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Original Research Article

Association of temperament (Mizaj) with dream characteristics and sleep quality using the Mannheim dream questionnaire: a cross-sectional study

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ABSTRACT

Background: Mizaj (temperament) is a core concept in Unani medicine, reflecting an individual's constitutional makeup and influencing physical, psychological and behavioral traits. Classical texts suggest that mizaj modulates dream patterns and sleep quality, yet empirical evidence integrating traditional temperament assessment with contemporary dream and sleep metrics is limited. To investigate the association between mizaj, dream characteristics assessed by the Mannheim Dream Questionnaire (MADRE) and sleep quality measured by the Pittsburgh Sleep Quality Index (PSQI) in a community-based adult population.

Methods: A cross-sectional study was conducted among 305 adults aged≥18 years in (Location), India. Mizaj was determined using the CCRUM Standardized Mizaj Assessment Proforma. Dream parameters (recall, vividness, valence, lucidity, nightmare frequency) were evaluated using the MADRE and sleep quality was assessed using the PSQI. Data were analyzed using ANOVA, Kruskal–Wallis tests and Tukey's HSD for post-hoc comparisons. A p value <0.05 was considered statistically significant.

Results: Significant differences across mizaj types were observed for dream recall ($p<0.0001$), vividness ($p<0.0001$), lucidity ($p<0.0001$), nightmare frequency ($p<0.0001$) and PSQI global score ($p<0.0001$), while dream valence showed no significant variation ($p=0.910$). Safravi participants had the highest recall and vividness scores, Damvi and Safravi showed higher lucidity, Saudavi reported the highest nightmare frequency and poorest sleep quality and Balgami exhibited the best sleep quality.

Conclusions: Mizaj is significantly associated with multiple dream parameters and sleep quality, supporting both classical Unani theory and contemporary dream research. Temperament-based screening may offer a culturally relevant, low-cost approach for identifying individuals at risk of sleep disturbances and related psychological distress.

Keywords: Dreams, Mizaj, MADRE questionnaire, Nightmare frequency, PSQI, Sleep quality, Temperament, Unani medicine

INTRODUCTION

Mizaj (temperament) is a foundational concept in the Unani system of medicine, representing an individual's unique constitutional makeup derived from the qualitative balance of four primary qualities hot, cold, moist and dry within the body.[1] This constitutional state arises from the proportional mixture of the four humors (Akhlat): blood (Dam), phlegm (Balgham), yellow bile (Safra) and black bile (Sauda).[2,3] Classical Unani physicians such as Hippocrates, Galen and Ibn Sina emphasized that mizaj influences not only physical characteristics, but also physiological functions, mental state and susceptibility to disease.[3] Modern research has supported the role of mizaj as a determinant of health, behavior and adaptability to environmental factors.[4,5] Studies have documented

significant differences in metabolism, cardiovascular reactivity and psychological tendencies among the four major temperaments Damvi (sanguine), Balgami (phlegmatic), Safravi (choleric) and Saudavi (melancholic).[5,6] This inherent constitution remains relatively stable throughout life and can be systematically assessed using standardized tools such as the CCRUM Mizaj Assessment Proforma.[7] Dreams are a universal human phenomenon, occurring predominantly during the rapid eye movement (REM) phase of sleep.[8] They represent complex interactions of cognitive, emotional and physiological processes, shaped by neural activity, lived experiences and personality traits.[9] Parameters such as dream recall frequency, vividness, emotional tone and lucidity have been linked to both psychological well-being and sleep quality.[10,11]

Unani scholars have historically proposed that mizaj influences dream characteristics.[12] For instance, individuals with Safravi mizaj (hot and dry) are thought to experience intense, vivid and emotionally charged dreams due to heightened metabolic activity and excitability, those with Balgami mizaj (cold and moist) tend to have infrequent, less memorable and slower-paced dreams due to predominance of moisture and reduced neural arousal, Damvi mizaj (hot and moist) is associated with pleasant, colorful and socially engaging dreams, reflecting vitality and optimism and Saudavi mizaj (cold and dry) is linked to melancholic, fearful or anxiety-laden dreams with symbolic imagery, reflecting dominance of black bile and a tendency towards introspection.[4,5,13,14] Despite detailed descriptions in classical Unani literature, there is limited empirical research linking mizaj with dream patterns using modern psychometric tools. Bridging this gap is important, as understanding these associations can enrich culturally relevant approaches for mental health screening and sleep assessment. From a public health perspective, studying the relationship between mizaj, dream parameters and sleep quality may offer a non-invasive, cost-effective method for early detection of sleep disturbances and psychological distress in communities where Unani concepts are culturally accepted.[15,16]

Therefore, this study aims to investigate the association between mizaj, dream characteristics assessed through the Mannheim Dream Questionnaire (MADRE) and sleep quality measured by the Pittsburgh Sleep Quality Index (PSQI) in an adult community sample, integrating traditional Unani temperament theory with contemporary sleep research.

METHODS

Study design and setting

A community-based cross-sectional study was conducted between July, 2023 and May, 2024 in Mohammadia Tibbia college, Malegaon, Maharashtra, India. The study aimed to assess the association between mizaj, dream characteristics and sleep quality in adults aged 18 years and above.

Study population and sample size

Participants were recruited through stratified random sampling from the general adult population. Inclusion criteria were age ≥18 years, willingness to participate and provide informed consent and ability to understand the questionnaire. Exclusion criteria included diagnosed psychiatric illness, known neurological disorders affecting sleep and current use of sedatives or other medications influencing dream recall. "The minimum sample size was calculated using Cochran's formula, based on an expected prevalence of 50% for specific dream characteristics, with a 95% confidence level and 5% margin of error, yielding a required sample size of 278 participants. After accounting for a 10% non-response rate, the final target sample size was 305."

Assessment of Mizaj

Mizaj was determined using the Standardized Mizaj Assessment Proforma developed by the Central Council for Research in Unani Medicine (CCRUM).[7] This validated tool assesses physical, physiological and psychological parameters through 12 major criteria (e.g., body build, skin texture, hair type, pulse character, sleep pattern, emotional reactivity) scored on a predefined scale. The cumulative score for each quality (hot, cold, moist, dry) was computed and the dominant combination determined the mizaj type. Damvi (Hot+Moist), Balgami (Cold+Moist), Safravi (Hot+Dry), Saudavi (Cold+Dry). The assessments were carried out by trained Unani physicians to ensure accuracy and minimize inter-observer variation.

Assessment of dream characteristics

Dream parameters were evaluated using the Multidimensional Assessment of Dream Recall (MADRE) questionnaire, a validated instrument that quantifies multiple aspects of dreaming.[17] The following parameters were recorded. Dream recall frequency (number of mornings per week with remembered dreams). Dream vividness (5-point Likert scale). Emotional tone/valence (positive–negative rating). Dream lucidity (frequency of awareness during dreaming). Nightmare frequency (episodes per month). The MADRE questionnaire was adapted to the local language through forward–backward translation and pilot testing for cultural appropriateness.

Assessment of sleep quality

Sleep quality was measured using the PSQI.[18,19] This tool assesses subjective sleep quality over the previous month, yielding a global score and seven component scores (sleep latency, duration, efficiency, disturbances, use of sleep medication, daytime dysfunction and subjective

quality). A PSQI global score>5 was taken as indicative of poor sleep quality.

Data collection procedure

Data were collected through face-to-face interviews at participants' homes or community centers. Each participant first underwent mizaj assessment using the CCRUM proforma, followed by administration of the MADRE questionnaire and PSQI. Demographic information, lifestyle factors (caffeine intake, screen time, shift work) and other relevant details were also recorded. Written informed consent was obtained from all participants before enrolment. Confidentiality and anonymity of data were maintained throughout the study.

Statistical analysis

Data were entered into Microsoft Excel and analyzed using SPSS version 25 (IBM Corp., Armonk, NY, USA). Descriptive statistics (mean±SD, proportions) were calculated for demographic and study variables. Associations between mizaj categories and dream/sleep parameters were assessed using Chi-square tests for categorical variables and ANOVA or Kruskal–Wallis tests for continuous variables, as appropriate. Post-hoc analyses (Tukey's HSD) were performed for pairwise comparisons. Pearson or Spearman correlation coefficients were computed to assess relationships between dream characteristics and sleep quality. A p value of <0.05 was considered statistically significant.

RESULTS

A total of 305 participants were included in the final analysis after exclusion of incomplete records. The participants were classified into four mizaj categories: Balgami, Damvi, Safravi and Saudavi. A total of 305 participants were included in the final analysis, classified into four mizaj categories: Balgami (Cold+Moist), Damvi (Hot+Moist), Safravi (Hot+Dry) and Saudavi (Cold+Dry). Table 1 summarizes the mean±standard deviation (SD) scores of dream parameters and PSQI global scores for each mizaj type. Safravi participants exhibited the highest mean dream recall (7.08±0.84) and vividness (8.45±0.50), whereas Balgami participants recorded the lowest dream recall (2.05±1.20) and vividness (1.59±0.50).

Dream valence scores were relatively consistent across mizaj groups, with no statistically significant differences observed. Nightmare frequency varied considerably between groups, with Saudavi participants reporting the highest frequency (7.08±6.23), followed closely by Safravi (6.74±0.98), while Balgami participants reported the lowest (1.32±1.26). Sleep quality, measured by PSQI global score, was poorest in Saudavi (10.39±2.48) and Safravi (10.38±2.87) participants, indicating significant sleep disturbances, whereas Balgami participants had notably better sleep quality (3.24±1.73).

Inferential statistics

One-way ANOVA revealed statistically significant differences between mizaj groups for dream recall ($p<0.0001$), dream vividness ($p<0.0001$), dream lucidity ($p<0.0001$), nightmare frequency ($p<0.0001$) and PSQI global score ($p<0.0001$). Dream valence showed no significant variation ($p=0.910$). Kruskal–Wallis test results confirmed the same patterns, with significant differences for all parameters except dream valence ($p=0.891$).

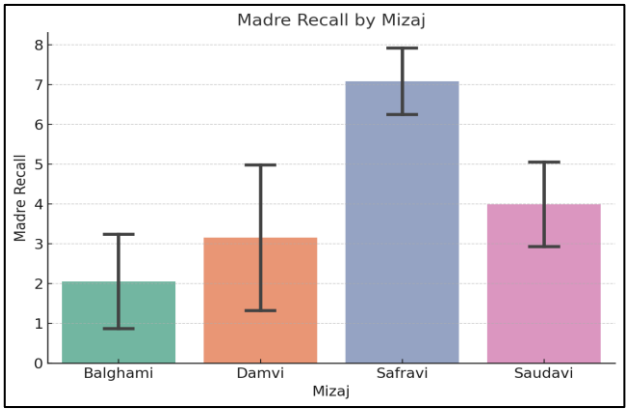

Figure 1: Dream recall by mizaj.

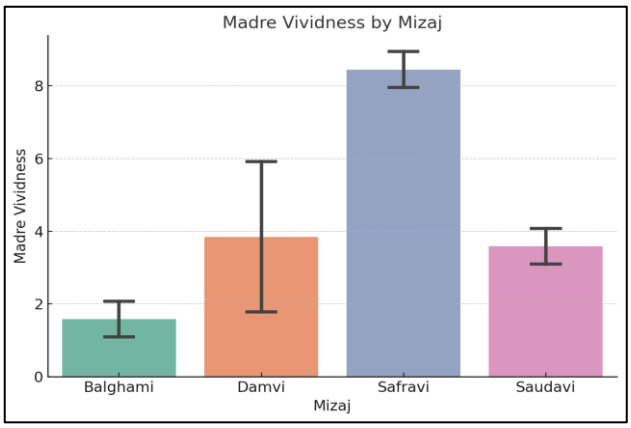

Figure 2: Dream vividness by mizaj.

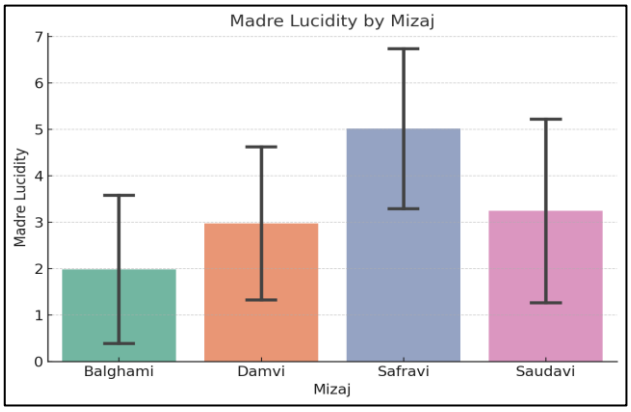

Figure 3: Dream lucidity by mizaj.

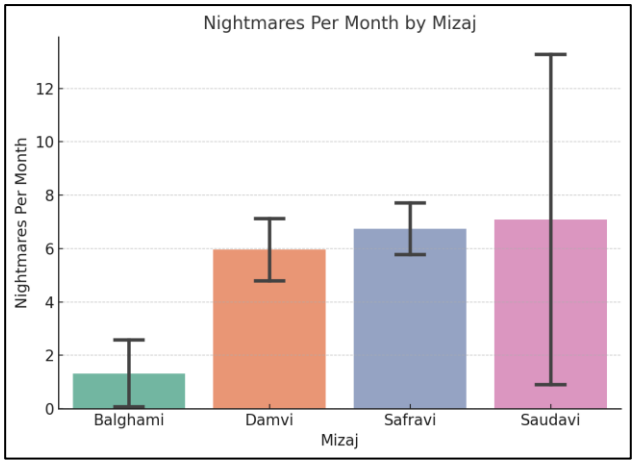

Figure 4: Nightmares/month by mizaj.

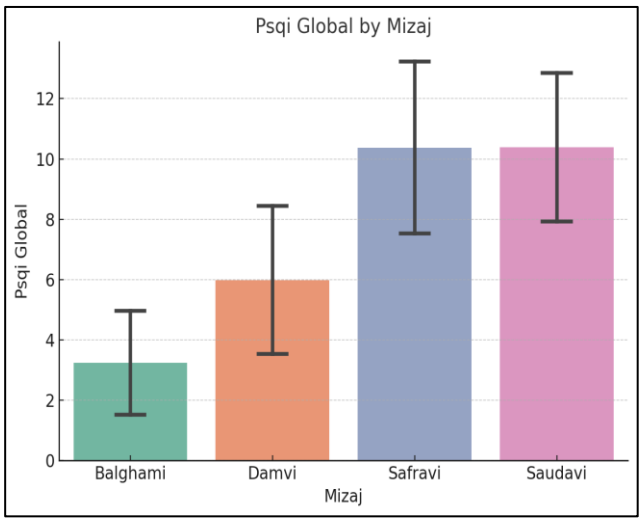

Figure 5: PSQI global score by Mizaj.

Post-hoc (Tukey's HSD) analysis

Dream recall

Safravi significantly higher than all other mizaj types ($p<0.05$).

Dream vividness

Safravi significantly higher than all other mizaj types ($p<0.05$).

Dream lucidity

Damvi and Safravi significantly higher than Balgami and Saudavi ($p<0.05$).

Nightmare frequency

Saudavi significantly higher than Balgami and Damvi ($p<0.05$).

PSQI global

Saudavi significantly higher than all other mizaj types ($p<0.05$).

Graphical representation

Figures 1–5 depict the distribution of mean scores across mizaj categories for significant parameters.

Safravi participants consistently demonstrated the highest dream recall and vividness, Damvi participants had higher dream lucidity and Saudavi participants experienced the highest nightmare frequency and poorest sleep quality.

Table 1: Mean±SD of dream and sleep parameters by Mizaj.

Mizaj	Dream recall	Dream vividness	Dream valence	Dream lucidity	Nightmares/month	PSQI global
Balgami	2.05±1.20	1.59±0.50	3.67±2.42	1.99±1.61	1.32±1.26	3.24±1.73
Damvi	3.15±1.85	3.85±2.08	3.64±2.41	2.97±1.66	5.96±1.17	5.99±2.47
Safravi	7.08±0.84	8.45±0.50	3.82±2.62	5.01±1.73	6.74±0.98	10.38±2.87
Saudavi	3.99±1.06	3.59±0.49	3.89±2.54	3.24±1.99	7.08±6.23	10.39±2.48

Table 2: ANOVA and Kruskal–Wallis P values.

Variable	ANOVA P value	Kruskal–Wallis P value
Dream recall	<0.0001	<0.0001
Dream vividness	<0.0001	<0.0001
Dream valence	0.910	0.891
Dream lucidity	<0.0001	<0.0001
Nightmares/month	<0.0001	<0.0001
PSQI global	<0.0001	<0.0001

DISCUSSION

This study investigated the relationship between mizaj (temperament), dream characteristics and sleep quality in a community-based sample using standardized Unani, dream and sleep assessment tools. The analysis revealed clear temperament-linked differences in dream recall, vividness, lucidity, nightmare frequency and sleep quality (PSQI), while dream valence showed no significant variation. These findings integrate classical Unani theory with contemporary dream research and sleep science.

Dream recalls and vividness

The significantly higher dream recalls and vividness scores among Safravi participants align with Unani doctrine, which associates hot and dry temperaments with heightened cognitive arousal, rapid metabolic activity and emotional intensity.[7,8] These qualities are paralleled in modern psychophysiology: increased cortical activation during REM sleep is linked to enhanced dream recall and sensory richness.[22,23]

A recent large-sample study confirmed stable interindividual differences in dream recall across cultures, showing that high recallers often display greater pre-sleep cognitive activity and openness to experience.[24] Similarly, Schredl et al, reported that emotional intensity of waking experiences predicts dream vividness.[25] This supports the idea that Safravi temperament may predispose individuals to richer dream experiences through both physiological and psychological pathways.

Dream lucidity

The results showed Damvi and Safravi participants scored significantly higher on dream lucidity compared to Balgami and Saudavi. Lucid dreaming has been linked to higher prefrontal activation and increased metacognitive awareness during REM.[26] Personality research demonstrates that traits such as openness, extraversion and internal locus of control often observed in Damvi and Safravi profiles correlate with lucid dream frequency.[27,28] Furthermore, a 2023 psychometric validation of lucid dreaming scales showed that metacognitive traits are reliable predictors of lucidity frequency across populations, reinforcing our findings.[29]

Nightmare frequency

Saudavi participants exhibited the highest nightmare frequency, a pattern consistent with Unani descriptions of melancholic temperaments as prone to fearful, anxiety-laden and symbolically intense dreams.[7,30] Contemporary research supports this: nightmares are strongly associated with psychiatric symptoms, particularly anxiety, depression and PTSD.[31,32] A 2022 systematic review concluded that nightmares are not only symptoms but also potential predictors of mood disorders.[33] Neurocognitive models implicate heightened limbic activation, particularly in the amygdala and anterior cingulate cortex, during REM sleep a mechanism that could be amplified in Saudavi individuals with higher baseline affective sensitivity.[34] Recent post-pandemic studies have further highlighted contextual stress as a catalyst for increased nightmare frequency, suggesting that temperament-linked predisposition and environmental stressors may interact to influence nightmare occurrence.[35]

Sleep quality

PSQI global scores were significantly poorer in Saudavi and Safravi participants, both averaging ~10, which is above the clinical cut-off for poor sleep quality.[36] In contrast, Balgami participants scored ~3, reflecting high-quality, restorative sleep. This pattern may relate to temperament-driven differences in physiological arousal and emotional regulation. For example, hyperarousal models of insomnia suggest that heightened sympathetic activity and cognitive-emotional reactivity disrupt sleep initiation and maintenance conditions more prevalent in Safravi and Saudavi temperaments.[37] Recent psychometric work has refined the PSQI into two distinct factors perceived sleep quality and sleep disturbances which may help explain why different mizaj types score differently on specific components.[38]

Integrating Mizaj into contemporary health science

Our findings resonate with emerging research advocating for the integration of mizaj into individualized prevention and public health strategies. A 2024 observational study found significant associations between mizaj variability and general mental health scores.[39] Given that sleep disturbances are modifiable risk factors for multiple chronic conditions, mizaj-informed screening could provide culturally relevant, low-cost early detection in primary care settings.

Strengths

Use of validated tools (CCRUM Mizaj Assessment Proforma, MADRE, PSQI). Adequate sample size (n=305) for between-group statistical comparisons. Cultural adaptation of the MADRE questionnaire, increasing validity in the local population.

Limitations

Cross-sectional design

Limits causal inference; we cannot establish temporal relationships between mizaj, dream patterns and sleep quality.

Self-reported measures

Subject to recall bias, particularly for dream content and frequency.

Uncontrolled confounding

Factors such as life stress, mental health status and environmental noise were not fully controlled.

Cultural interpretation of dreams

Cultural beliefs may have influenced how participants rated dream vividness or lucidity.

No objective sleep data

Polysomnography or actigraphy would strengthen the findings by validating PSQI scores and linking dream parameters to specific sleep stages.

CONCLUSION

This study demonstrates that mizaj, particularly Safravi and Balgami, is significantly associated with distinct dream characteristics, including recall, vividness, lucidity and nightmare frequency, while showing minimal influence on emotional valence and overall subjective sleep quality. These findings bridge classical Unani temperament theory with modern dream science, highlighting the potential value of integrating mizaj assessment into community-based sleep and mental health screening. Further longitudinal and multi-center studies using objective sleep measures are warranted to validate and expand upon these results.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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