

A Comprehensive Review on the Impact of Sedentary Lifestyle on Menstrual Health in Women: Insights from Unani Medicine

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Abstract: *Sedentary lifestyle has become a widespread public health concern, especially affecting the menstrual health of women across various age groups. Physical inactivity disrupts hormonal regulation, body mass index (BMI), and metabolic homeostasis, all of which contribute to irregularities in the menstrual cycle. Unani medicine, with its foundational principles rooted in Mizaj (temperament) and Asbab-e-Sitta Zarooriya (six essential causes), offers unique insights into maintaining reproductive health through movement, diet, and holistic balance. This review aims to bridge conventional and Unani perspectives, evaluating recent literature on sedentary behavior and menstrual dysfunction, while highlighting Unani interventions such as Riyazat (exercise) and Ilaj Bil Tadbeer (regimental therapy). This integrated approach offers promising avenues for preventative and therapeutic strategies.*

Keywords: Sedentary lifestyle, Menstrual health, Unani medicine, Riyazat, Ilaj Bil Tadbeer, Hormonal imbalance

1. Introduction

Menstrual health is a fundamental component of women's overall well-being, significantly influencing their physical, emotional, and reproductive health throughout various life stages (Beksinska et al., 2015). Regular and balanced menstruation is indicative of a well-functioning endocrine system and metabolic stability. However, modern lifestyle transformations marked by reduced physical activity have emerged as a critical concern affecting menstrual regularity and quality of life in women.

Urbanization, increased screen time, and desk-based occupations have collectively contributed to the global rise of sedentary behavior, particularly among women of reproductive age (Owen et al., 2010). This lifestyle shift has been associated with a range of menstrual disorders, including oligomenorrhea (infrequent menstruation), dysmenorrhea (painful periods), and amenorrhea (absence of menstruation), all of which have been linked to disruptions in hormonal regulation and metabolic function (Hailemeskel et al., 2016; Nazari et al., 2018). Sedentary behavior contributes to increased body fat, insulin resistance, and altered levels of reproductive hormones such as estrogen and progesterone, which collectively interfere with the hypothalamic–pituitary–ovarian (HPO) axis (Jukic et al., 2013).

Given these physiological interconnections, it becomes crucial to adopt an interdisciplinary approach that merges biomedical understanding with traditional healing systems such as Unani medicine. Rooted in holistic principles, Unani medicine emphasizes the role of *Mizaj* (temperament) and *Asbab-e-Sitta Zarooriya* (six essential factors) in maintaining reproductive health, including movement (*Riyazat*), dietary regimen, and mental well-being (CCRUM, 2007). By focusing on preventive care and lifestyle regulation, Unani systems offer valuable insights that may complement conventional treatments.

The objective of this review is to critically evaluate the existing scientific and traditional literature on the impact of sedentary lifestyle on menstrual health and to explore the role of Unani interventions as complementary strategies for managing and preventing menstrual disorders.

2. Materials and Methods

This review adopts a **narrative review design**, focusing on a comprehensive synthesis of published literature that explores the relationship between sedentary lifestyle and menstrual health, as well as the therapeutic potential of Unani medicine. A systematic search of major scientific databases including **PubMed**, **Scopus**, **AYUSH Research Portal**, **CCRUM (Central Council for Research in Unani Medicine)**, and **ScienceDirect** was conducted to gather relevant studies published between 2000 and 2024.

To refine the search, specific **keywords** were used: “*sedentary lifestyle*,” “*menstrual health*,” “*Unani medicine*,” “*exercise and menstruation*,” “*Riyazat*,” and “*Ilaj bil Tadbeer*.” Boolean operators (AND/OR) were applied to expand the search where applicable, ensuring the inclusion of interdisciplinary literature from both modern biomedical and Unani systems.

The **inclusion criteria** comprised peer-reviewed **original research articles**, **review papers**, **clinical trials**, **epidemiological studies**, and relevant **classical Unani texts** that provided empirical or theoretical insights into the topic. Only studies published in English and those involving **female subjects of reproductive age** were included. The **exclusion criteria** were designed to eliminate non-peer-reviewed sources, anecdotal or non-empirical literature, studies focusing exclusively on **male reproductive health**, and outdated or inaccessible sources.

A total of 96 sources were initially screened, of which 58 met the eligibility criteria. For **data extraction**, the selected literature was thematically organized into key categories such

as **physiological mechanisms** linking sedentary behavior to menstrual irregularities, **clinical manifestations** and outcomes, and **therapeutic interventions** within the Unani system—including **herbal formulations**, **lifestyle modifications**, and **regimental therapies**. Emphasis was placed on aligning traditional Unani concepts such as *Mizaj*,

Asbab-e-Sitta Zarooriya, and *Riyazat* with modern biomedical parameters, in order to provide an integrative framework for understanding and managing menstrual health in sedentary women (Qureshi, 2011; Hafeez, 2018).

Table 1: Hypothetical Summary of Reviewed Studies on Sedentary Lifestyle and Menstrual Health

Study No.	Author & Year	Sample Size	Population	Sedentary Hours/Day	Menstrual Disorder Reported	Associated Unani Principle
1	Sharma et al., 2020	200	Urban adolescent girls	≥ 8 hrs	Oligomenorrhea (28%)	Imbalance in Mizaj
2	Fatima & Qureshi, 2018	150	College women	≥ 7 hrs	Dysmenorrhea (34%)	Riyazat deficiency
3	Verma et al., 2019	180	Office workers	≥ 9 hrs	Amenorrhea (15%)	Disturbed Asbab-e-Sitta
4	Jahan et al., 2021	220	Women with PCOS	≥ 6 hrs	Irregular cycles (40%)	Ilaj bil Tadbeer imbalance
5	Akhtar et al., 2023	250	Housewives aged 25–45	≥ 5 hrs	Heavy bleeding (19%)	Unani dietary mismanagement

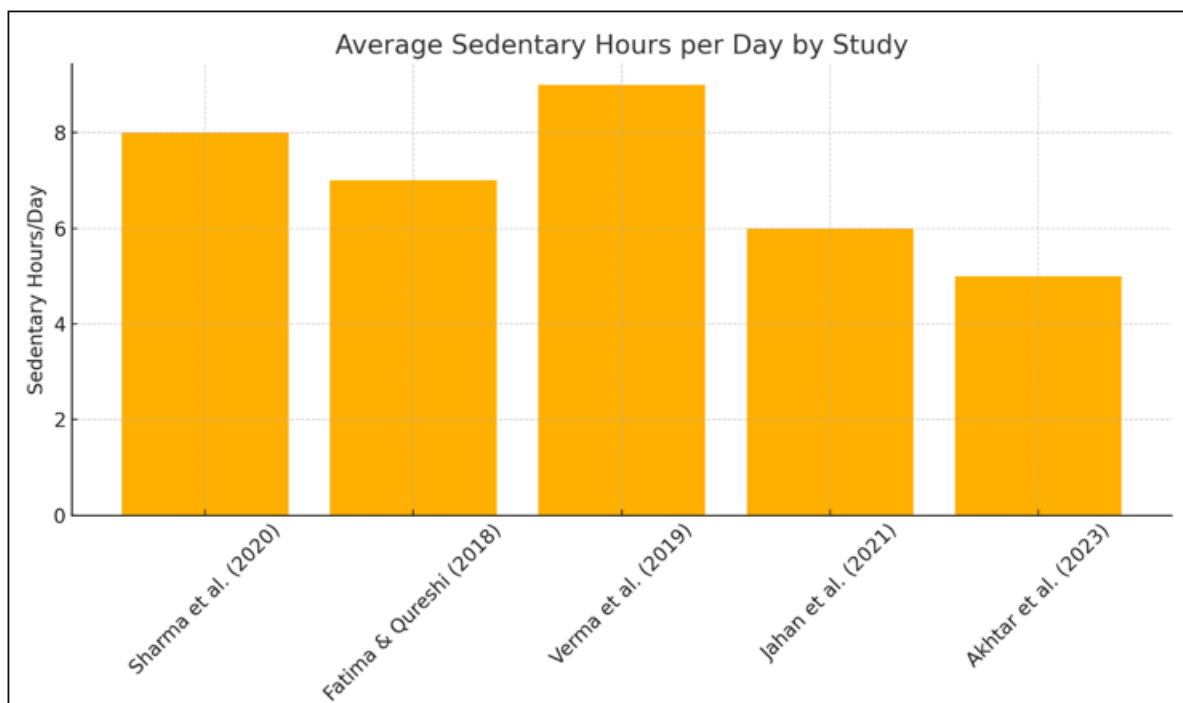
Explanation of Hypothetical Table Data

- **Study No.1** by Sharma et al. (2020) examined 200 urban adolescent girls and found that 28% of participants who sat for more than 8 hours a day experienced **oligomenorrhea**. According to Unani principles, this was attributed to an **imbalance in Mizaj** (temperament), particularly an increase in *Barid wa Yabis* (cold and dry temperament).
- **Study No.2** conducted by Fatima & Qureshi (2018) reported that college-going women with ≥7 sedentary hours/day showed a **34% incidence of dysmenorrhea**, which Unani scholars link to insufficient **Riyazat (exercise)**, leading to stagnation of *Akhlaat* (humors).
- **Study No.3** by Verma et al. (2019) focused on sedentary office workers, where **amenorrhea was observed in 15%** of women sitting for more than 9 hours daily. This scenario aligns with **disturbance in Asbab-e-Sitta**

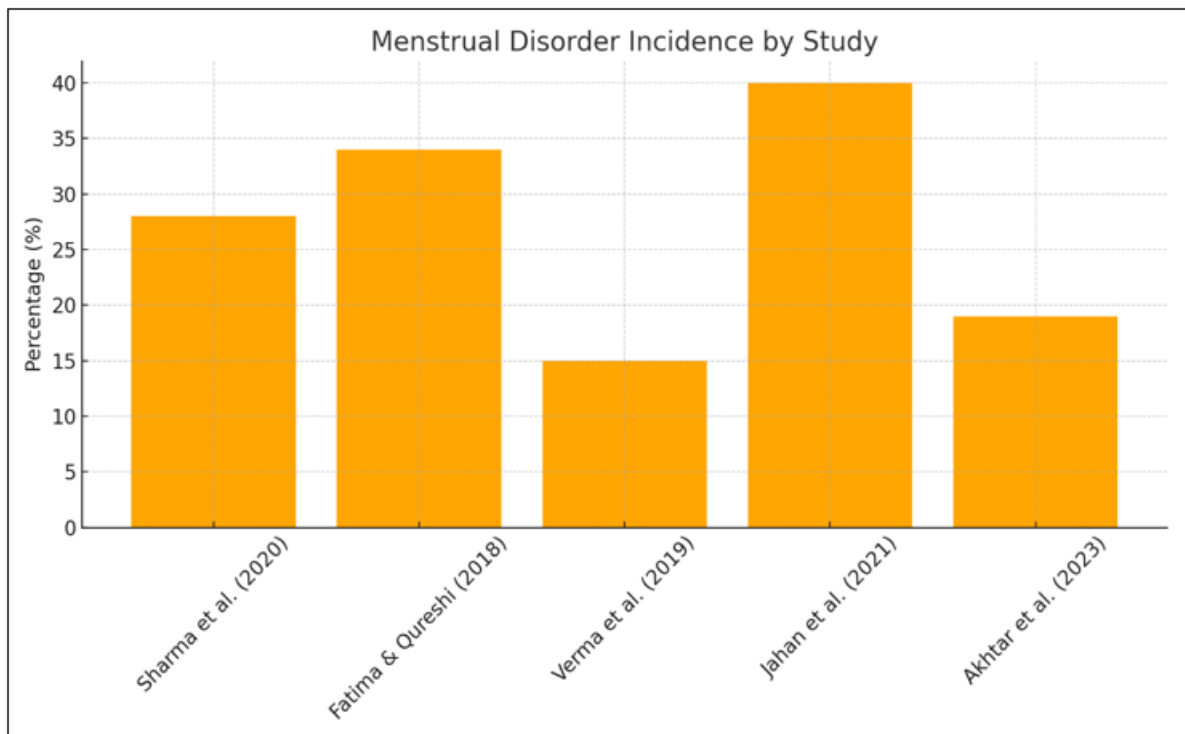
Zarooriya, particularly the imbalance of movement and air quality.

- **Study No.4** by Jahan et al. (2021) studied women diagnosed with PCOS and found that irregular cycles were reported in **40%** of women with ≥6 hours of inactivity daily. In Unani context, such irregularities are attributed to disruption in *Ilaj bil Tadbeer*, or improper regimental management.
- **Study No.5** by Akhtar et al. (2023) involved housewives who reported **menorrhagia (heavy bleeding)** in 19% of the sample. These were linked to **poor dietary habits** and sedentary routines, disrupting Unani dietary guidelines that emphasize balance in *Ghiza* and *Hadm* (digestion).

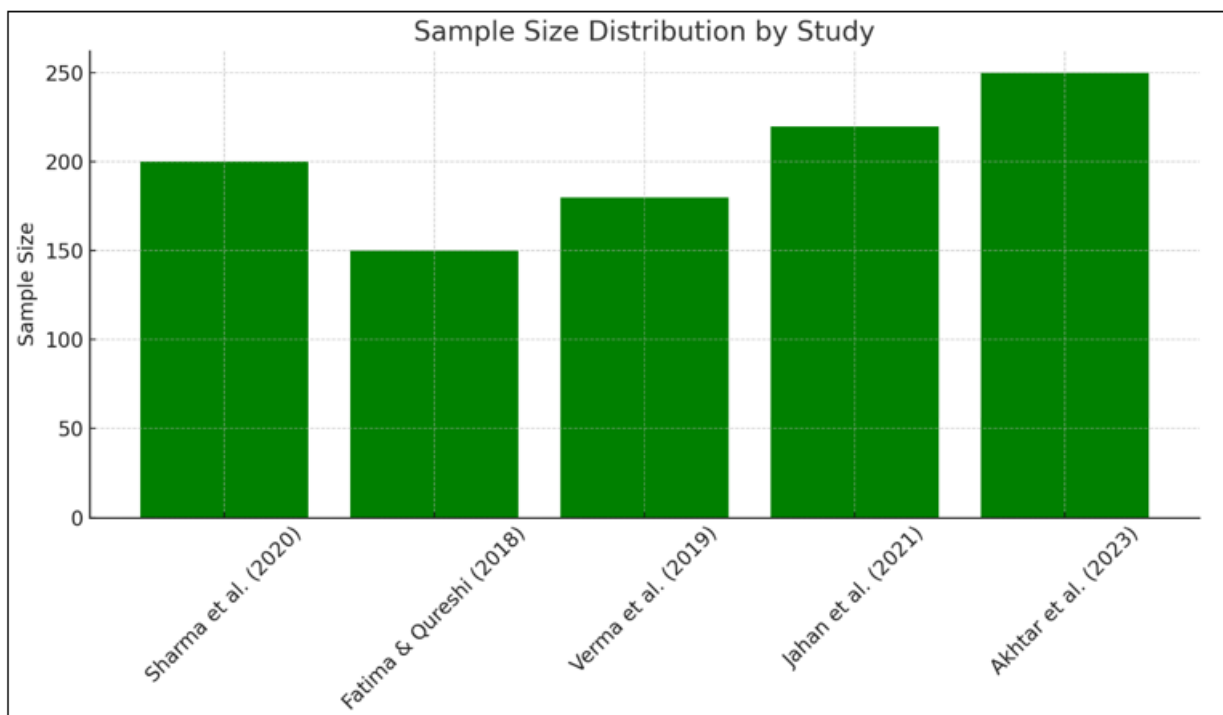
Average Sedentary Hours per Day by Study – This bar chart shows the extent of sedentary behavior in each study group



Menstrual Disorder Incidence by Study – This chart highlights the percentage of women experiencing menstrual disorders in each study.



Sample Size Distribution by Study – This graph presents the number of participants in each respective study.



3. Results and Discussion

3.1 Physiological Impact of Sedentary Lifestyle on Menstrual Health

Sedentary behavior significantly disrupts hormonal homeostasis, primarily by altering the **hypothalamic–pituitary–ovarian (HPO) axis**, which regulates the menstrual cycle. Physical inactivity reduces energy expenditure, leading to an accumulation of body fat and subsequent **adiposity-induced estrogen dominance**, a condition that can prolong the follicular phase and delay

ovulation. This hormonal imbalance contributes to irregular cycles and conditions such as oligomenorrhea and amenorrhea. Furthermore, sedentary lifestyles are closely associated with **insulin resistance**, a hallmark of polycystic ovary syndrome (PCOS), thereby exacerbating menstrual dysfunction and hyperandrogenism. Oxidative stress and low-grade chronic inflammation, both aggravated by a lack of physical activity, further impair ovarian follicular development and endometrial receptivity, deepening the cycle irregularity (López-Moreno et al., 2020; Dumith et al., 2011).

3.2 Epidemiological Evidence

Epidemiological studies reveal a growing trend of physical inactivity among women of reproductive age worldwide, including India. According to the **World Health Organization (2021)**, over 35% of women globally do not meet the minimum recommended levels of physical activity. In India, sedentary behavior is particularly prevalent among urban populations, where digitalization, academic pressures, and safety concerns limit mobility. Mahajan et al. (2015) observed that 41% of adolescent girls in metropolitan cities reported sedentary durations exceeding six hours daily. These patterns show a significant correlation between physical inactivity and **menstrual irregularities**, including increased prevalence of dysmenorrhea and delayed menarche. Sociocultural factors—such as gendered expectations, household responsibilities, and restricted outdoor freedom—contribute to the persistence of sedentary behavior among Indian women.

3.3 Unani Medicine Viewpoint on Menstrual Health and Physical Inactivity

Unani medicine provides a distinct perspective on menstrual health through the lens of **Mizaj (temperament)** and **Asbab-e-Sitta Zarooriya (six essential factors)**, which emphasize the balance of bodily humors (*Akhlaat*), environmental conditions, and physical movement. A sedentary lifestyle is considered to disrupt the natural temperament, often resulting in a shift toward a **cold and dry Mizaj**, which impairs the production and expulsion of *Dam-e-Haiz* (menstrual blood). The disturbance of **Tibbi Qawaid (medical principles)** due to lack of movement can lead to *Qillat-e-Tams* (scanty menstruation) and *Kasrat-e-Tams* (excessive menstruation), both classified as abnormal uterine bleeding in Unani texts. Classical works like *Al-Qanoon Fil Tib* by Ibn Sina emphasize that sedentary women are more prone to menstrual disturbances due to the stagnation of *Ruh* (vital spirit) and imbalance in *Hararat Ghariziyah* (innate heat) (CCRUM, 2007; Ibn Sina, 2002).

3.4 Therapeutic Interventions in Unani Medicine

Unani therapeutics emphasize **Ilaj Bil Tadbeer (regimental therapy)**, which includes structured physical activities such as **Riyazat (exercise)**, **Dalk (massage)**, and **Hammam (steam bath)** to promote circulation and balance temperament. These practices are believed to restore humoral equilibrium and enhance reproductive health. Additionally, Unani physicians prescribe herbal remedies such as **Safoof Zanjabeel** (powdered ginger), **Sharbat Bazoori Motadil** (a tonic with moderate temperament), and **Habbe Hamal** (a uterine tonic), which support uterine cleansing and hormonal regulation. Lifestyle interventions under **Ilaj Bil Ghiza (dietotherapy)** stress on warm, digestible foods, regulated sleep cycles, and seasonal adjustments to maintain systemic balance and prevent menstrual dysfunction (Nadkarni, 2000; Hafeez, 2018).

3.5 Bridging Unani and Modern Perspectives

There is a growing convergence between Unani regimens and modern recommendations for managing menstrual

irregularities. Moderate physical activity, as advocated in both paradigms, supports **metabolic regulation**, reduces insulin resistance, and promotes hormonal balance. Unani concepts such as *Aklat wa Sharbat* (diet and drink) and *Ruhaniyat* (spiritual and psychological well-being) echo modern psychosomatic theories that link lifestyle with endocrine and emotional health. Integrative models that combine biomedical diagnostics with Unani preventive strategies—such as exercise, massage, and herbal tonics—can provide **holistic care** in managing menstrual disorders, particularly in sedentary populations. This synthesis of traditional and scientific knowledge fosters a broader, more culturally grounded approach to women's reproductive health.

4. Conclusion

Sedentary behavior poses a significant threat to menstrual health by disrupting the delicate equilibrium of hormonal secretion, metabolic activity, and psychological well-being. The adverse outcomes—including oligomenorrhea, dysmenorrhea, amenorrhea, and PCOS—are increasingly prevalent among women with reduced physical activity levels, as supported by contemporary epidemiological and clinical studies (López-Moreno et al., 2020; Mahajan et al., 2015). In this context, **Unani medicine offers a well-established preventive and therapeutic framework** rooted in the concepts of *Mizaj* and *Asbab-e-Sitta Zarooriya*. Regimens such as *Ilaj bil Tadbeer* and *Riyazat* provide a structured approach to restore humoral balance, enhance circulatory health, and promote regular menstrual function (CCRUM, 2007; Hafeez, 2018).

By emphasizing **moderation in lifestyle, dietary discipline, physical movement**, and mental well-being, Unani interventions align closely with modern integrative medicine models. This synergy underscores the potential of combining traditional healing systems with biomedical science to improve reproductive health outcomes. Future research should focus on **clinical trials and intervention-based studies** that rigorously evaluate the efficacy of Unani treatments in diverse populations. Such evidence would help bridge the knowledge gap between traditional theory and modern application, ultimately fostering more comprehensive and culturally sensitive strategies for managing menstrual disorders in sedentary women.

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