

Being Awake at Dawn: A Religious Austerity or a Hygienic Recommendation

*(A Scrutiny Based on the Holy Qur'an, Traditional Persian
Medicine and Modern Medicine)*

Farzaneh Zare¹ 

*Master of History of Medicine, Department of History of Medicine, School of Persian Medicine,
Tehran University of Medical Sciences, Tehran, Iran*

Amir Mohammad Jaladat² 

*Associate Professor, Department of Traditional Persian Medicine, School of Medicine, Shiraz
University of Medical Sciences, Shiraz, Iran*

Mohsen Baghbani³ 

*PhD in Persian literature, Faculty of Persian literature, Institute for Humanities and Cultural
Studies, Tehran, Iran
Researcher, Persian Medicine and Pharmacy Research Center, Tehran University of Medical
Sciences, Tehran, Iran*

Article History: Received 12 February 2023; Accepted 23 April 2023

ABSTRACT:

Original Paper

Modern scientific studies have placed emphasis on the importance of the timing of wakefulness to maintain the body's healthy rhythm, including the physical, mental and emotional aspects of a certain person. This importance has been indicated in the Holy Qur'an and the medical doctrine of Iran. Therefore, the purpose of this article is to briefly investigate our current understanding of wake up time, and how it relates to the field of pathophysiology. The result shows that there is the special consideration to the time of sunrise from the Holy Qur'an and traditional Persian medicine (TPM) perspectives. In the Holy Qur'an, being awake in dawns is a practice

1. Email Address: f-Zare@alumnus.tums.ac.ir

2. Email Address: jaladatam@sums.ac.ir

3. Corresponding Author. Email Address: baghbani.mohsen@gmail.com

<http://dx.doi.org/10.37264/IJQS.V2I1.12>



preferred by only those are believers to praise the God, and in TPM it is known as a hygienic recommendation, which can prohibit from chronic diseases, including exhaustion, powerlessness, chronic tension headache, laxation, and laziness. Hence, from both perspectives of spirituality and science, there are some similarities with regard to encouraging early rising.

KEYWORDS: Early Rising, Physiological Effects, Dawns, *Sahar*, *Fajr*, *Tulū‘ al-shams*, Qur’an and science, Traditional Persian Medicine (TPM).

1. Introduction

Living in tune with nature’s rhythms and cycles is highly recommended by both spirituality and science. It is reflected in many cultures’ practice of the rising early (Kumaran, Raghavendra and Manjunath 2012; Hynes 1887). Over generations, it has been a convention for Muslims to get up early in the morning in general and dawn in particular. The Holy Qur’an (610 C.E.), emphasizes the importance of maintaining a pattern of light and darkness and describes dawn as a fixed time early in the morning (about one and a half hours before sunrise), which is the sacred time to rise. Hence, rising at dawns individuals are prescribed to engage in doing prayer including being thankful and asking for forgiveness (Q. 51:17-18). It has also been a prescribed discipline of TPM. This medical doctrine deprives of sleep during astronomical twilight as the time for rising (based on the Qur’an (al-Ṭabarī 2002, 397)) in order to prevent certain disorders to happen (‘Aqīlī 2006, 2: 92; Jurjānī 2006, 3:477). The descriptions from the Qur’an and TPM seem to be scientific. It has been observed that people who get up earlier in the morning adapt better to circadian rhythm. Balance of circadian rhythm can also boost the secretion of hormones in the body by improving endocrine and metabolic functions (Reiter, Rosales-Corral and Sharma 2020). According to an earlier study, compared with late risers, early risers showed higher ratio of lymphocytes and a lower numbers and ratio of granulocytes showing parasympathetic nerve dominance. Early risers showed higher levels of glucose and its related hormones than late risers, indicating sympathetic nerve dominance (Watanabe et al. 2013). The bases behind rising early in the morning can be believed to influence an individual’s performance during the day. Previous researches have shown that timing of wakefulness correlated closely with academic performance. Compared to those with the lowest academic performance, students with the highest performance had significantly earlier wake times (Eliasson, Lettieri and Eliasson 2010). Early morning awakening is acknowledged in compiled datas to improve significantly the performance related to verbal and spatial memory task requiring attention and concentration such as selective

attention, phasic alertness and vigilance including concentration and sustained attention (Kumaran, Raghavendra and Manjunath 2012).

With consideration to the fact that no studies have yet been made concerning the recommendations of the Qur'an and TPM on the beneficial effects of wakefulness in dawns, we have set out to find out whether the time of sunrise can be related with the physiological effects. Hence, the focus of this article is to investigate some perspectives of the Qur'an and TPM for the assessment of being awake in early morning as it relates to circadian rhythms of the sleep-wake cycle. It also touches on recent research on the beneficial effects of wakefulness in this time in the human body. The goal of this article is not to interpret Qur'anic verses and specific details of TPM to assess the time of the day; rather, it is to probe the key recommendations to consider when selecting a wake up time and how keeping the body's healthy rhythm physically, emotionally, and mentally from the ordinance of God and the views, behaviors, and practices of ancient literatures.

1.1. Ethical Considerations

This article has been approved by Research Ethics Committees of School of Medicine- Shiraz University of Medical Sciences (11-21969). The project was found to be in accordance to the ethical principles and the national norms and standards for conducting Medical Research in Iran.

2. Finding

2.1. Circadian Rhythm and the Physiology and Pathology

Circadian rhythm or the body's biological clock is the near-24-hour internal clock in every the biochemical, physiological or behavioral processes of living things, including humans (Reid 2019), which refers to physiological, behavioral, and molecular changes during approximately one day. Circadian rhythm can be divided into two major parts: the central and the peripheral clock. The central clock, locating in a tiny region of the brain in the anterior hypothalamus, the so-called suprachiasmatic nuclei (SCN) (Serin and Tek 2019), receives light as the most powerful time-keeping cue (Rivera and Huberman 2020) and regulates cycles of alertness and sleepiness by synchronizing to the environmental light/dark (zeitgebers) and social/activity cycles by daily adjustments in the timing of the rhythm (Reid 2019) by regulating both genetic and environmental factors such as body temperature, neuronal activity, hormonal signals (Logan and McClung 2019), social interactions, and feeding (Rivera and Huberman 2020). The

second part is the peripheral clock, locating in various tissues through the body, playing a specific role in physiological functions includes the cardiovascular, metabolic, endocrine, immune, and reproductive systems (Richards and Gumz 2012). Circadian rhythm has an underlying relationship with its cellular biology to understand the main physiology and pathology in diseases (Ken-Kwofie 2021; Sieck 2021). The deterioration of the circadian rhythm can cause many diseases including those of impaired glucose tolerance, diabetes, obesity, cancer progression, fatigue, and finally premature mortality (Serin and Tek 2019). Circadian rhythm disruptions are also strongly linked to the pathophysiology of certain psychiatric and neurodegenerative disorders such as higher risk of brain disorders (Logan and McClung 2019) and psychiatric disorders like depression, anxiety, and loss of concentration (Serin and Tek 2019).

2.2. Circadian Rhythm and Internal Body Organs

2.2.1. Brain Function

The pineal gland is a small, highly vascularized, and a secretory neuroendocrine organ in the brain. The main function of this gland is to receive and deliver information about the environmental light/dark cycle and, consequently synthesis and release melatonin periodically at night (Narváez-Rojas 2020). Melatonin is the primary hormone of pineal, which has an important role in the regulation of circadian synchronization involving in many rhythmic physiological and biological regulations in the body, and also in sleep-wake cycle and sleep patterns, hormone secretion, cell protection, cardiovascular function, neuroprotection, and reproductive system, among other functions (Samanta 2020).

2.2.2. Heart Function

Endothelin-1 (ET-1) is a family of peptides, which shows various effects in different organs (Miyachi and Sakai 2019). It stimulates the sympathetic nervous system (Agapitov and Haynes 2002). The mainly action of ET-1 is to increase vascular tone and blood pressure. Hence, ET-1 antagonists may have an influence on cardiovascular diseases as hypertension, systemic and pulmonary hypertension, chronic heart failure, cardiac hypertrophy, and also renal diseases and cerebral vasospasm (Miyachi and Sakai 2019). ET-1 is one gene that has interplay of regulation with the molecular circadian clock. It acts as the strongest vasoconstrictor produced in the vasculature of the body (Douma, Barral and Gumz 2021).

2.2.3. Kidney Function

Cortisol is a steroidal hormone secreted from the adrenal glands located on top of the kidneys regulating by the main circadian oscillator in the SCN. The amount and frequency of the secretion of cortisol are mainly controlled by the circadian rhythm. Normally, cortisol level is at its peak in morning then reduces slowly throughout the day (Thau, Gandhi and Sharma 2021). Cortisol has an important role in synchronizing of body circadian rhythms and its disruption can cause adrenal insufficiency, such as sleep disturbances (De Nys et al. 2022), impaired psychological well being (Van Wamelen, et al. 2020), increased mortality risk (Kjellbom et al. 2021), defects in bone turnover (Athimulam et al., 2020), worsening of cardiovascular risk factors, and poor health-related quality of life (Ortiz et al. 2022).

2.3. Early Rising and Mechanism of the Human Body

2.3.1. Neurobehavioral Parameters

Time of awakening has shown to influence higher brain functions. For example, early morning awakening is strongly associated with depressive illness. A review study based on published depression prevalence research in urban populations in European and US centres represented that later rising from sleep is significantly correlated with increased depression. The physiologic basis for this finding was the theory of “Depressiogenic Theory of Sleep”, which posits that excessive REM sleep can cause depression. Given that the peak of REM propensity occurring in the morning, likely coupled to the time of sunrise, shortly after the nadir of the endogenous temperature rhythm. Thus, late sleepers will be at greater risk for depression, or for depressive symptoms such as fatigue or lack of energy, than early risers (Olders 2003). Another study reviewed antidepressant effects of light exposure of seasonal affective disorder (SAD) patients. SAD or winter depression is a particular seasonally recurrent mood disorder characterized by depression with onset recurrent in autumn or winter and spontaneous spring or summer remission. It is associated with hypersomnia, anergia, increased appetite, weight gain and carbohydrate craving. To treat the SAD, the most common procedure of phototherapy is to expose the patient during 2 hours early in the morning, between 06:00 and 09:00 AM (Sartori and Poirrier 1996). In addition, a series of recent studies identified waking up early can affect a number of health-related behaviours on the ability to remember and focus attention. According to the study done in Brigham Young University in Utah, wakeup times in morning had the strongest association with memory performance and top scores (Olders 2003). Similar

results are in line with the observations made in the above mentioned study, suggesting an improvement in both verbal and spatial memory task. An earlier study was concluded that waking up early in the morning influences the process of attention and can improve the ability to recall (Kumaran, Raghavendra and Manjunath 2012). The others showed better performance in the cognitive memory, vigilance tasks, auditory memory, visual reaction tests, vigilance, and alertness during early morning hours (Olders 2003).

2.3.2. Cardiovascular Events

Review of three studies carried out shows that the occurrence of acute myocardial infarction represents a diurnal variation, with the highest number of events in the morning. According to them, adverse cardiovascular events (CVE) are increasingly more intense in the early morning hours, especially between 6:00 and 10:00 or 12:00 am (Hirsch et al. 2011) (Viola, et al. 2015). An early study showed that the risk of having heart attack increased by almost in the early morning relative to the time of sunrise (Jozsef et al. 2009). Another study which compared early and late morning hours on brachial endothelial function and long-term cardiovascular events in healthy subjects found that flow-mediated dilation is blunted in early compared to late morning post-waking hours, and independently predicts long-term adverse cardiovascular events in healthy subjects with no apparent heart disease (Hirsch et al. 2011).

2.3.3. Endocrinology

Cortisol has been reported to influence metabolic, immune, muscle, and brain functions (Kelsall, Iqbal and Newell-Price 2020). According to the finding of an analysis, bright light exposure on peak cortisol levels in the early morning hours can acutely influence the human adrenal glands (Jung et al. 2010), more specifically, adrenal insufficiency or congenital adrenal hyperplasia (Chan and Debono 2010).

2.3.4. Autonomic Nervous System

There is also evidence that early rising can modify the autonomic nervous system by decrease levels of glucose via adequate duration of sleep. According to the result of research, compared with individuals who get up later, early risers have lower numbers and ratio of granulocytes and a higher ratio of lymphocytes showing parasympathetic nerve dominance. Early risers also showed higher levels of glucose and its related hormones than late risers, indicating sympathetic nerve dominance (Watanabe et al. 2013).

2.4. Qur'anic Perspective on Early Rising

The Sun is virtually the most important celestial phenomena in the Holy Qur'an so far as to be sworn by it:

By the Sun, And his (glorious) splendor¹ (Q. 91:1).

The Qur'an has great interest in some times of the day, including dawn time, reflecting that awakening of the human in this time is acknowledged to have a particular influence in human life and it is also believed to be good for his/her insight (Q. 20:130). There are several equivalents for the word "dawn" in the Qur'an such as *saḥar* (Q. 54:34),² *fajr* (Q. 89:1;³ 97:5⁴), *ṭulū' al-shams* (Q. 20:130; 50:39), *ṣubḥ* (Q. 74:34;⁵ 81:18⁶), *ghuduww* (Q. 24:36),⁷ *ghadāt* (Q. 6:52),⁸ *bukrah* (Q. 76:25),⁹ and *Ibkār* (Q. 3:41).¹⁰ The Qur'an has clear instructions for followers about wake-up time in the morning:

Therefore be patient with what they say, and celebrate (constantly) the praises of the Lord, before the rising of the sun, and before its setting; yea, celebrate them for part of the hours of the night, and at the sides of the day: that thou mayest have (spiritual) joy¹¹ (Q. 20:130).

Bear, then, with patience, all that they say, and celebrate the praises of thy Lord, before the rising of the sun and before (its) setting¹² (Q. 50:39).

Patiently, then, persevere: for the promise of Allah is true: and ask forgiveness for thy fault, and celebrate the praises of thy Lord in the evening and in the morning¹³ (Q. 40:55).

In some Qur'anic verses, dawn is considered as one of the times for the

1. «وَالشَّمْسِ وَضُحَاهَا» (الشمس/1)

2. «إِنَّا أَرْسَلْنَا عَلَيْهِمْ حَاصِبًا إِلَّا آلَ لُوطٍ نَّجَّيْنَاهُمْ بِسَحَرٍ» (القمر/34)

3. «وَالفَجْرِ» (الفجر/1)

4. «سَلَامٌ حَتَّىٰ مَطْلَعِ الْفَجْرِ» (القدر/5)

5. «وَ الصُّبْحِ إِذَا تَنَفَّسَ» (المدثر/34)

6. «وَ الصُّبْحِ إِذَا تَنَفَّسَ» (التكوير/18)

7. «... يَسْتَبِخُ لَهُ فِيهَا بِالْفُؤَادِ وَ الْأَصَالِ» (النور/36)

8. «وَ لَا تَطْرُدِ الَّذِينَ يَدْعُونَ رَبَّهُمْ بِالْغَدَاةِ وَ الْعِشِيِّ» (الانعام/52)

9. «وَإِذْ ذُكِرَ اسْمُ رَبِّكَ بُكْرَةً وَأَصِيلًا» (الانسان/25)

10. «... وَإِذْ ذُكِرَ رَبُّكَ كَثِيرًا وَ سَبِّحْ بِالْعِشِيِّ وَ الْإِبْكَارِ» (آل عمران/41)

11. «فَاضْبِرْ عَلَيَّ مَا يَقُولُونَ وَ سَبِّحْ بِحَمْدِ رَبِّكَ قَبْلَ طُلُوعِ الشَّمْسِ وَ قَبْلَ غُرُوبِهَا» (طه/130)

12. «فَاضْبِرْ عَلَيَّ مَا يَقُولُونَ وَ سَبِّحْ بِحَمْدِ رَبِّكَ قَبْلَ طُلُوعِ الشَّمْسِ وَ قَبْلَ الْغُرُوبِ» (ق/39)

13. «فَاضْبِرْ إِزْرًا وَ عِدَّةَ اللَّهِ حَقًّا وَ اسْتَغْفِرْ لِذَنبِكَ وَ سَبِّحْ بِحَمْدِ رَبِّكَ بِالْعِشِيِّ وَ الْإِبْكَارِ» (غافر/55)

forgiveness of God (Allah) such as following verses:

They were in the habit of sleeping but little by night, and in the hours of early dawn, they (were found) praying for forgiveness¹(Q. 51:17-18).

(Namely), those who say: our Lord! We have indeed believed: forgive us, then, our sins, and save us from the agony of the fire. Those who show patience, firmness and self-control; who are true (in word and deed); who worship devoutly; who spend (in the way of Allah); and who pray for forgiveness in the early hours of the morning² (Q. 3:16-17).

In some verses, believers are described who pray before sunrise:

And do thou (O reader) bring thy Lord to remembrance in thy (very) soul, with humility and in reverence, without loudness in words, in the mornings and evenings; and be not thou of those who are unheedful³(Q. 7:205).

Establish regular prayers- at the sun's decline till the darkness of the night, and the Morning Prayer and reading: for the prayer and reading in the morning carry their testimony⁴(Q. 17:78).

2.5. TPM Perspective on Early Rising

TPM is a medical doctrine, which is mainly grounded in six essential principles the so called *sittah ḍarūrīyah*. These core hygienic tenets are *al-ahwīyah* (environmental conditions), *al-aṭ'amah wa al-ashrabah* (water and food), *al-ḥarikah wa al-sukūn al-jismānī* (exercise and repose), *al-ḥarikah wa al-sukūn al-naḥsānī* (spiritual moods), *al-nawm wa al-yaqzah* (sleep and wakefulness), and *al-ihtibās wa al-istifrāgh* (retention and evacuations) (Haly Abbas 1968; Avicenna 2005, 1:31,113,217; Rhazes 2001). Within them, one of the most significant items is about adequate rest. There are certain rules of satisfactory sleeping and awakening in TPM for the whole times as well as during dawns (Rhazes 2001) (Haly Abbas 1968; al-Akhawynī Bukhārī 1992). In the literatures of TPM, the duration of astronomical twilight is called *bayn al-ṭulū'ayn* (the distance between beginning of twilight and sunrise) (Nāṣir al-Ḥukamā 2003). This is about one and a half hours before the sun comes up, depending on location and the time of year. In the Qur'anic ordinances, as mentioned, this indicates the beginning time of the Morning Prayer and praise of The Lord as well (Q. 17:78). There are also some reports about the importance of dawn in the

1. «كانوا قليلاً من الليل ما يهجعون وبالأشجار هم يستغفرون» (الذاريات/17-18)

2. «الذين يقولون ربنا إنا آمننا فأغفر لنا ذنوبنا وبقنا غداً النار الصابرين و الصادقين و العائنين و المتقين و المستغفرين بالأشجار» (آل عمران/16-17)

3. «و اذكر ربك في نفسك تضرعاً و خيفةً و دون الجهر من القول بالغدو و الاحمال و لا تكن من الغافلين» (الاعراف/205)

4. «أقم الصلاة لذلو الشمس إلى غسق الليل و قرآن الفجر إن قرآن الفجر كان مشهوداً» (الإسراء/78)

viewpoints of TPM sages in the context of TPM (al-Balkhī 2005). According to them, together with all things living in this world, humankind had better not sleep before raising the sun (Nāṣir al-Ḥukamā 2003; al-Balkhī 2005). In TPM perspective, it is clear that dawn is a healthy time of day (al-Ṭabarī 2002, 21, 397).

2.5.1. Prohibition of Sleep in TPM

There are three times that have been cited in TPM literatures to prohibit sleeping in a day:

- **'Aylūlah** is an equivalent word to dawn. This will be expanded upon in later chapter.
- **Faylūlah** appears to be similar to “dusk” moment. The word *faylūlah* is derived from the Arabic word *faylūlah*, which means fatality (‘Aqīlī 2006, 2:92). *Faylūlah* may indicate severe results from neurological disorders. In Persian medical literatures, this sector of day has been described as a cause of psycholepsy (Alikhan 1889; ‘Aqīlī 2006, 2:92; Arzānī n.d., 342; Shams al-dīn 2008, 1:151; al-Balkhī 2005, 442).
- **Haylūlah** is while “sunsetting”. This time has been defined as a “natural bar” or “barrier” between doing prayer and sleeping, during which there is an observable modification following phenomenal agents. According to Iranian sages, falling asleep within it can be caused amnesia (Shams al-dīn 2008, 1:151; Alikhan 1889, 126; Arzānī n.d., 342; ‘Aqīlī 2006, 2:92).

2.5.2. The Concept of 'Aylūlah

In TPM culture, some awakening times are encouraged based on the Qur'anic verses and recommendations of God (al-Ṭabarī 2002, 397). Thus, many Muslims get up early in the morning, particularly, before dawn. As Allah has described the people who wake up early tend to praise and to engage in prayer with this verse in the Qur'an:

They were in the habit of sleeping but little by night, and in the hours of early dawn, they (were found) praying for forgiveness¹(Q. 51:17-18).

There are some witnesses in TPM showing sleeping in dawn, especially on an empty stomach (Alikhan 1889, 126; Jurjānī 2002, 49; Jurjānī 1966,

1. «كَانُوا قَلِيلًا مِنَ اللَّيْلِ مَا يَهْجَعُونَ وَبِالْأَسْحَارِ هُمْ يَسْتَغْفِرُونَ» (الذاريات/17-18)

232; Arzānī n.d.; Jurjānī 2006, 3:477), are very unhealthy, and can be cause of chronic diseases (Shams al-dīn 2008, 1:151; ‘Aqīlī 2006, 2:92; Ibn Ilyās Shīrāzī n.d.). TPM sages believe that morning sleep not only has deleterious effects on the body; it can also influence human soul (al-Balkhī 2005, 180, 443).

According to one quotation by Abū Zayd al-Balkhī (d. 934 C.E.) in *Maṣāliḥ al-Abdān wa al-Anfus*, sleeping in the morning debilitates the body in addition to the spirit. It also can bring about a change in complexion (al-Balkhī 2005, 443).

Sayyed Ismā‘īl Jurjānī (d. 1136 C.E.) one of the most prominent pioneers in Dhakhīrah Khārazmshāhī believes that morning sleep may weaken the fleshly strength. He says that sleeping before the sun goes up can put the body at risk for exhaustion and powerlessness. The other consequence that is cited in Dhakhīrah Khārazmshāhī is cooling the human body. He believes that this is the time, during which the human body gives off heat. According to Jurjānī, emaciation is another bodily condition linked to being in a state of sleep at dawns. It may also cause to lose flesh so as to become very thin and to waste away physically (Jurjānī 2006, 3:477).

Another quotation narrated by Nāṣir al-Ḥukamā (the 19th century C.E.) in *Ḥifẓ Ṣiḥḥat* tells of harmful effects of falling asleep within dawns. He has focused on the link between sleep at dawns and mental illnesses that weaken the physical nerves. Nāṣir al-Ḥukamā emphasizes the importance of getting up this time to protect against psychiatric disorders including neurasthenia and chronic tension headache. He also states that morning awakening inhibits the laxation caused by coldness (Nāṣir al-Ḥukamā 2003, 1:176).

3. Discussion

The importance of early rising has been described in many well-known and popular proverbs such as:

- “The early bird catches the worm” (English)
- “Morgenstund’ hat Gold im Mund” (German)
- “早起きは三文の徳” (Japanese)
- “بَاكِرٌ تَسْعَدُ” (Arabic)
- “سحرخیز باش تا کامروا شوی” (Persian)
- “Chi dorme non piglia pesci” (Italian)
- “Al que madruga, Dios lo ayuda” (Mexican)

- “A quien madruga, Dios le ayuda” (Spanish)
- “Tko rano rani, dvije sreće grabi” (Croatian)
- “Kto rano wstaje, temu Pan Bóg daje” (Polish)

Yet other oft quoted saying are “Rise with the lark and with the lark to bed” (*Nicholas Breton*), “Early to bed, and early to rise, Makes a man healthy, wealthy, and wise” (*Benjamin Franklin*), and a habit of early rising is distinctly conducive to health, happiness, usefulness, and longevity (Hynes 1887). Again, we read of it in religions and spiritual traditions, and it has been practised in many cultures during the ages. Interestingly, the Holy Qur'an, the central religious text of Islam, advocates being awake in dawns primarily because it was a practice preferred by only those are believers (Q. 7:205; 17:78). It has also been a prescribed discipline of TPM as a medical doctrine of Iran (‘Aqīlī 2006, 2:92; Jurjānī 2006, 3:477).

TPM discusses the beneficial effects of early rising and emphasizes the importance of maintaining a pattern of wakefulness in this time (Rhazes 2001, 23:365; Haly Abbas 1968, 1:598; al-Akhawynī Bukhārī 1992, 178). According to basic principles of TPM, which is grounded in the concept of four humors *Sawdā'* (black bile= cold and dry temperament), *Ṣafrā'* (yellow bile=hot and dry temperament), *Balgham* (phlegm=cold and wet temperament), and *Dam* (blood= hot and wet temperament; Avicenna 2005, 1:217), sleep and wakefulness as one of the six essential principles, induces a dual quality in the body. Sleep includes coldness and wetness, and wakefulness hotness and wetness components. The longer the sleep, the colder it gets (Avicenna 2005, 1:217). According to this medical doctrine, due to domination of phlegm (Ibn al-Nafis 1872, 26), the air concentration (Rhazes 2001, 15:422) and decrease in human body temperature (*ḥarārah gharīzī*) at the beginning of the day and a state of complete coldness (Gīlānī 2008, 95), sleep can be harmful to health at this time (Shams al-dīn 2008, 1:151; ‘Aqīlī 2006, 2:92; Ibn Ilyās Shīrāzī n.d., 65).

From both perspectives of the Qur'an and TPM and a careful scrutiny of the result of modern science, there are some similarities with regard to encouraging early rising (Table 1). Scientific reports reveal that early rising has a profound effect on the biological, physical and mental powers of the human body. Researches have shown that waking up in the morning can acutely improves both verbal and spatial memory performance (Olders 2003), influences the process of attention and the ability to recall (Kumaran, Raghavendra and Manjunath 2012), enhances alertness and vigilance (Sartori and Poirrier 1996), improves adrenal gland function (Jung et al. 2010; Chan and Debono 2010) and cardiovascular system (Hirsch et al. 2011; Viola, et al. 2015; Jozsef et al. 2009), and also modifies autonomic

nervous system (Watanabe et al. 2013). Also, research into the body temperature circadian rhythm has shown that daily time of minimum temperature parallels sunrise times (Coiffard et al. 2021), which can result in neurologic dysfunction, metabolic disorders, and pose a threat to life (Gomez 2014).

Table 1. Some evidence-based studies on the influences of early rising which could associate with TPM reports.

| Traditional name of disease | Equal conventional name of disease | Result of the studies |
|--|--|---|
| <i>sustī</i> (Jurjānī 2006, 3:477) | weakness the fleshly strength | Fatigue/ lack of energy (Olders 2003) |
| <i>sardī</i> (Jurjānī 2006, 3:477) | coolness the human body | -- |
| <i>takāthur</i> (Jurjānī 2006, 3:477) | exhaustion | Fatigue/ lack of energy (Olders 2003) |
| <i>nāṭawānī</i> (Jurjānī 2006, 3:477) | powerlessness | Fatigue/ lack of energy (Olders 2003) |
| <i>khushkī</i> (Jurjānī 2006, 3:477) | emaciation/ wasting physically | -- |
| <i>ḍa'f-e a'ṣāb</i> (Nāṣir al-Ḥukamā 2003, 1:176) | weakness the physical nerves/ neurasthenia | depression (Olders 2003; Sartori and Poirrier 1996) |
| <i>ḍa'f-e badan</i> (Nāṣir al-Ḥukamā 2003, 1:176) | giving off the off power | Fatigue/ lack of energy (Olders 2003) |
| <i>sangīnī-e sar</i> (Nāṣir al-Ḥukamā 2003, 1:176) | chronic tension headache | -- |
| <i>kāhīlī</i> (Nāṣir al-Ḥukamā 2003, 1:176) | laxation | ability to remember/ focus attention/ memory performance (Olders 2003; Kumaran, Raghavendra and Manjunath 2012) |
| <i>tanbalī</i> (Nāṣir al-Ḥukamā 2003, 1:176) | laziness | -- |

7. Conclusion

According to the findings mentioned in this article from perspectives of the Holy Qur'an and TPM, can be understood the special consideration for being awake in dawns from spiritual and physical aspects. The advocacy of early rising, which is seen as a hygienic recommendation in the Holy Qur'an and TPM, actually is supported by health psychology perspective. It significantly is related to the field of pathophysiology, and has positive effects on neurobehavioral parameters, cardiovascular events, endocrinology, and autonomic nervous system. Thus, being awake in the time of sunrise can be widely practised to normal population and especially for those lacking physical, mental and social well-being health.

Acknowledgements

The authors wish to thank Mr. Tavala Safari, and Mr. Hasan Kommar researchers in Persian medicine and pharmacy research center of Tehran University of Medical Sciences, and also Dr Mohammad Mahdi Parvizi MD. PhD in molecular dermatology research center of Shiraz University of Medical Sciences, for their positive advices.

References

- Agapitov, AV. and Haynes, WG. (2002). Role of endothelin in cardiovascular disease. *Journal of the renin-angiotensin-aldosterone system: JRAAS*, 3(1), 1-15. <http://dx.doi.org/10.3317/jraas.2002.001>
- Al-Akhawynī Bukhārī, Rabī' ibn Aḥmad (1992). *Hidāyah al-Muta'allimīn fī al-Ṭibb*, Mashhad: Mashhad University of Medical Sciences.
- Al-Balkhī, Abū Zayd (2005). *Maṣāliḥ al-Abdān wa al-Anfus*. Cairo: Makhtutat al-Arabiyyah.
- Alikhan, Wajid (1889). *ʿIlm al-Abdān*. Lucknow: Munshi Newal Kishore.
- Al-Ṭabarī, Alī ibn Sahl Rabban (2002). *Firdaws al-ḥikmah*. Beirut: Dār al-kutub al-ʿilmīyah.
- ʿAqīlī Khurāsānī Shīrāzī, M.H. (2006). *Khulāṣah al-ḥikmah*. Qom: Ismailian.
- Arzānī, Muḥammad Akbar (n.d.). *Mufarriḥ al-Qulūb*. Lahore: Eslamiah.
- Athimulam, S., Delivanis, D., Thomas, M., Young Jr, W.F., Khosla, S., Drake, M.T. & Bancos, I. (2020). The impact of mild autonomous cortisol secretion on bone turnover markers. *The Journal of Clinical Endocrinology & Metabolism*, 105(5), 1469-1477. <http://dx.doi.org/10.1210/clinem/dgaa120>

- Avicenna (2005). *The Canon of Medicine*. Beirut: Dār al-Iḥyā' al-Turāth al-‘Arabī.
- Chan, S. and Debono, M. (2010). Replication of cortisol circadian rhythm: new advances in hydrocortisone replacement therapy. *Therapeutic advances in endocrinology and metabolism*, 1(3), 129-138. <http://dx.doi.org/10.1177/2042018810380214>
- Coiffard, B., Diallo, A.B., Mezouar, S., Leone, M. & Mege, J.L. (2021). A tangled threesome: circadian rhythm, body temperature variations, and the immune system, *Biology*, 10(1), 65. <http://dx.doi.org/10.3390/biology10010065>
- De Nys, L., Anderson, K., Ofosu, E.F., Ryde, G.C., Connelly, J. and Whittaker, A.C. (2022). The effects of physical activity on cortisol and sleep: A systematic review and meta-analysis. *Psychoneuroendocrinology*, 105843. <http://dx.doi.org/10.1016/j.psyneuen.2022.105843>
- Douma, L.G., Barral D., and Gumz, M.L. (2021). Interplay of the Circadian Clock and Endothelin System. *Physiology (Bethesda)*, 36(1), 35-43. <http://dx.doi.org/10.1152/physiol.00021.2020>
- Eliasson, A.H., Lettieri, C.J. and Eliasson, A.H. (2010). Early to bed, early to rise! Sleep habits and academic performance in college students. *Sleep and Breathing*, 14, 71-75. <https://doi.org/10.1007/s11325-009-0282-2>
- Gilānī, Ḥabīb Mutatabib (2008). *Alwāḥ al-ṣiḥḥah*. Tehran: Iran University of Medical Sciences.
- Gomez, C.R. (2014). Disorders of body temperature. *Handbook of clinical neurology*, 120, 947-957.
- Haly Abbas, Ali ibn ‘Abbās Majūsī (1968). *Kāmil al-Ṣinā‘ah*. Qom: Jalaledin.
- Hirsch, L., Shechter, A., Feinberg, M.S., Koren-Morag, N. and Shechter, M. (2011). The impact of early compared to late morning hours on brachial endothelial function and long-term cardiovascular events in healthy subjects with no apparent coronary heart disease. *International journal of cardiology*, 151(3), 342-347. <http://dx.doi.org/10.1016/j.ijcard.2010.08.069>
- Hynes, Mrs. (1887). Early Rising: Cheerful Health, *The Hospital*, 2(29), 46.
- Ibn al-Nafis, ‘Alī ibn Abī Ḥazm al-Qarashī (1872). *Al-Mūjiz fī al-Ṭibb*. ed. Mawlānā Muhammad Abdel Halim. India, Kānpūr: Dār Maṭba‘ Nizāmī.
- Ibn Ilyās Shīrāzī, Maḥmūd (n.d.). *Ghīyāthīyah*, Qom: Iḥyā’ Ṭibb Ṭabī‘ī.
- Jozsef, B., Miklos, K., Imre, B. and Ildiko, K. (2009). Time of sunrise and hours with daylight may have an effect on the seasonality and diurnal variation of heart attack. *Chinese medical journal*, 122(18), 2107-2110. [http://dx.doi.org/10.1016/s1098-3015\(10\)66319-x](http://dx.doi.org/10.1016/s1098-3015(10)66319-x)
- Jung, C.M., Khalsa, S.B.S., Scheer, F.A., Cajochen, C., Lockley, S.W., Czeisler, C.A. and Wright Jr, K.P. (2010). Acute effects of bright light exposure on cortisol levels. *Journal of biological rhythms*, 25(3), 208-216. <http://dx.doi.org/10.1177/0748730410368413>

- Jurjānī, Sayyed Ismā'īl (1966). *Al-Aghrād al-Ṭjibbīyah*. Tehran: Bonyad Farhang Iran.
- Jurjānī, Sayyed Ismā'īl (2002). *Yādigār*. Tehran: Institute of Islamic Studies.
- Jurjānī, Sayyed Ismā'īl (2006). *Dhakhīrih Khārazmshāhī*. Qom: Ihyā' Ṭibb Ṭabī'ī.
- Kelsall, A., Iqbal, A. and Newell-Price, J. (2020). Adrenal incidentaloma: cardiovascular and metabolic effects of mild cortisol excess. *Gland surgery*, 9(1), 94. <http://dx.doi.org/10.21037/g.s.2019.11.19>
- Ken-Kwofie, J.S. (2021). *The Physiology of the Circadian Rhythm*. U.S.: Gettysburg College.
- Kjellbom, M., Lindgren, A., Puvaneswaralingam, O., Löndahl, S. and Olsen, H. (2021). Association between mortality and levels of autonomous cortisol secretion by adrenal incidentalomas: a cohort study. *Annals of internal medicine*, 174(8), 1041-1049. <http://dx.doi.org/10.7326/m20-7946>
- Kumaran, V.S., Raghavendra, B.R. and Manjunath, N.K. (2012). Influence of early rising on performance in tasks requiring attention and memory. *Indian J Physiol Pharmacol*, 56(377), e44.
- Logan, RW and McClung, CA. (2019). Rhythms of life: circadian disruption and brain disorders across the lifespan. *Nature reviews Neuroscience*, 20(1). <http://dx.doi.org/10.1038/s41583-018-0088-y>
- Miyauchi, T. and Sakai, S. (2019). Endothelin and the heart in health and diseases. *Peptides*, 111.
- Narváez-Rojas, AR. et al. (2020). *Physiology of the Pineal Gland*. Springer.
- Nāṣir al-Ḥukamā, Mīrza Ali Khān (2003). *Ḥifẓ Ṣiḥḥat*. Tehran: Iran University of Medical Science.
- Olders, H. (2003). Average sunrise time predicts depression prevalence. *Journal of psychosomatic research*, 55(2). [http://dx.doi.org/10.1016/s0022-3999\(02\)00479-8](http://dx.doi.org/10.1016/s0022-3999(02)00479-8)
- Ortiz, R., Kluwe, B., Lazarus, S., Teruel, M.N. and Joseph, J.J. (2022). Cortisol and cardiometabolic disease: a target for advancing health equity. *Cortisol and cardiometabolic disease: a target for advancing health equity*, 33(11). <http://dx.doi.org/10.1016/j.tem.2022.08.002>
- Reid, K. J. (2019). Assessment of circadian rhythms. *Neurologic clinics*, 37(3).
- Reiter, R.J., Rosales-Corral, S. and Sharma, R. (2020). Circadian disruption, melatonin rhythm perturbations and their contributions to chaotic physiology. *Advances in medical sciences*, 65(2), 394-402. <https://doi.org/10.1016/j.advms.2020.07.001>
- Rhazes, Abū Bakr al-Rāzī (2001). *Kitāb al-Ḥāwī fī al-Ṭibb*, Beirut: Dār al-Ihyā' al-Turāth al-'Arabī.

- Richards, J. and Gumz, ML. (2012). Advances in understanding the peripheral circadian clocks. *FASEB journal: official publication of the Federation of American Societies for Experimental Biology*, 26(9), 3602-3613. <http://dx.doi.org/10.1096/fj.12-203554>
- Rivera, AM. and Huberman, AD. (2020). Neuroscience: A Chromatic Retinal Circuit Encodes Sunrise and Sunset for the Brain. *Current Biology*, 30(7), 316-318. <http://dx.doi.org/10.1016/j.cub.2020.02.090>
- Samanta, S. (2020). Physiological and pharmacological perspectives of melatonin. *Archives of physiology and biochemistry*, 128(5), 1346-1367. <https://doi.org/10.1080/13813455.2020.1770799>
- Sartori, S. and Poirrier, R. (1996). Seasonal affective syndrome and phototherapy: theoretical concepts and clinical applications. *L'encephale*, 22(1), 7-16.
- Serin, Y. and Tek, N.A. (2019). Effect of circadian rhythm on metabolic processes and the regulation of energy balance. *Annals of Nutrition and Metabolism*, 74(4), 322-330. <http://dx.doi.org/10.1159/000500071>
- Shams al-dīn, Ahmad, (2008). *Khazā'in al-Mulūk*. Tehran: Iran University of Medical Sciences.
- Sieck, G.C. (2021). Physiology in Perspective: The Rhythm of Life-Circadian Patterns in Physiology. *Physiology*, 36. <http://dx.doi.org/10.1152/physiol.00041.2020>
- Thau, L., Gandhi, J. and Sharma, S. (2021). *Physiology, cortisol*. Treasure Island (FL): StatPearls Publishing.
- Van Wamelen, D.J., Wan, Y.M., Chaudhuri, K.R. and Jenner, P. (2020). Stress and cortisol in Parkinson's disease. *International Review of Neurobiology*, 152, 131-156. <http://dx.doi.org/10.1016/bs.irn.2020.01.005>
- Viola, A.U., Gabel, V., Chellappa, S.L., Schmidt, C., Hommes, V., Tobaldini, E., Montano, N. and Cajochen, C. (2015). Dawn simulation light: a potential cardiac events protector. *Sleep medicine*, 16(4), 457-461. <https://doi.org/10.1016/j.sleep.2014.12.016>
- Watanabe, M., Ling, Y., Tomiyama, C., Adachi, K., Mori, H., Nishijo, K., Abo, T. and Akazawa, K. (2013). Can the early bird catch the worm? Effects of early rising on leukocyte subsets via modification of autonomic nervous system and the effect on glucose levels. *Natural Science*, 5(11), 1133. <https://doi.org/10.4236/ns.2013.511139>
- Yusuf Ali, Abdullah (1938). *The Holy Qur'an: Arabic text with English translation and commentary*. Lahore: Shaikh Muhammad Ashraf.