determinants, patient goals, and implementation determine whether precision tools improve health.

7. Areas of Comparison

Both frameworks reject an entirely uniform approach. *Mizaj* integrates observable features into a constitutional judgment, while precision medicine quantifies selected variation using laboratory and computational tools [10]. One is not an early version of the other. The legitimate research question is whether a reproducibly assessed *Mizaj* phenotype predicts an outcome beyond conventional clinical variables.

Genomic variants influence metabolism, immunity, body composition, and drug response. Preliminary reports of genetic associations with temperament require large, independent replication [11]. Epigenetic regulation offers another possible field because diet, sleep, stress, activity, and exposures influence gene expression, while Unani theory also recognizes acquired modification of constitution.

Metabolomics may be especially relevant because classical categories include appetite, energy, thermal state, and body composition. However, searching many metabolites in small preclassified groups creates false-positive risk. Studies need preregistered hypotheses, correction for multiple testing, and external validation.

Pharmacogenomics predicts response or toxicity from defined variants. Unani prescribing considers patient *Mizaj*, disease quality, and drug temperament [12]. These philosophies share a goal of safer individualized treatment, but *Mizaj* cannot be used as a substitute for validated pharmacogenetic testing. Systems biology may offer methods for studying multiple interacting variables without reducing the constitution to one marker.

8. Disease Susceptibility

Classical sources describe different vulnerability patterns across temperaments. Contemporary observational studies have reported associations with obesity, metabolic variables, cardiovascular risk, and psychological features [13]. These results remain exploratory because diagnosis and *Mizaj* classification may not be blinded, confounders are often incompletely controlled, and multiple outcomes are tested. Prospective cohorts are needed to determine whether temperament predicts incident disease rather than merely correlating with current body habitus or symptoms.

9. Clinical Applications

Ilaj bil Ghiza individualizes food according to constitution, digestion, season, disease, and activity. The approach may support personalized nutrition if recommendations also meet modern requirements for nutrient adequacy and disease safety. *Ilaj bil Dawa* considers the qualities of medicine, patient, and illness. This may guide research on heterogeneity of response but should not override known contraindications, interactions, or standardized dosing.

Ilaj bil Tadbeer includes activity, massage, bathing, sleep regulation, and procedures such as *Hijama*. Selection according to *Mizaj* represents a structured attempt to match regimen to the person. Each intervention, however, needs its own evidence and safety assessment. A constitutional rationale does not establish efficacy.

10. Emerging Evidence

Reported studies link *Mizaj* with body mass index, lipid profile, basal metabolic measures, hormones, inflammation, and psychological traits. Interpretation is limited by small samples, subjective classification, population differences, and lack of a reference standard [14]. Agreement between assessors and stability over time are often unknown. Without reliable measurement, biological correlations cannot be reproduced.

11. Critical Analysis

Mizaj offers a broad whole-person description that may capture clinically relevant variation overlooked by narrow biomarkers. Precision medicine contributes objective measurement, causal testing, and outcome validation. Their integration is

promising only if neither is oversimplified. One-to-one mapping of *Damvi*, *Balghami*, *Safravi*, or *Saudavi* categories to a gene cluster or metabolite signature would be premature. A multimodal phenotype with graded rather than rigid categories may better reflect classical practice and biology.

12. Research Gaps

A universally accepted assessment method is lacking. Existing questionnaires require testing for content validity, inter-rater reliability, test-retest reliability, construct validity, and performance across languages and regions. Studies should separate the tool-development phase from biological discovery, blind laboratory analysts to *Mizaj*, include adequate sample sizes, and publish null findings. Longitudinal trials must also determine whether *Mizaj*-guided care improves outcomes beyond standard individualized care.

13. Future Perspectives

Future programs can combine validated phenotyping with genomics, metabolomics, microbiome profiles, wearable data, and environmental measures. Artificial intelligence may identify patterns, but opaque algorithms can reproduce assessor bias and overfit small datasets. Models require external validation and should provide interpretable predictions. Pharmacogenomic or nutrition studies could test whether *Mizaj* adds incremental predictive value using prespecified analyses.

14. Conclusion

Mizaj is a longstanding Unani model of constitutional individuality that informs diet, medicines, regimen, and prevention. Precision medicine pursues a related goal through molecular, physiological, environmental, and computational measurements. The resemblance is conceptual rather than equivalent. Present evidence does not support using temperament as a genomic label or validated disease predictor. Standardized assessment, reproducible phenotyping, longitudinal studies, and carefully designed multi-omic research are required before *Mizaj*-guided precision healthcare can be claimed to improve outcomes.

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