

# 5G Radiation and Menstrual Health: A Unani Perspective on Its Impact

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**Abstract:** *The Advent of 5G Networks and Their Potential Impact on Menstrual Health: As the world embraces the transformative power of 5G technology, concerns and questions about its potential impact on human health continue to rise. One of the emerging areas of focus is its implications for menstrual health. While research into the effects of 5G radiation is still in its infancy, understanding the intersection between this cutting - edge technology and women's health is crucial. Radio Frequency Electromagnetic Fields (RF - EMFs), emitted by wireless communication technologies like mobile phones, Wi - Fi, and 5G, are a growing concern due to their potential biological effects. Despite the numerous benefits these technologies bring, research suggests that prolonged exposure to RF - EMFs might have harmful consequences, particularly on sensitive systems such as the hypothalamic - pituitary axis and reproductive health. The Unani system of medicine, a holistic approach rooted in ancient Greek philosophy, provides a unique perspective on these impacts. Unani medicine emphasizes the balance of four humors—blood, phlegm, yellow bile, and black bile—and their role in maintaining health. This paper explores the intersection of RF - EMFs and Unani principles, focusing on how RF - EMF exposure could influence menstrual health through hormonal disruption, oxidative stress, and sleep disturbances. It also examines how Unani theories of temperament (Mizaj) and humoral balance (Akhlat) might offer a framework for understanding these effects, especially in relation to hormonal and reproductive health. By integrating modern scientific research with Unani insights, this article provides a comprehensive view of the potential health risks posed by RF - EMFs and the role of traditional medicine in addressing them.*

**Keywords:** Radio Frequency Electromagnetic Fields (RF - EMFs), Menstrual Health, Unani Medicine, *Temperament (Mizaj)*, Humoral balance (*Akhlat*).

## 1. Introduction to RF - EMF and Unani Medicine

Radio Frequency Electromagnetic Fields (RF - EMFs) are a type of non - ionizing radiation emitted by wireless communication devices and infrastructure, including mobile phones, Wi - Fi networks, and now 5G technology. While these advancements bring significant benefits, there is growing concern about their potential biological effects, particularly on sensitive systems like the hypothalamic - pituitary axis and reproductive health. A systematic review was done To evaluate the effect of RF - EMF exposure on male fertility of experimental mammals and on human sperm exposed in vitro it suggested RF - EMF exposure within the frequency range of 100 kHz - 300 GHz, including electromagnetic pulses (EMP), is one of the following indicators of reproductive system impairment, decrease of fertility: rate of infertile males, rate of non - pregnant females, litter size and in vitro fertilization rate; effects on semen quality: in animal studies sperm count, in both animal and in vitro studies sperm vitality, morphology and DNA/chromatin alterations; reproductive organ toxicity: testis - epididymis weight, testis or epididymis histology, testis histo morphometry, testicular cell death, estimated testicular cell production; hormonal effects: testosterone level.<sup>15</sup>

The Unani system of medicine, rooted in ancient Greek provides a holistic approach to understanding and managing health. Unani medicine emphasizes the balance of four humors—blood (*dam*), phlegm (*balgham*), yellow bile (*saфра*), and black bile (*sauda*)—and their role in maintaining physical and mental well - being. The integration of Unani

principles offers a unique lens through which the impacts of RF - EMFs on human health can be explored, particularly concerning hormonal and reproductive health.

### a) Understanding 5G Technology

5G networks are the fifth generation of wireless communication technology, designed to provide faster speeds, lower latency, and greater connectivity than its predecessors. This advancement is achieved through the use of higher frequency electromagnetic waves, known as millimeter waves, in addition to existing radiofrequency (RF) bands. While these waves enable unparalleled technological benefits, they also bring up concerns about increased exposure to electromagnetic fields (EMFs).

### b) The Role of EMFs in Health

Electromagnetic fields are not new to human exposure; they are present in everything from household appliances to Wi - Fi networks. However, the higher frequency and densification of 5G infrastructure mean more prolonged and widespread exposure. Scientific studies on EMFs have indicated potential biological effects, including oxidative stress, cellular damage, and disruptions in circadian rhythms.

### c) Menstrual Health: A Sensitive Indicator

Menstrual health is influenced by a complex interplay of hormonal, environmental, and lifestyle factors. The hypothalamic - pituitary - ovarian (HPO) axis, which regulates menstrual cycles, is particularly sensitive to external stressors, including environmental toxins and lifestyle changes. Emerging research has started exploring how EMFs might influence this delicate balance.

### 1.1 Potential Impacts of 5G on Menstrual Health:

**Hormonal Disruption:** Studies have suggested that prolonged exposure to EMFs may influence the secretion of melatonin and other hormones, potentially impacting menstrual cycle regularity and severity. Prolonged exposure to EMFs may impact hormonal balance, particularly affecting the hypothalamic - pituitary axis, which regulates stress, sleep, and reproductive hormones. Effects on melatonin secretion and cortisol levels have been noted in some studies.<sup>4</sup>

**Oxidative Stress:** Increased EMF exposure could lead to heightened oxidative stress, a condition linked to inflammation and pain, potentially exacerbating menstrual discomfort or conditions like endometriosis. RF - EMF exposure may increase the production of reactive oxygen species (ROS), causing oxidative stress that leads to cellular damage. Research indicates that prolonged EMF exposure could lead to DNA strand breaks and altered cell functions, potentially causing chronic health issues.<sup>3</sup>

**Sleep Disturbances:** The sleep - regulating hormone melatonin can be affected by EMFs, and poor sleep is known to aggravate premenstrual symptoms such as fatigue and mood swings.

**Psychological Stress:** Continuous connectivity and the pressures of a digitally enhanced lifestyle, facilitated by 5G, may contribute to increased psychological stress, which can further disrupt menstrual health. Disruption in circadian rhythms and increased stress levels due to RF - EMF exposure can lead to sleep disorders, anxiety, and depression. RF exposure has been associated with altered sleep architecture and stress hormone regulation<sup>5</sup>.

### 1.2 Insights from the Unani System of Medicine

A holistic approach to health is provided by the Unani medical system, a historic therapeutic method with roots in ancient Greek customs. The balance of the four humors—blood (*dam*), phlegm (*balgham*), yellow bile (*safra*), and black bile (*sauda*)—determines health, according to Unani teachings. Disease may result from any disruption in this equilibrium.

According to Unani theory, electromagnetic fields (EMFs) and the stress they cause to the body might be viewed as elements that upset the humors' balance, especially influencing the hormonal and neurological systems. The Unani method places a strong emphasis on preserving temperamental balance (*mizaj*) and getting rid of toxins (*fasad*) that could harm the reproductive system in order to promote menstrual health. The brain is essential, especially the pituitary gland.

In this classical text, "*Al - Qanun fi al - Tibb*" (The Canon of Medicine) Ibn Sina discusses the concept of menstruation and its relationship with the four humors. He also describes the symptoms and treatment of various menstrual disorders<sup>1</sup>. "*Kitab al - Hawi*" (The Comprehensive Book) by Rhazes (Al - Razi) In this text, Rhazes discusses the causes and symptoms of menstrual disorders, including amenorrhea, dysmenorrhea,

and menorrhagia. He also provides treatment options using Unani medicinal herbs and other natural remedies.<sup>2</sup>

### 1.3 Theoretical Framework: *Mizaj*, *Akhlat*, and RF - EMF

Unani medicine does describe the concept of "external influences" (such as environmental factors, lifestyle, and diet) that can affect an individual's *Mizaj* and *Akhlat*. It's possible to extrapolate that RF - EMF, as an environmental factor, could potentially influence *Mizaj* and *Akhlat*.

RF - EMF exposure → disrupts natural bodily rhythms → alters *Mizaj* (temperament) balance → affects *Akhlat* (humor) production and circulation → leads to menstrual irregularities, mood disturbances, and other health issues.

### 1.4 The Role of Heat (*Hararat*) in RF - EMF - Induced *Mizaj* Imbalance

RF - EMF exposure → Increases heat (*hararat*) in the body → disrupts *Mizaj* balance, leading to an excess of hot and dry qualities

- Alters *Akhlat* production and circulation, particularly affecting the balance of *Dam* (blood) and *Balgham* (phlegm)
- Impacts the functioning of the liver, uterus, and other reproductive organs, leading to menstrual irregularities, fertility issues, and other hormonal imbalances
- Affects the nervous system, leading to mood disturbances, anxiety, and insomnia
- Increases oxidative stress and inflammation, potentially leading to chronic diseases such as cancer, diabetes, and cardiovascular disease.

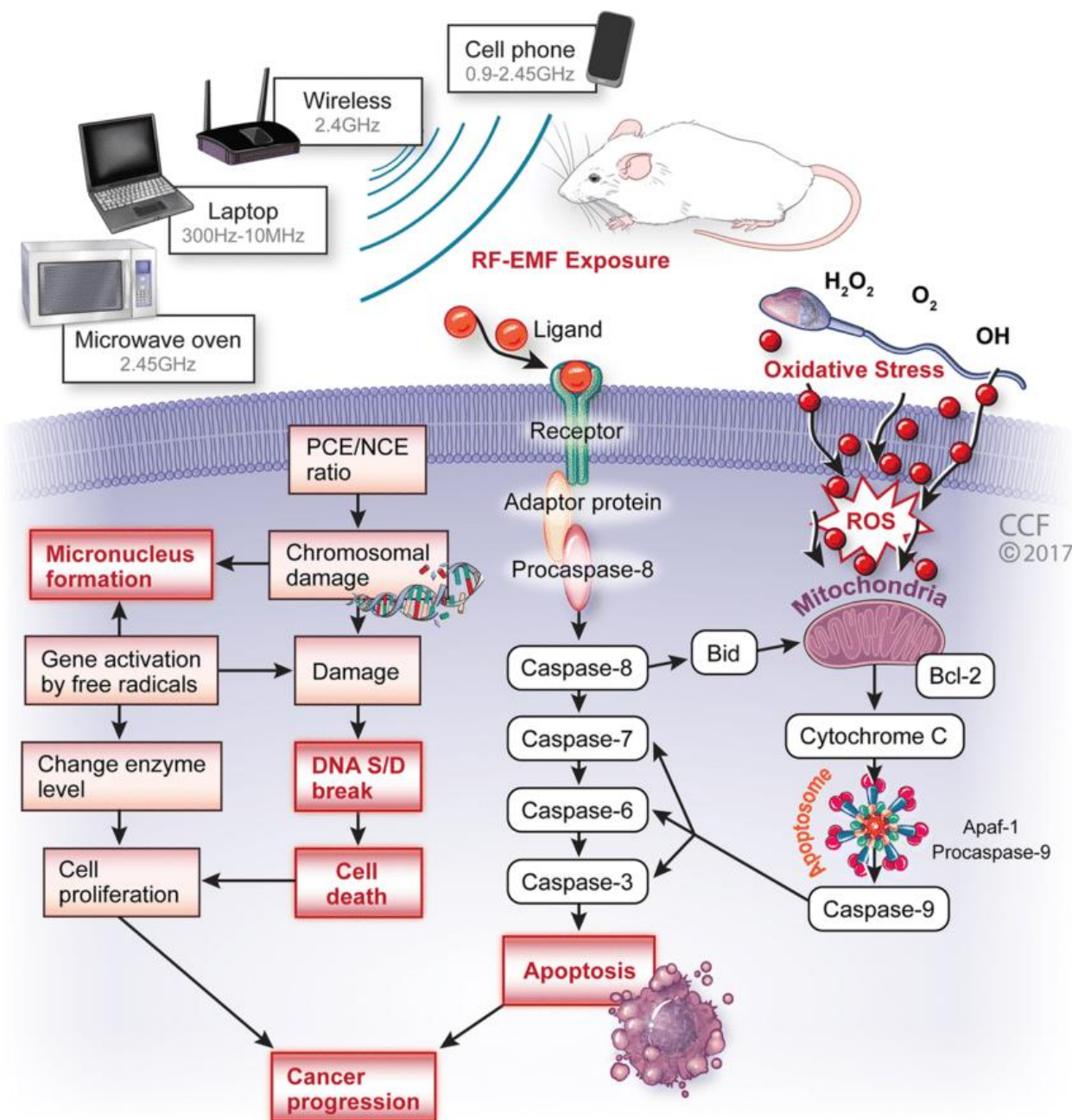
### 1.5 Theory to correlation of Heat Production Due to RF - EMF and HPO axis

One of the primary hypothesized mechanisms by which RF - EMFs influence biological tissues is through heat production. When electromagnetic waves penetrate the body, they interact with biological molecules, particularly water. This interaction results in the generation of thermal energy, leading to localized heating effects. While the body has natural mechanisms to dissipate heat, prolonged exposure to RF - EMFs may overwhelm these systems, potentially causing adverse effects.

#### Mechanisms:

- 1) **Dielectric Heating:** RF - EMFs cause polar molecules, such as water, to oscillate rapidly. This oscillation generates heat, particularly in tissues with high water content.
- 2) **Thermal Stress Response:** The heat generated by RF - EMFs may activate stress response pathways, including the production of heat - shock proteins. These proteins attempt to protect cells but may also indicate cellular stress.<sup>7, 8</sup>
  - **Neuronal Effects:** Excessive heat may disrupt the blood - brain barrier or interfere with neural signaling.
  - **Hormonal Disruption:** Heating effects near the hypothalamus - pituitary axis could potentially affect hormonal regulation.

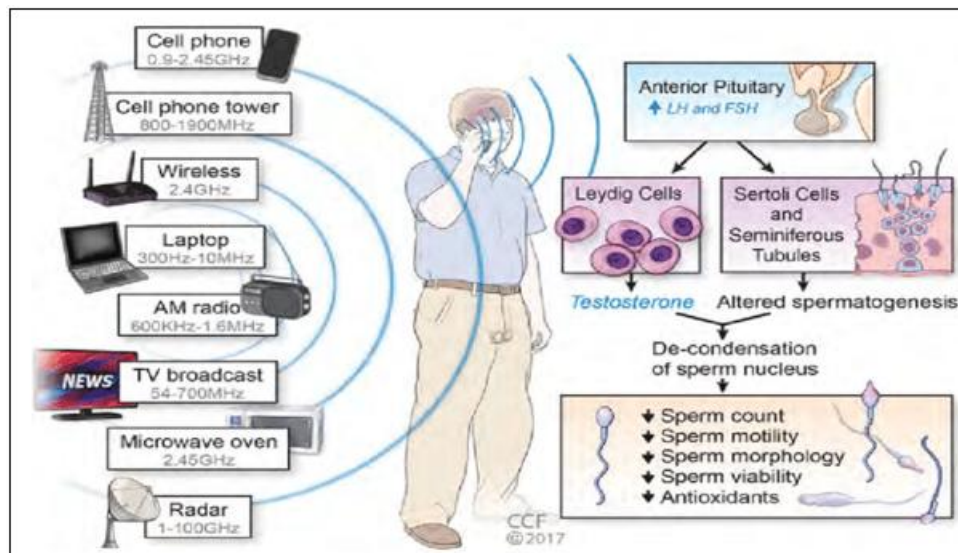
RF - EMFs may impair fertility by affecting sperm motility, reducing ovarian function, or disrupting fetal development during pregnancy. Animal studies have shown reduced sperm quality and increased miscarriage rates with high EMF exposure.<sup>6</sup>



### 1.6 Summary of Studies on RF - EMF and Female Reproductive Health

- **High - Frequency EMF Exposure (2008):** Exposure to HF - EMF (25 - 30 MHz) in female workers led to higher rates of menstrual disorders and menorrhagia, along with lower progesterone levels, though other reproductive hormones (E2, LH, FSH) showed no significant differences.<sup>9</sup>
- **Influence of RF - EMF on Reproductive Health (2024):** A review found RF - EMF exposure linked to menstrual disorders, toxicosis, premature birth, and miscarriages, with evidence from both clinical and animal studies suggesting harmful effects on female reproduction.<sup>10</sup>
- **Intermediate Frequency EMF Exposure (2022):** Studies on IF - EMF showed conflicting results, with some suggesting harmful effects on reproduction, while others found no significant impact, indicating the need for further research.<sup>11</sup>
- **Power Frequency EMF Exposure (2017):** Power frequency EMF exposure showed mixed effects on reproductive health, with some studies indicating negative impacts on hormones, pregnancy, and fetal development, while others found no significant effects.<sup>12</sup>
- **EMF Effects on Reproduction (2008):** EMF exposure affects reproductive health by altering hormone levels, reproductive organ function, and fertility, potentially due to changes in cellular processes like oxidative stress.<sup>13</sup>
- **1800 MHz RF - EMF Exposure in Rats (2015):** Exposure to 1800 MHz RF - EMF in rats decreased ovarian follicle count, fertility, and disrupted hormone levels, suggesting the impact of oxidative stress.<sup>14</sup>





### 1) Traditional Unani Approaches to Mitigating RF - EMF Effects

A holistic and age-old medicinal system founded on the harmony of the four humors—blood, phlegm, yellow bile, and black bile—Unani medicine provides a distinctive viewpoint on how to deal with the possible adverse effects of radiofrequency electromagnetic fields (RF - EMFs). Unani principles state that illness can result from disturbances in the body's natural balance, which can be upset by environmental causes including exposure to radiofrequency electromagnetic fields.

Unani medicine emphasizes the importance of maintaining a harmonious balance of the body's temperaments (*Mizaj*), which includes hot, cold, wet, and dry qualities. RF - EMFs are believed to potentially alter this balance, particularly increasing heat (*Hararat*) in the body. Unani practices focus on restoring this equilibrium through:

- **Herbal Remedies:** Specific herbs are used to counteract excess heat and restore balance. For example, herbs like *Ustukhudus* (*Lavandula*), *Chamomile* (*Matricaria chamomilla*), and *Mint* (*Mentha*) are believed to have cooling properties that may help reduce heat generated by RF - EMFs.
- **Dietary Modifications:** Foods with cooling properties, such as cucumbers, dairy, and fruits like pomegranates and melons, can be recommended to counterbalance the heating effects of RF - EMF exposure.

### 2) Detoxification and Reducing Fasad (Toxins)

Unani medicine believes that exposure to environmental stressors, like RF - EMFs, leads to the accumulation of toxins (*Fasad*) in the body. Detoxification To remove these toxins and improve overall health. Common methods include:

- **Phytotherapy:** herbs like *Senna* (*Cassia angustifolia*) and *Neem* (*Azadirachta indica*) can be used for detoxification. These herbs help cleanse the liver, kidneys, and digestive system, which in turn helps the body process and eliminate toxins.
- **Hijama (Cupping Therapy):** This therapy involves creating a vacuum on the skin to improve blood circulation and remove toxins from the body. It is believed it can reduce the internal heat caused by RF - EMF exposure and help restore harmony.

### 3) Strengthening the Reproductive System

Given the potential impacts of RF - EMF on reproductive health, Unani medicine emphasizes strengthening the reproductive organs and balancing hormonal levels. This is achieved through:

- **Herbal Formulations:** Herbs such as *Satavar* (*Asparagus racemosus*) and *Damiana* (*Turnera diffusa*) are used in to support the reproductive system, improve fertility, and regulate menstrual cycles.
- **Gulqand (Rose Petal Preserve):** This traditional remedy, made from rose petals, sugar, and other cooling ingredients, is known for its rejuvenating properties, particularly for women's reproductive health. It is often used to address menstrual disorders and hormonal imbalances caused by external stressors.

### 4) Regulating Sleep and Reducing Psychological Stress

Unani medicine recognizes the significant link between mental and physical health. Psychological stress and poor sleep, which can be exacerbated by RF - EMF exposure, are addressed through:

- **Herbal Remedies:** Herbs such as *Valerian* (*Valeriana officinalis*) and *Asgandh* (*Withania somnifera*) are used to calm the nervous system, reduce stress, and improve sleep quality, thus helping mitigate the effects of EMF - induced disturbances in the body.
- **Lifestyle Adjustments:** The Unani approach also emphasizes mindfulness practices, rest, and balanced activity to regulate the body's rhythms, promote relaxation, and help counter the adverse effects of continuous exposure to RF - EMFs.

### 5) Regulating Blood Circulation and Hormonal Balance

Since RF - EMF exposure may interfere with hormonal regulation, especially in the hypothalamic - pituitary - gonadal (HPG) axis, Unani therapies focus on improving circulation and restoring hormonal balance:

- **Massage and Oil Therapy:** Unani practitioners often use special oils, such as *Olive oil* and *Mustard oil*, for massages that improve circulation and promote overall wellness. Regular oiling and massage can help balance body temperature and reduce the stresses caused by EMF exposure.

- **Saffron and Honey:** A mixture of saffron and honey is recommended for its properties in enhancing vitality, regulating menstrual cycles, and balancing hormones, especially for women experiencing hormonal imbalances due to EMF exposure.
- Ensure proper sleep, as disruptions to circadian rhythms caused by EMFs can be alleviated with healthy sleep hygiene. By incorporating these measures, individuals can reduce their exposure to 5G RF - EMF and contribute to their overall well - being.

### 1.7 Measures to Avoid 5G RF - EMF Exposure

To minimize exposure to 5G Radio Frequency Electromagnetic Fields (RF - EMF), consider the following practical steps:

#### 1) Limit Mobile Phone Usage:

- Use hands - free devices, such as earphones or Bluetooth, to avoid holding the phone directly to your ear.
- Keep mobile phones at a distance, such as placing them on a desk or in a bag, rather than carrying them in pockets close to the body.

#### 2) Reduce Screen Time:

- Avoid prolonged use of mobile phones, especially for activities like gaming or video streaming that require higher power consumption.
- Use devices with Wi - Fi or Bluetooth instead of cellular data when possible.

#### 3) Use Airplane Mode:

- Enable airplane mode when not using your phone to prevent continuous EMF emissions, especially during sleep.

#### 4) Distance from 5G Towers:

- Stay aware of the location of 5G infrastructure (towers and antennas) and avoid frequent exposure near these sources.
- When possible, avoid living or working near high - density 5G antennas, especially if they are located on rooftops or in close proximity.

#### 5) Limit Use of Wireless Devices:

- Minimize use of Wi - Fi - enabled devices like smart home appliances, routers, and wireless speakers, especially during sleep.
- Use wired connections (Ethernet) whenever possible, and turn off Wi - Fi routers when not in use.

#### 6) Reduce Exposure While Sleeping:

- Keep mobile phones, routers, and other wireless devices away from the bedroom.
- Consider using EMF shielding devices or materials for added protection, such as EMF - blocking curtains or phone pouches.

#### 7) Choose EMF - Reducing Products:

- Invest in EMF shielding accessories such as phone cases, laptop shields, or clothing that can block RF - EMF radiation.
- Some companies offer EMF protection products like radiation - blocking covers for 5G - enabled devices.

#### 8) Strengthen Immunity and General Health:

- Engage in practices that promote general health and well - being, such as exercise, a balanced diet, and stress management, to help mitigate the potential adverse effects of EMF exposure.

## 2. Conclusion

The potential risks associated with exposure to RF - EMFs, particularly concerning reproductive health and menstrual disorders in women. The prolonged RF - EMF exposure may lead to hormonal imbalances, menstrual irregularities, and other reproductive health issues. Unani medicine offers a holistic approach to counteracting these effects, with potential therapeutic strategies that could complement modern healthcare practices. However, more research is needed to fully understand the scope of RF - EMF's impact and the efficacy of Unani treatments in mitigating these effects.

## 3. Future Perspectives

Future research should prioritize long - term studies on the health impacts of RF - EMFs, especially for vulnerable populations. The integration of traditional medicine, like Unani, in managing EMF - related risks needs further exploration. Stricter exposure guidelines must be established by regulatory bodies, alongside increased public awareness. Additionally, the development of EMF shielding devices and health - conscious innovations in wireless technologies should be pursued.

## References

- [1] Rayees S, Bu Ali Sena. Al - Qanoon Fi - Tib. Vol.2. New Delhi: SH Offset Press; 2008. p.431-4.
- [2] Razi AB. Kitab al - Hawi fi'l Tib. Vol IX. New Delhi, India: Central Council of Research in Unani Medicine; 2001.
- [3] Yakymenko I, Sidorik E, Kyrlyenko S, Chekhun V. Electromagnetic radiation causes various neuropsychiatric effects and cancerous outcomes. *Electromagn Biol Med.*2015; 34 (3): 186-202.
- [4] Burch JB, Reif JS, Noonan CW, Yost MG. Melatonin metabolite excretion among cellular telephone users. *Int J Radiat Biol.*1999; 75 (9): 1253-61.
- [5] Lowden A, Åkerstedt T, Wiholm C, Hillert L, Kuster N, Nilsson JP, et al. Sleep after mobile phone exposure in subjects with mobile phone - related symptoms. *Bioelectromagnetics.*2011; 32 (1): 4-14.
- [6] Kesari KK, Kumar S, Behari J.900 - MHz microwave radiation promotes oxidation in rat brain. *J Appl Biomed.*2011; 9 (1): 85-92.
- [7] Foster KR, Repacholi MH. Biological effects of radiofrequency fields: Does heat play a role? *Radiat Res.*2004; 162 (2): 219-25.
- [8] International Commission on Non - Ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure to electromagnetic fields (100 kHz to 300 GHz). *Health Phys.*2020; 118 (5): 483-524.
- [9] Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi. Occupational health risks associated with electromagnetic fields. *Chin J Ind Hyg Occup Dis.*2008; 26 (6): 332-5.

- [10] Nikitina VN. Evaluation of exposure risks to electromagnetic fields in the workplace. *Fed Cent Hyg Epidemiol.*2024; 1: 53–65.
- [11] Mohammed S. Review of health risks of radiofrequency electromagnetic fields. *Health Phys.*2022; [Epub ahead of print].
- [12] Mansuori E, Alihemmati A, Mesbahi A. Effects of RF - EMF on cellular processes: A study on biological impacts. *Sami Publ Co.*2024; 3 (1): 60–70.
- [13] Asghari A, Khaki AA, Rajabzadeh A, Khaki A. The effects of electromagnetic radiation on reproductive systems: Experimental study. *Electron Physician.*2016; 8 (7): 2655–62.
- [14] Alchalabi ASH, Aklilu E, Aziz AR, Malek F, Ronald SH, Khan MAK. Assessment of electromagnetic fields on health outcomes in South Asia. *South Asian J Exp Biol.*2015; 5 (4): [Pagination unclear].
- [15] Cordelli E, et al. Effects of radiofrequency electromagnetic field (RF - EMF) exposure on male fertility: A systematic review of experimental studies on non - human mammals and human sperm in vitro. *Environ Int.*2024; [Online ahead of print].