

Original research article

Effects of continuous duty among doctors-a prospective study

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Abstract

INTRODUCTION : Continuous duties for 24 hours ,36 hours and even 48 hours are very common in medical college, tertiary care ,hospitals, ICU, casualty . many doctors are 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 or 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 very few studies in India regarding sleep problems among doctors.

AIM OF THE STUDY : The purpose of the study was to determine the effect of 24 hours duty on the doctors working in government medical college hospitals AND solutions for the same

MATERIALS AND METHODS: Based on, a standard questionnaire ,this survey was conducted among doctors doing continuous 24 hours to-36 hours, working in various Government Medical College Hospitals in Tamil Nadu south India, during May 2018 to June 2018, the results are analyzed and the solution for that obtained.

RESULTS: In our study most of the doctors sleep less than 6 hours a day .and admit that they suffer from decreased cognitive abilities and judgments in making clinical decisions following 24 hours duty .most had emotional upset. most doctors suggested shift duty instead of 24 hours duty.

CONCLUSION: From this study the sleep deprivation due to continuous duty is deleterious to memory, clinical problem solving, critical thinking skills, which adversely affect the doctors health and patients health. and duty timings not exceeding 8 hours is the need of the hour.

Introduction:

Medical profession is one of the most challenging profession as it demands physical and mental involvement of doctors and this situation is even more critical in Asian context especially in South Asian Countries like India, where the literacy level and understanding of the patients and their relatives are very low and their expectations are very high hence Stress cannot be avoided. Stress of work when combined with sleep deprivation results in decrease life span of doctors when compared to general public.

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. Medical profession nowadays having a lot of rising demands which strain them physiologically and psychologically. Stress is an element of everyday living and so is barely avoided (*Nayak, 2008*).

Harrison text book of medicine states(222 page no 18 th edi) 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 the physician .world health organization adds night shift work as carcinogen. 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

Many studies on resident physicians have demonstrated that extended work hours are associated with a negative impact on well-being, education, and patient care. Extended work hours and decreased sleep are associated with sleepiness reflecting the effects of both chronic and acute sleep deprivation. In contrast, when they were able to sleep for 4 nights, the sleep latency normalized in almost all of them (12.0 ± 6.4 minutes); only 1 of the 11 participants remained hyper somnolent under all conditions. In another study, sleepiness and mood changes did not resolve after the first recovery night period in internal medicine residents, again potentially reflecting the effects of chronic sleep deprivation. Importantly, residents underreported their degree of sleepiness, which may reflect an impairment in their ability to perceive it accurately. Despite higher scores on sleepiness scales with extended work hours, surgical residents scored lower on a sleep deprivation impact scale when compared with nonsurgical residents who worked fewer hours and were less sleepy .In another study, anesthesiology residents demonstrated poor ability to discriminate micro sleeps documented by electroencephalogram. They failed to report sleep in 49% of the episodes identified by electroencephalogram as sleep and when they reported that they had stayed awake, they were wrong 76% of the time.

MOOD: Studies demonstrating that sleep deprivation adversely affected the mood of medical trainees Friedman et al16 reported that sleep-deprived internal medicine interns (with a mean of 1.8 hours of sleep) reported increased sadness, decreased vigour, egotism, and social affection. Difficulty thinking, depression, irritability, depersonalization, inappropriate affect, and memory deficit were reported by interns. 1981, Small described the “house officer stress syndrome” characterized by episodic cognitive impairment, chronic anger, pervasive cynicism, and family discord, as being prevalent in a “benign form” in most house officers, caused by sleep deprivation and excessive workload. Severely affected house officers suffered from major depression, suicidal ideation, and substance abuse. Sleep deprivation was associated with higher stress levels in residents, which was worse in those with large patient loads, inadequate support

Cognitive impairment—Sleep deprivation adversely affects cognitive function in many studies; extended shifts and sleep deprivation in residents have been associated with impairment in attention and psychomotor vigilance, working memory, cognitive processing, balance, fine motor skills, verbal and numeric skills, visuo motor performance, and response inhibition. Studies have included surgical, medical, pediatric, anesthesiology, and obstetrical residents. Medical residents on a rotation with every third overnight call (24–30 hours) demonstrated impairment in their attention both acutely after an extended shift and over the course of 3-week rotation. As seen in the studies of sleepiness, sleep deprived individuals poorly perceived the extent of their cognitive impairment. In a study by Qureshi et al, after a 24-hour call, pediatric residents had impairment in verbal recall and logic memory, concentration, reaction time, vigilance, and hand-eye coordination and attention lapses. However, the residents did not report any deterioration in their performance

Stress is defined as a challenge, dare, warning or threat that interrupts with the normal functioning and pace of an individual’s life (Sanderson, 2004). Cox (1978) states that stress does not only poses threat to the individual’s

quality of work but also deteriorates his physical and mental well-being. Stress is a worldwide component of everyday life that is experienced by individuals specially doctors universally

Safety: Extended shifts have been associated with risks to doctors safety, specifically exposure to blood-borne pathogens and motor vehicle accidents (MVAs). Blood-borne pathogen exposure is uncommon; in one study, the daytime rate was 40 accidents per Weiss e hour per 1000 doctors in training. However, the exposure rate was 50% higher during the night shift. The increased risk of percutaneous injuries during the night shift was confirmed in the study of Ayas et al; the risk was also higher when working an extended shift (>24 hours). Many studies demonstrate that extended shifts are associated with a higher risk of MVAs and near-miss MVAs in residents.

Considerable work has been done in the area of stress among doctors and health practitioners throughout the world, but most of the work has been done in European countries (*Aziz, 2004*).

This study can help health care professionals to understand some of the major causes of stress and its impact on performance, clinical practices , quality of health care of doctors as well as patients. Present medical workplace comprises of an intricate environment where medical professionals respond differently; some are contented and happy and are more inspired to work while others due to extreme load of work feel burned out, strained and stressed (*McManus et al., 2004*)

Doctors are under continual evaluation as their work produces immediate results and their mistakes are more obviously visible than any other profession which is also a main reason of stress (Payne & Firth Cozens, 1987).

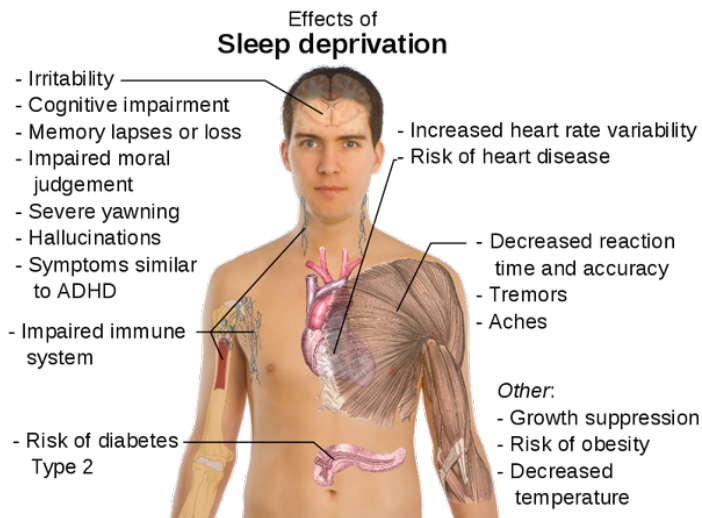
Workloads	Specific strain for each	DISEASE
	Psychic Workload	
Psychic aggression	Stress	High blood pressure
	Irritation	Lack of motivation
	Physical and mental strain	Anguish
	Anxiety	Felling of impotence
	Panic Syndrome	Mental strain
	Depression	
Monotonous and repetitive work	Stress	Sleep
	Irritation	Disregard
	Physical and mental strain	
Constant attention	Stress	High blood pressure
	Irritation	Stomachache
	Physical and mental strain	Anxiety
	Visual discomfort	Insecurity
	Headache	Depression
	Insomnia	Somatic diseases
Female workers	Stress	Depression;
	Tiredness	High blood pressure
	Strain of interpersonal relations	Insomnia
	Existential crisis	

"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 percent doctors are sleep deprived, getting less than 86hours per night

* 58 per cent believe their work suffers due to lack of adequate 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 aware lack of sleep affects health but cant stop that
- * 33 per cent 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 and physician never. consult their problems with anybody.



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.

Studies differ as to optimum sleep time, but usually range from 6 to 8 hours. The effects of Chronic Partial Sleep Deprivation are many and can be dangerous. sleep range for the following age groups as recommended by National Sleep Foundation (NSF) 2015

- Preschoolers (3-5): 10-13 hours School 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

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 and response answers in brackets:

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

1)< 4hrs (60) 2)4- 6hrs (320) 3) 7-12 hrs (160)

2.Do you suffer decreased cognitive abilities and judgments in making clinical decisions following sleep deprivation ? Response 1. Yes(220) 2. no (120).

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(420) 2. no (36)

4. Have ever met an vehicle related accident or fall with injury following sleep deprivation ? Response 1. Yes(140) 2. No(300)

5. Have frequent sleep deprivation resulted in obesity elevated blood pressure in you? Response 1. Yes(260) 2.No(200)

6. Do u become addicted to tea / coffee / substances to overcome or to manage the sleep deprivation 1)Yes (120) 2) No(200)

8. To reduce medical errors and patient harm in hospitals do you recommend stipulated working hrs for resident doctors

Response 1. Yes(240) 2. No(220)

9. Have 24hrs sleep deprivation resulted in following executive function symptoms in you, resulting in:• Poor planning• Increased risk taking• Disorganization• Poor prioritization

Response 1. < 2 symptoms (60)2. > 3 symptoms (260)3. All symptoms (50)4. No (50)

10.Do you think what are the solution for night duty problems ?

1)8hrs duty(180) 2)posting 2 doctors in a duty(40)

3)shift duty(280)

Results of the study

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% met an vehicle related accident or fall with injury following sleep deprivation. 81% experience micro sleep(sleep naps) following 24hrs sleep deprivation 72% suffer respiratory problems like the common cold , influenza and fibromyalgia

92% suffer from visual disturbance following 24hrs sleep deprivation.92% suffer from some form of gastrointestinal symptoms following 24hrs sleepdeprivation 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% 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

Conclusion:

There is good evidence to suggest that extended work hours are associated with adverse effects on doctors well-being, personal life , and patient care. Residents and faculty need to be educated about the importance of adequate sleep, because residents frequently do not use opportunities to nap strategically or obtain recovery sleep when off

duty. Efforts should be made to improve supervision and transitions of care, which, in conjunction with work hour limitation, should improve patient safety. The need of the hour is to create awareness among doctors and reduce the duty hours so that doctor and patient.

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From this study the sleep deprivation due to continuous duty is deleterious to memory, clinical problem solving, critical thinking skills, which adversely affect the doctors health and patients health. and duty timings not exceeding 8 hours is the need of the hour.

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