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A REVIEW ON NIDRA AND LIFESTYLE DISORDERS: AN AYURVEDIC PERSPECTIVE ON SLEEP PATTERNS AND DISEASE PREVENTION

Vidya H [1]*, Abdul Khader [2], Indraja [1]

[1] PG Scholar, PG and PhD Study, Department of Kāyacikitsā, Sri Kalabyraveshwara Swamy Ayurvedic Medical College, Hospital and Research Centre, Pipeline Road, Vijayanagar, Bangalore, Karnataka, India

[2] Professor and HOD, Department of Kayachikitsa, Sri Kalabyraveshwara Swamy Ayurvedic Medical College, Hospital and Research Centre, Pipeline Road, Vijayanagar, Bangalore, Karnataka, India

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***Corresponding author**
E-mail: Vidyahshobha99@gmail.com

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ABSTRACT

Lifestyle disorders arising from irregular sleep, erratic daily routines, poor diet, and chronic stress are among the leading contributors to ill health in the modern era. Ayurveda classifies sleep (Nidra) as one of the three pillars of life (trayopastambha), alongside diet (Ahara) and celibacy/regulated conduct (Brahmacharya), essential for tissue nourishment, immunity, and longevity. This review seeks to understand and bridge classical Ayurvedic descriptions of Nidra with contemporary sleep science to examine how disturbed sleep (Anidra) initiates a cascade of metabolic, immunological, and psychological dysfunction. Findings indicate that inadequate or irregular sleep destabilises digestive fire (Agni), generates metabolic toxins (Ama), and predisposes individuals to obesity, diabetes (Prameha), immune depletion, and cognitive impairment. Restoring and protecting regular, adequate sleep should therefore be regarded as a central, modifiable component of preventive and promotive healthcare strategy.

Keywords: Anidra, Prameha, Sthoulya, Kusta, Cognitive Impairment

INTRODUCTION

A lifestyle is the pattern by which a person lives — encompassing diet, daily activity, habits, and personal values. Contemporary preventive medicine has distilled healthy living into core habits, commonly summarised as balanced nutrition, regular physical activity, quality sleep, stress management, adequate hydration, and maintaining a healthy body weight. When followed consistently, these habits are associated with reduced chronic disease risk and increased life expectancy.

Ayurveda articulated a parallel, and considerably older, framework for disease prevention. Acharya Sushruta, in the Chikitsa sthana chapter on Anagatabadha Pratishedha (measures for the prevention of future disease), describes a disciplined daily regimen (Dinacharya) and code of conduct intended to forestall physical and mental illness before it manifests[1]. Central to this framework is the understanding that health depends on aligning one's routine with the body's biological rhythms and with seasonal change — captured in the triad of Dinacharya (daily regimen), Ratricharya (night regimen), and Rutucharya (seasonal regimen). Nidra, a key component of ratricharya, is described as vital to restoring, regulating, and synchronising bodily functions. Sleep (Nidra) is nonnegotiable pillar of health - Trayaupastambha, the three supporting pillars of life alongside Ahara (diet) and Brahmacharya (regulated conduct)[2]. Together these three form the foundation for sustaining health and promoting longevity.

Anidra is no longer just an isolated nighttime issue but a full-blown lifestyle disorder. Over the past five decades, human society has shifted from a way of life shaped by natural seasonality and manual labour to one dominated by digital hyper-connectivity and automated convenience. This transition has altered diet, physical activity, and social structures, profoundly affecting sleep patterns and, consequently, overall health. Sushruta samhita classifies diseases originating within the body and mind into two categories: dosha-bala-pravritta vyadhi, which arise from vitiation of the biological humors through faulty diet and unhealthy lifestyle, and svabhava-bala-pravritta vyadhi, which are natural and inevitable biological events such as hunger, thirst, ageing, death, and sleep [3] Nidra falls under the swabhava bala pravritta vyadhi which occurs naturally, disturbed sleep/Nidranasha falls under dosha bala pravritta vyadhi. Acharya Charaka states explicitly that emaciation, debility, sexual dysfunction, cognitive decline, and premature death are rooted in disturbed or absent sleep (Anidra)[4], underscoring that Nidra is not incidental to health but foundational to it.

Role of Nidra

Charaka samhita states that sleep taken at the appropriate time (Nidra kale nisevita) provides suka, pushti, bala, vrushya, jnana, jeevitha [4]. This verse frames sleep not as passive rest but as an active, restorative, metabolic process that balances the dhatus and rejuvenates Agni (digestive fire). A sound night's sleep pacifies aggravated rajas (hyperactivity/stress) and restores sattva (clarity and peace) the next morning, providing Tushti, i.e, psychological satisfaction, peace of mind, and emotional happiness. Without Nidra, the mind falls into a state of dukha (misery or anxiety), rendering true mental satisfaction impossible. Ayurveda conceptualises sleep as an anabolic, brimhana process. Because of its deeply nurturing quality, Charaka terms natural night sleep as bhutadhatri. Proper sleep ensures optimal digestion and assimilation of nutrients into the bodily tissues (dhatu pushti), while a lack of sleep directly causes karshya (emaciation or tissue wasting). Sleep is the time when the body repairs daily wear and tear, balances the three doshas and replenishes vital energy (ojas).

Adequate Nidra provides the body with sharira bala and vyayAma shakti. Conversely, improper or deficient sleep (Nidranasha) severely diminishes immunity(vyadhikshamathva), leading directly to abala (debility and structural weakness)[4].

The Physiological State of Sleep / Svabhavika Nidra

Physiological sleep is a natural, restorative process that maintains dhatu samya and protects vitality. Physiological sleep occurs when the manas and the indriyas become exhausted from daily cognitive and physical processing. When the indriyas detach from their worldly objects, and the mind retreats inward, a person falls asleep[5]. Tamas, in its physiologically controlled state at night, is absolutely necessary to induce restful sleep[6]. The heavy (guru), stable (sthira), and dull (manda) qualities of kapha naturally dominate in the evening, coating the sensory channels and signalling the body to rest. Kapha and tamas's calming effect correlates with the preoptic area of the hypothalamus, which contains neurons that inhibit arousal systems to sleep (homeostatic drive for sleep). These molecules dampen neuronal communication, akin to Kapha's role in creating a state of stability and quiet.

Rajas's activating role mirrors the ascending arousal system in the brainstem, which activates the brain's forebrain structures and cerebral cortex, promoting wakefulness and alertness (circadian drive for wakefulness)[7]. Ratri svabhavaprabhava, srama prabhava can be considered under physiological sleep [8].

The Pathological State of Sleep/Vvyadhi Rupam Nidra

When sleep deviates from its normal timing, duration, or quality, it transforms into a pathological state. It no longer sustains life and instead becomes a cause of morbidity (vyadhi). Atinidra causes srotas avarodha (blockage of bodily channels) and slows down the metabolic fire (Agni) [9]. Nidranasha prevents the mind from detaching from sensory inputs. Diva-svapna blocks the circulatory pathways, leading to acute inflammatory conditions, skin diseases, fever, and digestive toxicity (Ama). Agantuki/ sleshmasamudbhava and vyadhianuvartini are classically categorised pathological types.

Prajagara/ratrijagarana (disturbed or inadequate sleep) is a direct nidana that destabilises Agni [10]. When Agni is unstable, ingested food is incompletely metabolised, forming Ama, an undigested toxic metabolic residue. Ama subsequently enters the circulatory channels (Rasavahi Srotas), producing srotorodha, which forms the pathological substrate for systemic metabolic disturbance. Anidra / chronic night wakefulness, deprived of Bhutadhatri sleep spikes vata and pitta, leading to dhatu kshaya [11] and immune collapse (Abala-Vyadhikshamathva-Kshaya)[4], while compensatory daytime sleep (Diwasvapna) aggravates kapha and meda, causing channel obstruction Ssrotorodha) [12]. This dual mechanism explains the clinical paradox in which the same underlying sleep disturbance can manifest as either emaciation (Shosha) or obesity (sthoulya), depending on compensatory behaviour. Improper sleep and compensatory behaviour cause srotoroda, which in the long term act as a predisposing factor for metabolic / lifestyle disorders.

Asyasukham swapnasukham is a primary causative factor for Prameha, as it aggravates kapha and meda. Conversely, improper sleep (Anidra) causes Agni-mandya (especially Medo dhatvagi); the unstable Agni fails to nourish subsequent tissues properly [13]. It specifically targets meda, mamsa, and kleda, causing sithilata and systemic insulin resistance — the pathological essence of Prameha. In Ayurveda, this is the exact equivalent of Ama and Kleda clogging the cellular pathways (Srotorodha), preventing the tissues from receiving nourishment (Pushti) and forcing the body to excrete the raw nutrients through urine. Contemporary science corroborates this pathway. Sleep deprivation, particularly when chronic, reduces insulin sensitivity, impairing glucose uptake by cells and contributing to the elevated blood sugar levels characteristic of type 2 diabetes.

Behavioural sleep curtailment has become widespread in modern 24-hour societies, driven by increased evening and night-time work and leisure activity, leading to sleep loss that disrupts hunger hormones (leptin and ghrelin), increases late-night cravings, and slows metabolism. This delays feeding, desynchronises central and peripheral circadian clocks (feeding being a major synchroniser of peripheral clocks found in nearly all tissues), and is associated with cardiometabolic disturbance If indulged in diwasvapna (daytime sleeping) to compensate, it causes a sudden, pathological spike in kapha and meda, which is responsible for the vitiation of medhodhatu in the body and gives rise to the diseases coming under kapha prakopa janya vikaras like atisthoulya.[14]

Kusta cannot manifest on a superficial level; it requires a specific destructive alliance between doshas and dushyas [15]. Lack of anabolic sleep blocks proper tissue nourishment, compromising the immune system (vyadhiksh Amathva), while apakti-induced, highly activated internal doshas systematically infiltrate, settle into, and do dushana of twak, mamsa, and lasika [16]. Once these peripheral tissues are overwhelmed, they erupt onto the surface as chronic, stubborn skin lesions (kusta).

Nidra- Mental and Emotional well-being

Modern lifestyle factors, an 'always-on' internet culture, academic and workplace demands, and pervasive screen exposure have fragmented sleep schedules considerably. Blue-light exposure from screens before bedtime disrupts circadian signalling, and this pattern of sleep debt is associated with diminished cognitive performance, heightened anxiety, and persistent physical fatigue. Behavioral conditions(prajnaparada) such as internet addiction disorder and internet gaming disorder are increasingly linked to disrupted circadian rhythms, Homeostatic Sleep Drive leading to insomnia, reduced sleep efficiency, and cognitive impairment[11].

Negative emotional states (dashavida papakarma) are described as acting through two distinct mechanisms: rajasic emotions (anger, fear, jealousy) provoke an erratic or hyperactive digestive fire (vishamagni/tikshnagni)[17], while tamasic emotions (grief, helplessness) cause a slowed, weakened digestive fire (mandagni)[18]. Sleep is thus positioned not only as a physical necessity but as a precondition for a calm mental state (prasanna manas) required for sound digestion, metabolic health and cognitive performance[19].

Contemporary evidence indicates that impaired sleep is not merely a symptom of cognitive impairment but a contributory causal factor in its onset and progression. We can see this bidirectional relationship, with disturbed sleep frequently preceding and increasing the risk of psychological disorders.

DISCUSSION

This review's findings indicate a striking convergence between the Ayurvedic understanding of Nidra, articulated more than two millennia ago, and contemporary sleep science. Both frameworks converge on a central proposition: sleep is not a passive, dispensable state but an active physiological process central to metabolic regulation, anabolic rebuilding, immune competence and cognitive function; i.e., Tusti, Pusti, and Bala.

The classical Agni Ama model offers a coherent pathophysiological narrative for the metabolic consequences of disturbed sleep, one that parallels, and arguably anticipates, the modern understanding of sleep loss as a driver of insulin resistance and hunger hormone disruption. Similarly, the concept of ojo-kshaya finds a direct correlate in the demonstrated suppression of natural killer cell activity and protective cytokine production following sleep fragmentation.

The Ayurvedic view that both insufficient sleep and excessive compensatory sleep can independently derange dhatu balance offers a nuanced model that may help explain the heterogeneous metabolic phenotypes observed in clinical sleep disorders today.

For contemporary populations, and particularly for younger generations experiencing pronounced circadian disruption from digital technology and shift-oriented lifestyles, these findings carry direct clinical relevance. The bidirectional relationship between sleep and psychological conduct further strengthens the case for treating sleep disturbance not as an incidental complaint but as a primary target for preventive and therapeutic intervention.

Ayurvedic prophylaxis does not depend on passive sedation. Instead, it emphasises synchronising behaviour with the body's natural biological rhythms. This includes aligning with Kala Nidra to optimise the restorative benefits of sleep [20] and following Dinacharya and Ratricharya to maintain a healthy daily and nightly routine.

CONCLUSION

Both Ayurveda and contemporary science position sleep as a foundational pillar of health rather than a passive interlude between periods of activity. Disturbed sleep initiates a cascade of destabilised digestion, metabolic toxin accumulation, immune depletion, and psychological dysregulation that underlies a substantial share of modern lifestyle disorders, including obesity, diabetes, and cognitive impairment. Restoring and protecting regular, adequate sleep should therefore be regarded as a central, modifiable component of preventive and promotive healthcare strategy.

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