

Sleep Deprivation And its Impact on Doctors Doing Continuous Duties

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Abstract: Continuous duties for 24 hours ,36 hours and even 48 hours are very common in medical college, tertiary care ,hospitals, icus, casualty op. many doctors are knowingly or unknowingly doing duties for years together with much difficulties, they burn themselves for their patients, but not getting adequate recognition in the form of money, awards and rewards but they get stress, burnout, diseases like hypertension obesity, diabetes and sleep disorders which result in decreased cognitive functions and adversely affect their performance There are no studies in India regarding sleep problems among doctors

I. Introduction

Harrison text book of medicine states

The practice of scheduling resident physicians to more than 16 hours of duty in a day Impairs performance similar to alcoholic intoxication and is hazardous to both patient and physician who adds night shift work as carcinogen(222 page no 18 th edi) Sleep deprivation is the condition of not having enough **sleep**; it can be either chronic or acute. A chronic

Sleep-restricted state can cause fatigue, daytime sleepiness, clumsiness and weight loss or weight gain. It adversely affects the brain and cognitive function.

Sleep deprivation can lead to higher risk of chronic health problems like high blood pressure, heart disease, and stroke. According to Harvard Medical School, for people with hypertension, **one night without enough**

Sleep can cause elevated blood pressure all through the next day.

According to a study conducted by a consumer products giant, nearly 93% Indians are sleep-deprived. The changing lifestyle and intrusion of modern gadgets have only aggravated the situation.

The study further says that 72% of Indians are waking up one to three times per night and 87% of them say lack of sleep is affecting health. On the impact on productivity, the study reveals that more than 58% of Indians believe their work suffers due to lack of adequate sleep whereas 38% have witnessed a colleague falling asleep at work.

"Food habits, lack of exercise, irregular sleep and varying working styles are basic reasons of sleep apnea. Interestingly, patients don't take sleep disorders seriously which is a cause behind many other ailments including obesity, hypertension and diabetes," said Dr Ved Prakash, adding "Patients often come for the treatment of hypertension and diabetes while upon diagnosis it is revealed that sleep apnea is one of the basic reasons for this disorder."

* 93 per cent of Indians are sleep deprived, getting less than 8 hours per night

* 58 per cent believe their work suffers due to lack of adequate sleep

* 11 per cent take leave from work because of lack of sleep

* 11 per cent have fallen asleep at work due to a poor night's sleep and 38 per cent witnessed a colleague falling asleep at work

* Lack of sleep also affects family relationships according to 19 per cent

* 87 per cent of Indians say lack of sleep affects health

* 72 per cent of Indians are waking up 1 to 3 times per night

* 15 per cent wake up over stress at work

* 33 per cent Indians snore

* Up to 14 per cent snore as loud as or louder than talking

* Only 2 per cent of Indians discuss their lack of sleep with a physician

- Sleep Deprivation Symptoms.
- Sleepiness. ...
- Mood Changes. ...
- Difficulty Concentrating and Impaired Performance. ...
- Memory and Thinking Problems. ...
- Disorientation, Hallucinations and Paranoia. ...
- Somatic Complaints. ...
- Disruption of Sleep Cycle.

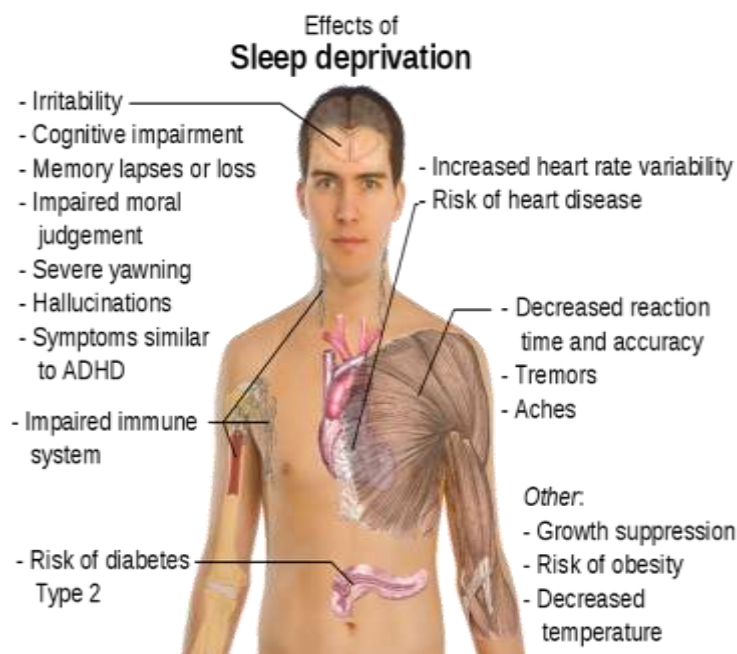
Sleep deprivation is a form of torture.

After two nights without sleep, the hallucinations start, and after three nights, people are having dreams while fairly awake, which is a form of psychosis.

"By the week's end, people lose their orientation in place and time - the people you're speaking to become people from your past; a window might become a view of the sea seen in your younger days. To deprive someone of sleep is to tamper with their equilibrium and their sanity.

It was a favoured torture technique of the KGB Menachem Begin, the Israeli prime minister from 1977-83, was tortured by the KGB as a young man. In his book, *White Nights: The Story of a Prisoner in Russia*, he wrote of losing the will to resist when deprived of sleep.

"In the head of the interrogated prisoner, a haze begins to form. His spirit is wearied to death, his legs are unsteady, and he has one sole desire: to sleep... Anyone who has experienced this desire knows that not even hunger and thirst are comparable with it." "I came across prisoners who signed what they were ordered to sign, only to get what the interrogator promised them." "He did not promise them their liberty; he did not promise them food to sate themselves. He promised them - if they signed - uninterrupted sleep! And, having signed, there was nothing in the world that could move them to risk again such nights and such days."



The most well-documented world record for Acute Total Sleep Deprivation is 264.4 hours held by a 17 y/o boy in San Diego. There is a rare, hereditary syndrome called Fatal familial insomnia. The first case involved a man with progressive confusion, memory loss, muscle jerking and vivid dreaming when he did sleep, followed by convulsions and death within 7 months. Studies differ as to optimum sleep time, but usually range from 6 to 8 hours. The effects of Chronic Partial Sleep Deprivation are many (as shown in the diagram above) and can be dangerous. Hence we want to conduct study to find out the problems through a standardized questionnaire and the results are analyzed, solutions are also got through it, the main aim is to bring awareness among doctors

Questionnaire Regarding Sleep Deprivation, Adverse Effects And Awareness

1. How long will u sleep in the next 12-24 hrs of your after 24 hrs duty?

1) < 4hrs 2) 4- 6hrs 3) 7-12 hrs 4) > 12 hr

2. Do you suffer decreased cognitive abilities and judgments in making clinical decisions following sleep deprivation ? Response 1. yes 2. no 3. others specify

3. Do you frequently suffer from emotional upset(lose patience quickly, mood swings, frustration, irritability increased anxiety,) immediately following 24 hrs sleep deprivation duty ?Response 1. yes 2. no 3. others specify
4. Have ever met an vehicle related accident or fall with injury following sleep deprivation ?Response 1. ye 2.N
5. Do you experience micro sleep(sleep naps) following 24hrs sleep deprivation (That's when you're asleep for only a few seconds or a few minutes, Response 1. yes 2. no 3. others specify
6. Do you suffer respiratory problems like the common cold , influenza and fibromyalgia following sleep deprivation ?Response 1. yes 2. no 3. others specify
7. Have frequent sleep deprivation resulted in obesity in you ?Response 1. yes 2. no 3. others specify
8. Did you ever noticed elevated blood pressure in the next day after sleep deprivation ?Response 1. yes 2. no 3.
9. how often you are subjecting for 24hrs continuous duty in month?Response 1. <2 times 2. 3-5 tim 3. > 5times
10. For how many years you have been doing such 24 hrs duty in your service?1. < 5yrs 2. 6-10yrs 3. >10-15 yrs 4. >15yrs
11. How many hrs per day u sleep in your school days / Ug period
1)<6hrs 2) 6-12 hrs 3) > 12 hrs
12. How many hrs per day u sleep nowadays 1)<6hrs 2) 6-12 hrs 3) >12 hrs
13. Do u become addicted to tea / coffee / substances to overcome or to manage the sleep deprivation 1)Y 2)no
14. Do you suffer from visual disturbance following 24hrs sleep deprivation duty? 1. yes 2. no 3. others specify
15. To reduce medical errors and patient harm in hospitals do you recommend stipulated working hrs for resident doctorsResponse 1. Yes 2. No 3. Others specify
16. Have 24hrs sleep deprivation resulted in following executive function symptoms in you, resulting in:
• Poor planning. Increased risk taking• Disorganization• Poor prioritizationFocus on short-term rewards
Response 1. < 2 symptoms 2. > 3 symptoms 3. All symptoms 4. None
17. Do you suffer from gastrointestinal symptoms following 24hrs sleep deprivation duty?
Response 1. Constipation 2. Diarrhoea 3. GERD 4. Decreased appetite
18. Are you aware of an increased risk for hypertension, diabetes, obesity, heart attack and stroke in the sleep-deprived individual. Response 1. Yes 2. No 3. Others specify
19. Are you aware of sleep range for the following age groups as recommended by National Sleep Foundation (NSF) 2015Preschoolers (3-5): 10-13 hoursSchool age children (6-13): 9-11 hours Teenagers (14-17): 8-10 hours Younger adults (18-25): 7-9 hours Adults (26-64): 7-9 hours Older adults (65+): 7-8 hours Response 1. Yes 2. No 3. After reading questionnaire
20. Do you think what are the solution for night duty problems ?
1)8hrs duty 2)posting 2 doctors in a duty 3)shift duty 4)any other suggestions

Sl.No.	A	B	C	D	Total
1.	60	320	160	4	780(96%)
2.	220	120			340(41%)
3.	420	36			456(56%)
4.	140	300			440(54%)
5.	360	80			440(54%)
6.	360	140			500(62%)
7.	120	160			280(35%)
8.	260	200			460(58%)
9.	320	240			560(69%)
10.	340	320	100	50	810(100%)
11.	360	400			760(94%)
12.	340	160			500(62%)
13.	120	200			320(40%)
14.	460	40			500(62%)
15.	100	280			380(47%)
16.	60	260	50	50	420(52%)
17.	420	40			460(58%)
18.	160	300	60		520(64%)
19.	160	300	20		480(59%)
20.	180	40	280		500(62%)

Most doctors sleep less than 4-6hrs and suffer decreased cognitive abilities and judgments in making clinical decisions. Most replied to suffer from emotional upset. 68% (300/440) met an vehicle related accident or fall with injury following sleep deprivation. 81% (36/440) experience micro sleep(sleep naps) following 24hrs sleep deprivation 72%(360/500) suffer respiratory problems like the common cold , influenza and fibromyalgia.92% (460/500) suffer from visual disturbance following 24hrs sleep deprivation.92% (420/460) suffer from some form of gastrointestinal symptoms following 24hrs sleep deprivation.62% (300/480) were not aware of recommended sleep range. Most doctor favor shift duty to circumvent continuous 24hrs duty. Deprivation of sleep is distressing for the subjects with evidence showing raised stress hormones which may suppress memory consolidation.[1]. 65% (220/340) in our study suffered decreased cognitive abilities and judgments in

making clinical decisions following sleep deprivation. Chronic sleep restriction to about 5 h per night appears to produce even greater decrements in psychomotor vigilance performance, but these declines eventually level off at a substantially reduced level; further restriction to less than about 4 h nightly appears to lead to continued degradation in vigilance performance[2,3] According to Orzel-Gryglewska (2010), the most common causes of sleep deprivation are associated with lifestyle and work-related factors. College students in particular are faced with countless social and emotional adjustments at the beginning of each school year. Adjustments such as new living conditions, roommates, academic expectations, and jobs can be taxing on college students (Liguori, Schuna, & Mozumdar, 2011). Students are often required to find a balance between schoolwork, social activities, and careers. In many cases, sleep is sacrificed for other activities. A study conducted by Pace-Schott et al. (2009) suggested that most university students accumulate sleep debt over time[4]. The negative effects of a lack of sleep can be detrimental to an individual's health and body. Studies show that sleep deprivation has been linked to both mental and physical complications. A lack of sleep can negatively affect mood, performance, and overall health (Shulan, I-Chen, & Ling-Ling, 2007) [4]. Sleep deprivation can lead to an elevated risk of high blood pressure and heart attack (Marzano et al., 2010). Individuals may not even know the damage that is being done to these internal systems as a result of sleep deprivation. According to AlDabal and BaHammam (2011), sleep is essential for certain bodily functions such as learning, cellular repair, and memory processing. Without sleep, these processes do not function properly.

Conclusion; From the study, it is clear the effects their sleep deprivation is deleterious on memory, problem solving, and critical thinking skills, gastro intestinal upset such as indigestion and GERD, prone for accidents. In order to avoid the use of harmful sleeping medications it is advisable to make lifestyle adjustments that aid in minimizing sleep deprivation. One adjustment recommended is to practice daily relaxation technique such as meditation. Such techniques allow individuals to relax both the mind and body. This is an excellent way to reduce stress and encourage better sleeping habits. Alcohol and caffeine are also substances that should be avoided before sleep and avoid watching computers, televisions and mobile phones.

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