

## INSOMNIA IN TRADITIONAL PERSIAN MEDICINE

## INSOMNIJA U TRADICIONALNOJ PERZIJSKOJ MEDICINI

Majid Nimrouzi<sup>\*\*</sup>, Babak Daneshfard<sup>\*\*\*</sup>,  
Vahid Tafazoli<sup>\*\*</sup>, Rahimeh Akrami<sup>\*\*</sup>

### SUMMARY

*Insomnia is a common complaint in outpatient clinics. It usually affects quality of life negatively, especially in severe cases. Nowadays, routine medical interventions comprise pharmacological approaches and cognitive behavioral therapy. Common medications used by afflicted patients are not competent enough in addition to their annoying side effects. It would naturally denote the need for considering novel strategies for treating insomniac patients. Approach to insomnia in traditional Persian medicine (TPM) has been cited in a scrutinized manner focusing on its main causes. Accordingly, its treatment is tailored based on the constitution of the patient, intensity of the disease, and type of the cause. In this paper we have discussed the causes of insomnia, diagnostic approach, and various medical interventions proposed in valid sources of TPM.*

**Keywords:** Sleep, insomnia, sleep-wake disorders, temperament, traditional Persian medicine

---

\* Department of Persian Medicine, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.

\*\* Essence of Parsiyan Wisdom Institute, Phytopharmaceutical Technology and Traditional Medicine Incubator, Shiraz University of Medical Sciences, Shiraz, Iran.

\*\*\* Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran.

Correspondence Address: Babak Daneshfard, Student Research Committee, Shiraz University of Medical Sciences, Zand street, 7134845794, Shiraz, Iran.  
E-mail: babakdaneshfard@gmail.com.

## INTRODUCTION

Insomnia is a common health problem in almost all communities. It is characterized by some clinical features such as a problem in initiation of sleep and dissatisfaction with sleep associated with experiencing fatigue even after sleep [1, 2]. It not only disturbs social and individual life of the affected people, but also induces a huge burden on communities [3]. Current evidence has shown negative effects of insomnia on the quality of life including mental, occupational, and economic aspects of human life [4].

Despite increasing evidence about insomnia, it is considered as a medical challenge because of the complexity of sleep context and its disturbances. It is usually underdiagnosed and often left untreated. There is evidence confirming the efficacy of cognitive behavioral therapy and pharmacotherapy in management of insomnia [4]. Some over-the-counter (OTC) drugs including antihistamines, melatonin, herbal products, and benzodiazepines are specifically used for the treatment of insomnia, whereas nonspecific use of some other drugs such as antidepressants, antipsychotics, and anticonvulsants may also be helpful in specific conditions [4].

## TRADITIONAL PERSIAN MEDICINE (TPM)

Traditional Persian Medicine (TPM) is a holistic medical school, considered as a whole/alternative medical system which is one of the five main Complementary and Alternative Medicine (CAM) domains [5]. It is also known as Unani medicine having its roots in Greek, Indian, Persian, and Egyptian medicine [6]. TPM, which is originated from the humoral medicine, considers the balance in between the four humors (i.e., sanguine, phlegm, yellow bile, and black bile) as the main necessitated factor for maintaining health. Accordingly, any qualitative and/or quantitative change/imbalance of these humors [it is called: *soo-e-mezaaj* (dys temperament)] would result in various diseases [7]. This school of medicine has been scientifically investigated and practiced by the establishment of TPM faculty of medical universities in Iran [8].

In traditional Persian medicine (TPM), *Hifz-al-Sehe* (preventive health measures) comprises *Sete-ye-Zaroorie* or “the six essential principles” which is the initial step in prevention and treatment of the diseases. Observing all of these health measures including: air, food and drink, sleep/wake, retention/release, rest/activity, and psychological events is essential for maintaining a healthy life [9]. In this regard, sleep is one of the main aspects of lifestyle which plays a crucial role in maintaining health.

## SLEEP IN TRADITIONAL PERSIAN MEDICINE

In TPM, sleep is a state in which pneuma moves into the body in order to reinforce the lost energy and revitalize it. At the waking time, pneuma moves toward the surface and periphery to operate the body organs for specified functions. Sleep is like inertia and waking is like movement. Basal metabolic rate in sleep is at lowest degree to maintain body heat and energy, and use it merely for vital functions; however, in waking time body heat is used for different functions of the organs [10].

In this school of medicine, insomnia is considered as a disease –called *sa-har*– which disturbs the patient’s functionality. According to TPM sources, everybody needs a certain amount of sleep during the night; however, it differs in each person and in different temporalities. For instance, children need more sleep time because they are more active with a higher level of energy expenditure which is essential for their process of growth and development [11].

Traditional Persian medicine has a holistic approach toward diagnosis and treatment based on the constitution of the patients and diseases. Constitution or *mezaj* is defined as an average quality produced from the counteraction of four different qualities including two actives, i.e., hotness and coldness, and two passives: wetness and dryness [12]. The ingested foods, based on this theory, would pass through four stages of digestion including: alimentary, hepatic, vascular, and organic digestion [12]. Four humors are produced after the second (i.e., hepatic) digestion which are sanguine (hot and wet), phlegm (cold and wet), bile (hot and dry), and black bile (cold and dry).

Each one of the aforesaid humors possesses a binary quality made of an active and a passive quality as mentioned [13]. Every organ in the body has a balanced binary quality in which its harmonized state has at most functionality. This *mezaj* (balanced quality) is specific for any organ and may be different from the others [12]. If an organ deviates from its balanced state–due to the internal or external causes– its function disturbs as a consequence of dystemperament or *soo-e-mezaj* [14]. If the quality of organ is affected per se without accumulation of the morbid matter or bad humor in it, this would be addressed as simple dystemperament or *soo-e-mezaj-e-sazedj*, otherwise it is called dystemperament with matter or *soo-e-mezaj-e-maddi* [15].

## INSOMNIA IN TRADITIONAL PERSIAN MEDICINE

There is no exception even for the brain to develop dystemperament—simple or with matter—because of the external and/or internal factors against its balanced constitution (temperament). When dystemperament of the brain disturbs normal sleep, it is called *sahar* or insomnia (Table 1) [11, 15].

Occasionally, *sahar* is voluntary and optional in which the person has not any dystemperament or disease and continue to sleep late as a habit. This may gradually disturb the constitutional balance of the brain and result in its dry dystemperament. Such disorder is considered to be causal rather than intrinsic [11]. Causal insomnia is usually due to the perseverance in doing jobs in a way that the decrease of sleep quantity is inevitable as in medical service providers of hospitals and emergency centers. In addition, starvation for a long time, perseverance on eating dry foods, and abstaining watery and juicy foods are other factors. Disturbed mental state and chronic stress are also considered as the probable causes of insomnia which can lead to dry dystemperament of the brain when they are intense enough and last for a long time [11].

Table 1. Different types of insomnia in TPM according to their cause.

Cause of insomnia	Signs and symptoms	Treatment
<b>Simple dry dystemperament of the brain</b>	Light headedness; disturbed orientation; dryness of tongue, nasal mucosa and cornea; average temperature of the skin	Humidifying foods like chicken, piper or yeanling that is cooked with squash, spinach ( <i>Spinacia oleracea</i> ), lettuce ( <i>Lactuca sativa</i> ) and poppy ( <i>Papaver somniferum</i> ) sap [11, 16]; bath with tepid water after food digestion; avoiding works that are exhausting as well as excessive contemplation and intercourse [10]; pouring decoction of violet ( <i>Viola odorata</i> ), lily ( <i>Lilium candidum</i> ), lettuce, coriander ( <i>Coriandrum sativum</i> ), poppy skin and root, and barley ( <i>Hordeum vulgare</i> ) on head; smelling violet or lily flower [11, 16]
<b>Hot and dry dystemperament of the brain</b>	More severe insomnia and more inflammation and burning sensation of head than simple dry dystemperament.	Same as the simple dry dystemperament in addition to using purslane ( <i>Portulaca oleracea</i> ) and glaze of fleawort ( <i>Plantago ovata</i> ) [15]

Cause of insomnia	Signs and symptoms	Treatment
Cold and dry dystemperament of the brain with black bile accumulation	Feeling of heaviness in the brain and coldness in scalp skin; darkness of skin and sclera; obsession or signs of psychosis [17]	Avoiding the black bile producing foods such as lentil ( <i>Lens esculenta</i> ), cabbage ( <i>Brassica oleracea</i> ) and beef; humidifying foods and drinks like syrup of violet and lily; anointment of palm, sole, and navel with violet-sweet almond oil (or as nasal drop); decoction of licorice ( <i>Glycyrrhiza glabra</i> ), fennel ( <i>Foeniculum vulgare</i> ), celery ( <i>Apium graveolens</i> ) and anise ( <i>Pimpinella anisum</i> ) (as black bile purgatives) [17]
Hot and dry dystemperament with dominance of bile in the brain	Feeling of heaviness in the head; yellow discoloration of skin and sclera; sever inflammation and burning sensation in the eyes and nose; yellow, bitter, hot and burning nasal discharge [17]	Cool and humidifying drinks such as sour orange ( <i>Citrus sinensis</i> ), lemon ( <i>Citrus limon</i> ), lily, and jujube ( <i>Zizyphus sativa</i> ) syrup; <i>Sekanjabin</i> (oxymel) which contains sugar and grape vinegar; pouring decoction of lily, violet, and willow ( <i>Salix alba</i> ) leaves on the head [11, 16, 17]
Rotubat-e-bouraghi*	Nasal wetness; watery eye discharge; light heaviness in head; light sleep [10, 11, 16, 17]	A decoction containing fennel, licorice; root, borage ( <i>Echium amoenum</i> ), and <i>Golghand</i> (a compound of honey and rose ( <i>Rosa rubiginosa</i> )) to evacuate the waste humidity out of the body, then using <i>Ayaraj-e-Figharaa</i> (a compound purgative medicine comprises lavender ( <i>Lavandula vera</i> ), mastic, as arum ( <i>Asarum europaeum</i> ), cinnamon ( <i>Cinnamomum zeylanicum</i> ), balsam, saffron ( <i>Crocus sativus</i> ), and aloe vera ( <i>Aloe barbadensis</i> )) that evacuate humidities of the head through gastrointestinal tract [18]; anointment of the head with chamomile ( <i>Matricaria chamomilla</i> ) oil; avoiding spicy, bitter, and salty foods [10, 11, 16, 17]
Dyspepsia and/or eating flatulent foods		Treatment of the underlying cause [10, 11, 19]

Cause of insomnia	Signs and symptoms	Treatment
Pain	Pain	Using pain relief modalities [11]
Fever	Fever	Using fever reducing formulations and putting feet in tepid water [11]

\* *Rotubat-e-bouraghi* is a morbid humor that is produced in the stomach because of inefficient and incompetent innate heat (most probably in the elderly people) and comprises phlegm and thin bile. This morbid humor does not have the competency to be absorbed by tissues and distribute in the body through circulation; it may cause harmful effects in weak organs which are not capable to expel it.

It is to be mentioned that in addition to pharmacotherapy, massage therapy is also applied in TPM (usually accompanied by anointment) for management of insomnia [20]. This usually includes foot massage which has a stress reduction effect, too.

### INSOMNIA IN OTHER SCHOOLS OF MEDICINE

Traditional Chinese Medicine (TCM) as one of the ancient medical systems has recognized insomnia more than 2000 years ago. Considering its basic theories, three main patterns have been recognized for insomnia in TCM including: “liver-qi stagnation transforming into fire”, “hyperactivity of fire due to yin deficiency”, and “deficiency of both the heart and spleen” [21]. According to this holistic medical system, heart, which is known as “seat of consciousness”, has a key role in pathophysiology of insomnia [22]. Suanzaoren (*Ziziphus spinosa*) decoction is considered as the most common herbal remedy for insomnia in TCM [23].

Ayurveda is another old medical system with a 5000 years’ history which has its own words on insomnia (Anidra). Based on its theories, making balance between *doshas* (biological humors) i.e., *Vata*, *Pitta*, and *Kapha* is essential for treatment of diseases including insomnia. In Ayurveda, external uses of herbal oils in addition to internal application of herbal medicines are used for management of insomnia. For instance, external application of Brahmi oil (traditional Ayurvedic oil) in the form of *Shirodhara* (“oil dripping on the forehead”) is a common method for treatment of insomnia in this school of medicine [24].

## DISCUSSION AND CONCLUSION

There is a great variation in time and structure of sleep among people [25]. Studies have shown the existence of a significant genetic influence on the spectral constituents of sleep pattern in different individuals [26]. It is in line with the TPM sources that propose different patterns of sleep for different constitutions. Based on this view, hot tempered young healthy individuals need shorter time of sleep when comparing to healthy children who are in growing ages and possess more wet temperaments [15].

Four types of sleep disturbances could be considered: primary to mental disorders, secondary to mental disorders, accompanying with them, and sleep disturbances caused by workplace and social pressures [25]. People who have strenuous jobs and are under tough conditions and chronic stress or eat dense and dry foods are more prone to develop insomnia [15]. Sleep disturbance is also a common problem in some mental disorders such as depression and Alzheimer disease [25]. Moreover, patients with chronic fatigue syndrome may develop sleep disturbances and insomnia that is not consistent with severity of their clinical fatigue symptoms [27].

On the other hand, sleep deprivation increases the annoying symptoms of anxiety and depression in the afflicted patients [3]. It also adversely affects the learning process [28]. Melancholic patients, who have abundance of black bile, usually suffer from insomnia. In point of fact, melancholia comprises a wide range of mental diseases including signs and symptoms of anxiety, depression, dementia, and Alzheimer disease.

According to TPM sources, any factor which condenses the blood and diminishes the brain circulation including unfavorable mental states or eating cold-dry tempered foods may disturb sleep due to over-production of morbid black bile in the liver. Such process could be hypothesized as the mechanism of many neurocognitive and psychological disorders such as schizophrenia [15].

Avicenna (980-1037 AD), the genius Persian scholar [29], believed that insomnia is mostly tied to the *soo-e-mezaj-e-haar* (hot dystemperament) of the brain. It means that the brain temperature is warmer than normal state. In simple warm dystemperament of the brain, we have no morbid matter accumulation. This usually happens because of external causes such as sunshine, staying in hot places for a long time, and eating hot tempered food, such as mustard and pepper. In hot dystemperament with matter, accumulation of the morbid hot humor in the brain causes an increase in temperature. It is not clearly understood how an increase in body temperature causes awakening

from sleep and a decrease in body temperature initiates sleep [19]. However, in TPM, there is a well-known link between increasing the temperature of the brain and insomnia as mentioned above.

Interestingly, inflammation, which is in line with hot dystemperament of the body, has shown to decrease with treatment of insomnia [30]. It has also been revealed that sympathetic nervous system is more active in hot-tempered people [31]. Additionally, they have higher basal metabolic rate and hyperthyroid symptoms like hyperthermia [32]. All of these features make people with hot temperament more prone to insomnia. It is for this reason that temperament has an important role in management of the diseases [33, 34].

It is also hypothesized that the circadian rhythm and the body thermoregulation contribute to normal nocturnal sleep [19]. In this regard, TPM sages mentioned the darkness of the night as the best time for sleep. They warned people to avoid daytime sleep because it may lead to accumulation of phlegm in the body, darkness of the skin, and development of diseases related to the plethora of the phlegm and morbid moistures [35].

According to the aforementioned, insomnia has been well known to Iranian physicians [36] who have suggested different treatment options, including medicinal herbs, in the main TPM books. [20, 37]. Their preventive health measures in addition to the treatment strategies should be considered in further clinical investigations for precise safety and efficacy evaluations.

## REFERENCES

1. Sadeghniaat-Haghighi K, Yazdi Z, Firoozeh M. Comparison of two assessment tools that measure insomnia: The insomnia severity index and polysomnography. *Indian J Psychol Med* 2014;36(1):54.
2. Morin CM, Jarrin DC. Epidemiology of insomnia: prevalence, course, risk factors, and public health burden. *Sleep Med Clin* 2013;8(3):281-97.
3. Babson KA, Trainor CD, Feldner MT, Blumenthal H. A test of the effects of acute sleep deprivation on general and specific self-reported anxiety and depressive symptoms: An experimental extension. *J Behav Ther Exp Psychiatry* 2010;41(3):297-303.
4. Morin CM, Benca R. Chronic insomnia. *Lancet* 2012;379(9821):1129-41.
5. Koithan M. Introducing complementary and alternative therapies. *J Nurse Pract* 2009;5(1):18.
6. Dousti M, Ramchandani MH, Barkhordarian A, Danaei S, Chiappelli F. Evidence-based traditional persian medicine. *Evidence-Based Practice in Complementary and Alternative Medicine: Springer*; 2012:79-96.

7. Nimrouzi M, Mahbodi A, Jaladat A-M, Sadeghfard A, Zarshenas MM. Hijamat in traditional Persian medicine: risks and benefits. *J Evid Based Complementary Altern Med* 2014;19(2):128-36.
8. Atarzadeh F, Daneshfard B, Dastgheib L, Jaladat AM, Amin G. Early Description of Diet-Induced Blistering Skin Diseases in Medieval Persia: Avicenna's Point of View. *Skinmed* 2016;14(5):367-70.
9. Siahpoosh MB. Six Essential Principles of Iranian Traditional Medicine for Maintaining Health from the Quran's Point Of View. *Quran Med* 2012;1(4):101-7.
10. Ibn Sina H. The canon of medicine. Sharafkandi A, translated in Persian. Tehran. volume 1. 1997:30.
11. Kermani N. Sharh Al-Asbab Va Al-Alamaat. Tehran: Tehran University of Medical Sciences; 2004.
12. Nimrouzi M, salehi A, Ahmadi A, Kiani H. Avicenna's medical didactic poems: Urjuzeh Tebbi. *Acta Med Hist Adriat* 2015;13(Suppl 2):45-56.
13. Nimrouzi M, Sadeghpour O, Imanieh M-H, et al. Remedies for children constipation in medieval Persia. *J Evid Based Complementary Altern Med* 2014;19(2):137-43.
14. Pasalar M, Nimrouzi M, Choopani R, et al. Functional dyspepsia: A new approach from traditional Persian medicine. *Avicenna J Phytomed* 2016;6(2):165-74.
15. Avicenna. Ghanoon Dar Teb (The Canon of Medicine), Bulaq Edition. Sharafkandi A, trans. Tehran: Univ of Tehran Pr. 1978.
16. Arzani MA. Teb-e-Akbari (Akbar's Medicine). Vol 2. Qom: Jalal Al-Din; 2008.
17. Nazem Jahan M. Eksir-e-Azam (The Great Elixir). 3rd ed. Tehran: Tehran university of Medical Science: Institute for Islamic and Complementary Medicine; 2007.
18. Ghayeni Heravi S. Gharabadin-e-Salihi. Tehran: Chogan; 2013.
19. Atkinson G, Davenne D. Relationships between sleep, physical activity and human health. *Physiol Behav* 2007;90(0):229-35.
20. Petramfar P, Zarshenas MM, Moein M, Mohagheghzadeh A. Management of insomnia in traditional Persian medicine. *Complement Med Res* 2014;21(2):119-25.
21. Poon MM, Chung KF, Yeung WF, Yau VH, Zhang SP. Classification of insomnia using the traditional Chinese medicine system: a systematic review. *Evid Based Complement Alternat Med*. 2012;2012:735078.
22. O'Brien K, Weber D. Insomnia in Chinese medicine: the heart of the matter. *J Altern Complement Med*. 2016;22(9):684-94.
23. Singh A, Zhao K. Treatment of insomnia with traditional Chinese herbal medicine. *Int Rev Neurobiol* 2017;135:97-115.
24. Vinjamury SP, Vinjamury M, Der Martirosian C, Miller J. Ayurvedic therapy (shirodhara) for insomnia: a case series. *Glob Adv Health Med* 2014;3(1):75-80.
25. Wulff K, Porcheret K, Cussans E, Foster RG. Sleep and circadian rhythm disturbances: multiple genes and multiple phenotypes. *Curr Opin Genet Dev* 2009;19(3):237-46.
26. Parish JM. Genetic and Immunologic Aspects of Sleep and Sleep Disorders. *Chest* 2013;143(5):1489-99.

27. Afari N, Buchwald D. Chronic Fatigue Syndrome: A Review. *Am J Psychiatry* 2003;160(2):221-36.
28. Yang R-H, Hu S-J, Wang Y, Zhang W-B, Luo W-J, Chen J-Y. Paradoxical sleep deprivation impairs spatial learning and affects membrane excitability and mitochondrial protein in the hippocampus. *Brain Res* 2008;1230(0):224-32.
29. Nimrouzi M, Tafazoli V, Daneshfard B, Zare M. Optimal fluid intake in daily diet: Avicenna's view. *J Integr Med* 2016;14(4):241-4.
30. Irwin MR, Olmstead R, Carroll JE. Sleep disturbance, sleep duration, and inflammation: a systematic review and meta-analysis of cohort studies and experimental sleep deprivation. *Biol psychiatry* 2016;80(1):40-52.
31. Shahabi S, Zuhair MH, Mahdavi M, et al. Evaluation of the Neuroendocrine System and the cytokine pattern in warm and cold nature persons. *Physiology and Pharmacology* 2007;11(1):51-9.
32. Parvinroo S, Naghibi F, Zahediasl S, Kamalinejad M, Sabetkasaei M. The effects of seeds with hot and cold temperaments on serum thyroid hormones, corticosterone and urine vanillylmandelic acid concentrations of healthy rats. *J Ethnopharmacol* 2014;156:216-21.
33. Miraj S, Alesaeidi S, Kiani S. A systematic review of the relationship between dystemperament (sue Mizaj) and treatments and management of diseases (Ilaj and Eslah-e-Mizaj). *Electronic Physician* 2016;8(12): 3378-84.
34. Nimrouzi M, Zare M. Principles of nutrition in Islamic and traditional Persian medicine. *J Evid Based Complementary Altern Med* 2014;19(4):267-70.
35. Aghili M. *Kholase al hekma*. Qom: Esmailian. 2006:35-42.
36. Feyzabadi Z, Jafari F, Feizabadi PS, Ashayeri H, Esfahani MM, Aval SB. Insomnia in Iranian traditional medicine. *Iran Red Crescent Med J* 2014;16(3):e15981.
37. Andalib S, Naeini AM, Vaseghi A, Vaseghi G. Sedative and hypnotic effects of Iranian traditional medicinal herbs used for treatment of insomnia. *EXCLI*. 2011;10:192-7.

## SAŽETAK

*Pacijenti se u ambulantama često žale na nesanicu. Nesanica obično negativno utječe na kvalitetu života, posebno kod teških slučajeva. Rutinske medicinske intervencije danas obuhvaćaju farmakološki pristup i kognitivnu bihevioralnu terapiju. Lijekovi koji se obično uzimaju za nesanicu, uz neugodne nuspojave, nisu zadovoljavajući. To znači da postoji potreba za razmatranjem novih strategija u liječenju bolesnika koji pate od nesanice. Pristup liječenju nesanice u tradicionalnoj perzijskoj medicini (TPM) pomno je razmatran, s naglaskom na glavne uzroke bolesti. U skladu s tim, liječenje nesanice prilagođeno je pacijentu na temelju njegove konstitucije, intenziteta bolesti i vrste uzroka. U ovom radu raspravlja se o uzrocima nesanice, dijagnostičkom pristupu i različitim medicinskim intervencijama koje su predložene u postojećim izvorima tradicionalne perzijske medicine.*

**Ključne riječi:** *spavanje; nesanica; poremećaji spavanja i budnosti; temperament; tradicionalna perzijska medicina*