

IMPACT OF LACK OF *NIDRA* ON *SMRITI* (MEMORY) IN ACADEMIC PERFORMANCE: A LITERATURE REVIEW

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ABSTRACT

Sleeplessness and irregular sleep schedules have many unintended consequences, one of which is negative impact on learning, memory, and performance. College is a time of intellectual growth and development as young adult's transition from adolescence to adulthood. Although the worth of college in terms of increased productivity and higher earning potential is rarely debated, there is a significant personal and societal cost of college both in terms of time and money. *Nidra* when taken in adequate manner affects the body and mind equally in a favourable way like *Sukha* (Happiness), *Pushti* (Nourishment), *Bala* (Strength), *Vrushta* (Aphrodisiac), *Gyana* (Knowledge) but when its taken in inadequate way leads to various problems like *Dukha* (Sorrow), *Karshya* (Emaciation), *Abala* (Weakness), *Klibata* (Infertility), *Agyana* (Unknowlegeable/Darkness) and can lead to *Mrityu* (death) too. This article aims to study the relationship between effect of lack of *Nidra* over the *doshic* physiology in general and *Smriti* in particular in college students on the memory

Keywords *Atma, Gyanagrahana, Gyanendriya, Mana, Nidra, Smriti.*

INTRODUCTION: *Nidra* is considered as one of the essential component included in the three main *upastambha* (sub-pillars) of life which when properly taken care of, bestows strength, complexion and development throughout the life.^[2]

But today, in the world full of competition, disturbed livelihood, abnormal sleeping habits, excessive use of modern technologies like watching TV, computers, listening to late night music, video games before going to bed, late night socializing, overnight use of cell phones. All these activities may lead to day time sleeplessness or poor quality sleep and may lead to compromised learning, impaired mood, and impact on *Smriti* (memory).

Proper *nidra* has a positive effect on *Gyanagrahan* (perception of knowledge).^[1] As per Ayurveda, sleep

occurs when mind gets *Klanta* (Tired) and sense organs gets exhausted, they do not perceive their *vishayas* (subject) and hence no knowledge occurs and if there is no knowledge perceived properly, the retention of that poorly or no perceived knowledge will not be possible.^[6] Thus for attaining proper knowledge mind and sense organs should function optimally and this can be possible only if adequate sleep is taken at proper timings. It is seen that sleep is very much necessary for proper functioning of Central Nervous System.^[34]

Thus here, through this article efforts are being made to understand the importance of sleep in student's life, how adequate sleep and proper sleeping hours can help them in perceiving the knowledge and its retention for long duration. This can help conclude that not always long hours of study

without sleep can help u score good grades but quality time study (even for less hours) but after taking adequate and quality amount of sleep can help increase your concentration, perception capacity and the retention of perceived knowledge as well.

- **Nidra:**

According to our classics, *Nidra* when taken properly in terms of quantity and quality bestows *Gyananam* (Knowledge and intellect), on the other hand an abnormal sleep in terms of quality and quantity bestows harmful effects or the opposite qualities of those said i.e. *Agyanam*.^[1] *Charak Samhita* states that Happiness, misery, nourishment, emaciation, strength, weakness, virility, sterility, knowledge, ignorance, life and death – all these occur depending on the proper or improper sleep.^{[1][3]} Like the night of destructions, untimely and excessive sleep and prolonged vigil take away both happiness and longevity.^{[4][5]} But the current lifestyle has promoted irregular and improper sleeping habits which are becoming increasingly prevalent amongst the people and especially among high school and college students.^[23] Due to this lack of sleep, there is a vast deterioration of memory too.

- **Physiology of Nidra (sleep):**

When the mind gets exhausted and the sensory and motor organs become inactive then the individual gets sleep.^[6] The sensory and motor organs are not active because of the inaction of individuals. Here, 'Manas' denote 'Internal senses' (*Antahkaraṇa*) or self accompanied by *manas*. 'Karmatmanah' means senses or it may denote worldly souls.

Also according to *Sushrut*, whenever the *chetana* is overpowered by the accumulation of *tamas*, the sensation conveying channels of the body are

blocked or checked up by the *sleshma* which obstructs the internal channels causes unable to perform normal functions of the sense organs due to exhaustion and there by manifests sleep.^[7]

- **Smriti (Memory):**

Memory is nothing but remembrance of object i.e. directly perceived or heard or experienced.^[8]

Memory (*Smriti*) comprises an important facet of perception of knowledge (*gyanagrahana*).^[30] Proper perception of past knowledge is primarily essential for *smriti* in a person. Perception of knowledge (*gyanagrahana*) can only happen due to proper synchrony between *Atma, mana, indriyas* and *indriyas artha*.^[9]

When the *mana* is fatigued or when proper *indriya* and *indriyarthasannikarsha* is not happening *gyanagrahana* process will be hampered and thus this improper perception of knowledge will hence lead to improper understanding of things and improper retention of things, thereby affecting the memory of the person.^[10]

The factors (*karanas*) which leads to *Smriti* are:^[30]

1. *Nimitta* – Knowledge of cause of thing and event etc.
2. *Rupagrahanam* – that which is perceived through eyes i.e. knowledge of form.
3. *Sadrishyat* – Knowledge of similarity
4. *Viparyayat* – knowledge of contrast.
5. *Satvanubandhat* – By the concentration of mind.
6. *Abhyasat* – By the constant practice or repetition.
7. *Gyananayogat* – By the attainment of spiritual knowledge.
8. *Punashrutat* – By the repeated hearing.

- **Physiology of Smriti:**

The process of *Smriti* involves the perception of an object or knowledge for

the first time and then remembering its special features after certain time.^[11]

I. First stage- Perception of objects (knowledge):

The perception involves a complex concomitance of *atma* (soul) with *Mana*, *Mana* with sense organs and sense organs with respective sense objects.^[10] According to *Chakrapani*, *Pragyna* or knowledge can be obtained by means of three entities i.e. *Dhi*, *Dhriti* and *Smriti*.^[12]

According to Ayurveda, *Mana* is said to be *Ubhyatmaka* i.e. both sensory as well as motor.^[35] *Mana* when come in contact with sense organs (*Indriyas*) then the object of sense is perceived.^[13] *Mana* by its *vishaya* discriminate that perception into beneficial or harmful category and after this only the intellect decides whether to accept or reject the perception received based on its quality after the acceptance of the perceived knowledge *Mana* associate with *Atma* and it is the one who experience the knowledge.^{[14][10]}

Pranavayu situated in the head controls and stabilizes intellect (*Buddhi*), heart (*Hridaya*), mind (*Chitta*) and sense organs (*Indriya*). It can be correlated to different centers and areas of the brain, which are responsible for perception of knowledge.^[15]

- i. *Udana Vayu* situated in chest and traveling through umbilicus, throat, nose etc. is responsible for the *Smriti*.^[15]

According to *Acharya Sushruta*, intelligence in the form of understanding of scriptures is one of the normal functions of *Pitta* and again specifically *Sadhaka Agni* or *Sadhaka Pitta* as specifically responsible for a good *Medha* (intellect).^[16] *Vagbhata* considers *Sadhaka Pitta* situated in *Hridaya* (heart) to be responsible for mental faculties like *Buddhi* (intelligence), *Medha* (intelligence

and ability to grasp and retain the minor details), etc. and also responsible for achievements of a particular goal.^[17]

II. Second Stage - The process of retention of experience (knowledge):

- i. *Tarpaka Kapha* situated in the head nourishes the *Indriyas* and helps in perception. The retention of the perceived object is brought about by *Kapha* as it is the normal function of *Kapha*.^[18]
- ii. *Pitta* having *Ashukari* (fast spreading) and *Tiktoshna* qualities stimulates the mind and helps in perception of the object and recollection of previous expression and also fast retention of the perceived knowledge.^[19]
- iii. *Kapha* is responsible for sturdiness, knowledge, intelligence, ignorance etc. It is responsible for retention of the previously experienced object.^[20]

• Relationship between Nidra and Smriti:

Previously experienced or perceived objects like pot is remembered after some time by its special features is known as *Smriti* or memory.^[21] Remembering about the already experienced person through its looks or an object by its shape or its peculiar qualities and applying that retention of knowledge in present to identify another similar person or object is termed as *Smriti*. Its also said that the *Smriti* or previous experiences get consolidated when *Mana* (mind) with *Atma* (soul) gets synchronise with *Indriya* (sense organs) and *Indriya-artha* (the objects of senses).^[10]

But this above synchrony between *atma*, *mana*, *indriya* and *indriya-artha* will be broken if there is improper *nidra*. Due to improper, the above said *doshas* taking part in physiology of *smriti* gets vitiated and thus leading to non-coordination of *atma*, *mana*, and sense organs which in-

turn lead to obstruction in perception of the knowledge leading to learning incapability, academic failure and affect *smriti* (memory).^[13]

• **Lack of sleep:**

Lack of *nidra* leads to vitiation of all three *doshas* viz. *Vata*, *pitta*, *kapha*. There occurs *vata prakop* and increased *vata* in turns leads to yawning, body aches, *tandra*, loss of concentration and digestion problems.^{[22][23]}

1. Due to improper *nidra* there occurs *Vata prakop* mainly *prana vaya*, *udana vaya* and *vyana vayu*.

a. *Prana vayu*- control of *buddhi* & *manas* are functions of *prana*. Thus vitiated *prana* loses this control i.e. *upaghata* of these factors^[15]

b. *Udana vayu*- *prayatna* (endeavour), *urjha* (energy), *vakpravritti* (speech) are functions of *udana* thus its vitiation results in loss of interest, loss of energy and loss of intended growth^[15]

c. *Vyana vayu*- its vitiation leads to disturbances in functions of *manas* upto some extent, leading to loss of enthusiasm as well as interest in work^[15]

2. *Pitta prakop*(*sadhak pitta*)-vitiation of *pitta* results into impairment of its functions which are responsible for good *medha* and *utsaha* (enthusiastic) leading to disturbances in *dhee*, *dhriti*, *smriti*.^[17]

3. *Kapha kshaya*- *kapha* is said to be the potency of the living being, but due to *ratrijagaran* or lack of sleep there is *Kapha kshaya* and thus body and mind withdraws from the sensory activities.^[18]

Vitiation of the *vata dosha* affects on *mana* and cause abnormality in sensory functions (*gyanendriya*).^[24] *Sadhak pitta* and *kapha kshaya* leads to impairment in its normal functions responsible for good *medha* thus leading to obstruction in perception of knowledge due to non-

coordination between *atma*, *mana* and sense organs (*gyanendriya*) as it is said that knowledge can be perceived only when there is co-ordination between *atma*, *mana*, *indriya*, *indriya-arth* get coordinated with *mana* and thus thereby causing negative impact on learning, memory (*smriti*) and academic performances in students.^[13]

DISCUSSION:

Among college-aged students, one of the most common cause for the lack of concentration and learning capability is because of daytime sleepiness and this occurs due to sleep deprivation (*Ratrijagaran* or lack of sleep), i.e. students get inadequate sleep because they go to bed late and wake up early. The most commonly reported reason is to “stay awake to study”.^[23] But this lack of sleep leads to poor sleep quality and little retention of study material (memory). This can lead to poor focus, short attention span, greater vulnerability to distracting stimuli and learning and memory impairment which may in-turn deteriorates their academic performances and learning capability.^[34]

• **Demerits of *Ratrijagaran*:**

If one remains awake in *Vata-kala* i.e. in late night, then *Vata* gets vitiated thereby causing loss of interest, loss of enthusiasm, impairment in coordination of sensory impulses, lethargic feeling, lessen the power to concentrate or focus on the work or study, etc as its said in Ayurveda classics that- “*vayus...pravartaka chesta naam* (initiate movements, leads and control mind)...*sarve-indriyanam udyojaka* (employs all sense organs in their activity)”.^{[24][26]}

This it can be concluded that *ratiijagarana* may lead to abnormal sensory function as it is said that its normal function is *sarve-*

indriyanam udyojaka (employs all sense organs in their activity), *sarveindriyanam abhivodha* (carries all sense objects).^[27]

• **Effects of Divaswapa:**

Divaswapa (Day sleep) is considered as one of the etiological factor for *smrIti vibhramsha*.^[28] It is said that, sleeping during the day time in the seasons other than summer is not advisable as it causes vitiation of *kapha* and *pitta*.^[29] If one violates the prescription regarding day sleep, he should subject himself to headache, timidness, heaviness of the body, malaise, loss of digestive power, oedema, anorexia, nausea, rhinitis, drowsiness, impairment of the memory and intelligence, obstruction of the circulating channels of the body, fever, weakness of sensory and motor organs and thus continuous indulgence can result in alteration in the processes of digestion and metabolism and resulting in alteration / reduction of growth, *chesta* and *smritihrasa*.^[26]

On an average, an individual need atleast seven to eight hours of sleep at night for the body and brain to function normally. So staying up all night, missing out on the recommended amount of sleep, individuals brain will be equally as weary-rendering a sharp decrease in performance for specific learning and memory tasks.

But due to lack of sleep at night (*Ratrijagaran*) leads to increased *vata* in-turn leads to yawning, headache, body aches, *bhrama*, *glani*, *tandra*, loss of concentration and digestion problems thus can creates obstruction in all these *karanas* of *smriti*.^{[22][30]} Thus an individual's brain loses efficiency to concentrate, lose interest in work, lack of enthusiasm to learn something new, and physical tiredness with each hour of sleep deprivation.^[31]

These all consequences can be stopped if proper *nidra* (sleep) is practiced in day-to-day life. Proper sleeping time at night and waking up early in the morning should be practiced as it is also said that, 'Early to bed and early to rise; makes a person Healthy, Wealthy and Wise'.^[32] This habit will also reduce the excessive intake of frequent caffeine containing beverages to reduce sleepiness and improve the ability to sustain wakefulness in name of late night studies. Early going to bed will minimize the late night socializing and use of cell phones, computers, etc. thus preventing students from sleep deprivation which ultimately causes poor cognitive functions and result in poor academic performances.^[23]

• **Time suitable to wake-up: Prataha Uthana (early awakening) :**

Though the duration of sleep is not directly mentioned in the Ayurvedic classics but indirectly it can be understood by the verse given by *Acharya Vagbhata* i.e. one should wake up in the *Brahmamuhurta* i.e. 48 minutes before the Sunrise following the proper digestion of food taken at night.^[33] Waking up early in the morning before a test to go over the material again instead of staying up all night as adequate sleep of high quality and optimum duration facilitates memory processing and learning.

CLINICAL SIGNIFICANCE:

The college years are a time of critical transition from adolescence to adulthood. For many individuals, this transition is associated with inadequate sleep and daytime sleepiness. Inadequate sleep hygiene is common, as students often use technology and substances that compromise sleep quality and quantity.^[23] This chronic sleep deprivation may impair academic performance and mood

regulation and most of the students are at risk for insomnia, and those may also be at risk for academic failure. So there should be an accurate programme to help the students to identify the physical and psychological symptoms as early as possible. This will help to provide adequate guidance and to improve the academic as well as physical performance. Any student who perform poorly in academics or notice that any student those who dosing in the class to be monitored and referred to the concerned professional. Further research is needed to not only determine how to best educate students about the importance of sleep and the consequences of sleep deprivation, but also how to translate this knowledge into practice.

CONCLUSION:

Thus this article concludes that- A sleep deprived brain is dysfunctional!

Lack of sleep brings about Mental and physical exertion leading to inactivity of the mind resulting in the dissociation of the mind and the sense organs from their objects which is responsible for deterioration of memory. Earnest also said- "Sleep rejuvenates by providing an opportunity for the metabolism, body and brain to slow down and recover," he said. "It's crucial that it's not missed."

Study in morning and after taking adequate sleep for better retention-As the day wears on, the brain also becomes wearier. This daily rhythm in cognitive performance is controlled by our body clocks, and performance for learning and memory is higher during the morning and day, not late at night.

Adequate sleep has a crucial role in enhancing cognitive skills especially memory retention. Poor night time sleep quality and the consequent daytime

sleepiness affect physical and cognitive health of students and their academic performance. Adequate sleep is essential to refresh the students every day and help them in learning and memory processing. It helps maintaining concentration, executive cognitive functions, sensorimotor integration and memory processing.

We will all probably encounter sleep deprivation at some point in our lives, whether willingly or unwillingly. Still, if you think staying awake all night is beneficial to your study habits, think again.

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Source of support: Nil Conflict of interest:
None Declared

*Cite this Article as : [Sharma Pooja Rampal et al :
Impact of Lack of Nidra on Smriti (Memory) in
Academic Performance: A Literature Review]
www.ijaar.in : IJAAR VOLUME IV ISSUE
VII MARCH - APRIL 2020 Page No: 822-829*