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A Cross-Sectional Comparative Study To Assess The Impact Of Ratrijagarana on Ojas In Information Technology (IT) Professionals

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Abstract

Background: Sleep is a vital biological process and is considered in Ayurveda as one of the three pillars of life. Sleep deprivation affects physical and mental health. Modern society's demand for round-the-clock services forces shift workers to compromise sleep, disrupting circadian rhythm and internal homeostasis. *Ojas*, the Ayurvedic concept of vitality, reflects the excellence of internal balance¹. This study explores whether sleep discrepancy affects *Ojas* in IT professionals working night shifts.

Objective: To assess the impact of *ratrijagarana* on *Ojas* in IT professionals.

Materials and Methods: Two groups were studied. Group 1 included IT professionals working night shifts with less than 3 hours of nocturnal sleep. Group 2 included IT professionals with more than 6 hours of nocturnal sleep. *Ojas* was assessed using a standardized evaluation tool, and data were collected through a Google form.

Results: Ratrijagarana did not show a significant impact on *Ojas* in the sample. Most individuals in Group 1 compensated for reduced night sleep through adequate daytime sleep.

Discussion: Because many subjects compensated for sleep loss, the influence of *ruksha guna* was limited. This compensatory sleep likely supported internal homeostasis and replenished *sleshma bhava*, resulting in fewer disturbances related to sleep.

Introduction

Human beings have evolved to thrive in a variety of environments with unique adaptations to ensure their well-being. The functional and structural variations in their body enable them to not just survive but also thrive in the environment. Sleep, the relaxed state of body and consciousness is a survival mechanism during which the body recuperates and repairs its damage. Even though differences exist between the sleeping patterns of different organisms, every last species settles down for sleep. The sleep cycle and processes that take place in every organism are different. Despite advancements in modern science, the true workings and importance of sleep still remain somewhat of a mystery. It is a complex and

essential biological process, normally occupying one-third of our lives. It is required on a daily basis for all humans regardless of age, sex, or ethnic origin and plays a fundamental role in physical, mental, and emotional health. At least seven hours of sleep is essential each night for proper cognitive and behavioural function in most adults. Ayurveda considers *nidra* (sleep) as one among the *trayopasthamba* (three supporting pillars of life)². If well regulated, these three factors will endow an individual with strength, complexion, growth and happy life. Thus, *nidra* is considered the basic supporting factor for life and is an essential part of *swasthya rakshana*. Sound sleep termed as “*bhutadhatri*” is a natural and nourishing phenomenon³. *Kapha dosha* along with *tamo guna* is responsible for the advent of *nidra*⁴. They act on *samjnavaha srotas* and influences *Chetana* (awareness) of the person. The benefits of a good night's sleep are numerous, including improved memory, reduced stress levels, and a stronger immune system.

Sleep is an absolute necessity for human health. It is vital to our overall well-being and plays a crucial role in maintaining a healthy body and mind. Indulging in *nidra* at the proper time results in one's own well-being and is the root cause of longevity, proper nutritional status, strength, virility etc⁵. Being one of the *adharaneeya vegas* (insuppressible urges), *nidra* is an important phenomenon to provide rest and relaxation to the body, mind and senses which get tired and exhausted. Serious repercussions can be seen in individuals who forfeit sleep. *Ratrijagarana* (Sleep deprivation) has been quoted as *vata prakopa karana* and is responsible for producing *rookshana* (dryness) in the body⁶. *Nidranasa* (loss of sleep) can occur due to stress, *kshaya*, *abhighatha*, and in conditions where *vata* and *pitta* are aggravated.

Depriving ourselves of sleep for an extended period of time can throw off our body's homeostasis, which can have negative consequences on our health and overall well-being. Ayurveda explains the concept of *ojas* as a safeguard against physical and mental health illness. It ensures the proper functioning of each physiological system and is responsible for maintaining internal milieu. It maintains the health, immunity, consciousness, longevity and memory of an individual⁷. It is of two types: *para* and *apara Ojas*. *Para Ojas* is not easily affected by minute deviations from physiology and is the major factor sustaining life. The latter, is generated by the excellence of seven dhatus. Diseases and variations in our lifestyle can easily affect the *apara ojas*. *Ojas* can be equated to the bala of an individual as it is responsible for maintaining the internal homeostasis in our body. *Ojas* is the vital force working behind the functioning of each and every cell, a reduction in its quantity and quality may have a drastic effect. Thus, the health status of an individual can be assessed by evaluating *ojas*.

The modern 24/7 society that is failing to manage social expectations, who are working long hours and longer shifts, who have succumbed to smartphone addiction and poor diet choices has contributed to the current phenomenon of sleep deprivation. Nearly one-half of protective services, food service employees work shifts, health workers and transportation workers are regularly working frequently varying schedules of night shifts. A major portion of these shift workers develop health issues due to misalignment of the circadian rhythm. These conditions which result in diminished quality of life are grouped under “Shift work disorders”. The natural light which enters through the eye acts as a stimulus that suppresses melatonin release from the pineal gland. Thus, in shift workers, the secretion and action of melatonin is deranged resulting in an altered circadian signal. This has a varying degree of effect on the mental and physical well-being of the shift worker. Even though the basic concepts of Ayurveda are pertinent in the present scenario, validation of these principles with a scientific outlook is necessary. There is no permanent cure for shift work disorder, as shift work is and will remain a vital component of the modern workplace. Our objective should be to reduce circadian misalignment and enhance the health and internal milieu of the worker. Ayurvedic principles like *ojas* can be applied and validated to suit the modern era with the help of rational and scientific thinking.

Materials and Methods

A Cross-sectional comparative study was conducted on IT professionals who have a sleep pattern with night sleep of less than 3 hours/night, i.e. less than 90 hours of sleep for a month. On getting approval of the synopsis from the University, IT professionals who were working night shifts were sought out. A brief introduction about the study was given to the participants who satisfied the inclusion and exclusion criteria.

Inclusion criteria:

Age group: 25 - 40 years of age

IT professionals who are having less than 90 hours of sleep at night in a month, irrespective of gender and the amount of day sleep they acquire

Comparison group: IT professionals who are having night sleep of more than 180 hours per month, in the same age group

Exclusion criteria:

Individuals who are taking medications for psychiatric illness

Individuals suffering from chronic illness

Individuals with chronic alcoholism and smoking

Participants were properly informed about the study, the way of collecting data from the subjects, and their contribution to

the study. Informed consent was obtained from the subjects. The right to privacy of the participants and their dignity were respected and honoured. A detailed proforma was prepared on Sleep patterns and assessment of Ojas. The proforma consisted of three parts. The first part included preliminary data of the participants and ayurvedic profiling using Prakriti assessment. The second part consisted of questions about the sleep-wake cycle, which were prepared after discussing with some of the IT professionals on their shift pattern and by referring to other existing questionnaires on sleep. The third part of the proforma included an assessment of Ojas using a tool for the critical evaluation of the status of *ojas* developed by Dr. Amrutha Elamon of the Department of Kriyasareera, Government Ayurveda College, Kannur. The detailed questionnaire on sleep patterns and ojas was given to the 48 participants through google form. A comparison group of 48 participants was kept with participants who are working day shifts and having night sleep of more than 6 hours per day continuously for a month. *Ojas* status was evaluated using the same tool in this group in the same method.

DATA ANALYSIS

Data obtained by means of Google form was sorted and entered into a master sheet. It was further interpreted using SPSS software. Frequencies of various parameters were calculated using descriptive statistics.

Results

In the present study, 96 IT professionals were selected, of which 48 belonged to Group 1 and 48 were included in Group 2 on the basis of their quantity of sleep for the last month. In both Group 1 and Group 2 highest frequency of individuals were found in the age group of 26-30 years. In Group 1, 60.4% of subjects had disturbed sleep, 10.4% had less sleep and 29.2% had sound sleep. In Group 2, 4.1% had disturbed sleep and the remaining 95.8% had sound sleep. Here, the p-value is <0.005 which is significant. 56.2% of individuals from Group 1 had sleep of less than 1 hour per day, and 43.75% had 1-3 hours/day of sleep at night. 66.7% of the subjects from Group 1 and 20.8% of subjects from Group 2 were found to have presenting complaints. Majority of the participants from Group 1 have complained of indigestion, body ache, fatigue, anxiety etc which may be due to the insufficient amount of night sleep they get. 25% of the subjects in Group 1 were found to have irregular appetite and 37.5% had less appetite. 6.3% had increased appetite and 31.2% had normal appetite. In Group 2, 85.4% had normal appetite and 10.4% had less appetite. In the present study, the status of ojas in Group 1 was found to be a majority of 77.1% of subjects having Madhyama ojas, 18.7% having pravara ojas and 4.2%

having avara ojas. In Group 2, 75% were having Madhyama ojas, 22.9% were having pravara ojas and 2.1% were having avara ojas. The p-value was found to be > 0.005 and is therefore statistically insignificant. Thus, in this fixed sample it was found that ratrijagarana did not have a statistically significant impact on Ojas during the period of assessment.

Table No. 1 -Distribution of sample on the basis of Ojas Score

	Group 1		Group 2		P value
	N	%	N	%	
Avara	2	4.2	1	2.1	0.761
Madhyama	37	77.1	36	75.0	
Pravara	9	18.7	11	22.9	

Discussion

The body has a preset daily schedule for functions like waking up, hunger, metabolism, energy production, and excretion. This pre-set timetable is the circadian rhythm which carries out essential functions and processes in the background. A change in our sleeping pattern for a continuous period can cause derangement in circadian rhythm and thereby alter the body's functions. An insufficient amount of sleep or improper quality of sleep can highly influence the quality of life of an individual. It has short-term effect on our emotional stability, reasoning, memory and reaction speed.

Nidra is the basic requirement for any living being, as it nourishes our body and sustains our health. It is the state in which *manas* (mind) and *indriyas*(sense organs) get tired and detach themselves from their sense objects. The quantity and quality of sleep achieved by each individual is dependent on *deha* and *manasa* prakriti along with age and other environmental factors. Individuals of *kapha prakriti* sleeps more and acquires sound sleep more easily. Whereas an individual with *vata prakriti* will sleep less and or will have disturbed sleep. Similarly, the psychological state of an individual also influences *nidra*. An individual who is highly stressed or is anxious about his personal or social life will find it difficult to achieve sound sleep.

In the case of shift workers, reduced hours of nocturnal sleep is always compensated by day sleep. Even though the quantity and quality of the day sleep is specific to an individual, the compensatory amount of sleep during daytime may dampen the negative effects of a deranged sleeping pattern. Our classics have advised *diwaswapna* for individuals who have not slept in the night. The *vata prakopa* occurring as a result of *ratrijagarana* can cause *rukshatwa* in our body. The increased *sleshma bhava* occurring as a result of *diwaswapna* may be able to counteract this *vata prakopa*⁸. However, a person who stays awake at night and sleeps during the day is disrupting their body's naturally set pattern. This might result in the

precipitation of acute complaints such as heaviness of the head and eyes, fatigue, drowsiness, indigestion, heartburn, etc. Our body is set to function in a preordained manner. Variations in the sleep pattern can cause imbalance in the equilibrium of *dosha*, *dhatu* and *mala*. As *nidra* is one among the *adharaneeya vega*, disrupting sleep can result in tiring effects. Every individual exhibits a different response while resisting disease. Similarly, the response given to sleep deprivation can be based on the accommodating capacity of one's body.

Thus, day sleep may act as a *vikara vighata bhava*, by causing a temporary *samprapti vighatana*. A factor that interferes with the manifestation of the disease is known as *vikara vighata bhava*. Manifestation and non-manifestation of the disease depend on the *prativisheshas* of *nidana*, *dosha*, and *dooshyas* towards *vikara vighata bhava* and *vikara vighata bhava abhava*⁹. The compensatory sleep acquired by the shift workers may dampen the impact of *ratrijagarana* on the body. Thus, a permanent *agni vaishamy* at *dhatu* level does not exist as it is everted due to *nidana parivarjana*.

Ojas is the finest essence of the seven *dhatu*s and is all-pervading in the body. It maintains the equilibrium in our body and is the working force behind every function in our body. It controls our internal environment and is responsible for the functioning of our body as a single unit. Any external factor that can adversely influence *sareera* or *satwa* can disrupt the functioning of *ojas*. *Nidra* is one of the three supporting pillars of life and is responsible for longevity and health. The functions of *nidra* are relatable to that of *ojas* as it nourishes and enriches our *sareera* and *satwa*. The impact of *nidra* on the fields of *jnana*, *pushti*, *sukha*, *vrishatha*, etc ascertains the fact that it can influence deeper levels of the human body and mind. Hence a prolonged disruption in *nidra* may damage the internal homeostasis. *Ojas* denotes the *snehamsha* of our body and *ratrijagarana* may reduce it, as it increases the *ruksha bhava* in our body. Our classics have mentioned that excessive use of *kashaya*, *tikta*, *rooksha*, *sheeta*, *vishtambha aaharas* and *vihaaras* like *vegadharana*, excessive *vyavaya* and *vyayama* can result in vitiation of *ojas*. This vitiation leads to an inability to carry out the normal functions of body and mind. However, the signs mentioned in the contexts of *ojo visrams*, *ojo vyapat* and *ojo kshaya* indicate that an extreme vitiation of *ojas* is required for these features to occur. Hence, the extent of impact of the shift in the pattern of sleep on *ojas* and the resultant effect on shift workers is found to be minimal as the compensatory day sleep is efficient enough to replenish the *snehamsha* to an extent.

Conclusion

At the initial phase of abrupt change in lifestyle patterns, an individual surely faces troubles both physically and mentally, as seen in the study. However, with time the body gets acclimatized to these changes and starts functioning accordingly. *Ojo vaishamy* may require long-standing absolute sleep deprivation. Reduction in nocturnal sleep as seen in shift workers, which is compensated by day sleep may not cause extreme vitiation of *ojas*. Our classics have mentioned certain regimens and rules to be followed by the individual to achieve a healthy and happy life. However, today's lifestyle practices and work requirements necessitate a different kind of sleep-wake pattern, exercise routines, physical activities, diet modifications, etc. A common query among the scientific minds of our time is the practicality and utility of these regimens in the modern world. This study is proof that the internal homeostasis of an individual can shift to accommodate the requirements of the body to a great extent thereby ensuring a healthy life.

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