Section: Physiology

Original Research Article

ASSESSMENT OF SLEEP QUALITY AMONG MIDDLE AGED DOCTORS

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ABSTRACT

Healthcare professionals are at high risk of developing sleep disorders especially during an outbreak and during crisis of public health. Sleep quality has an impact on a physician's work safety like other people. This is essential for improving the physician health and their daily performance for patient care. Sleep is a natural state of rest in which the body and brain reduce activity and recover from daily functions. It restores energy and repairs tissues. It supports memory, learning and concentration. It strengthens the immune system. It helps to regulate emotions and mental health. It maintains healthy growth and hormone balance. Sleep is classified as non-REM sleep and REM sleep. Non-REM sleep is essential for physical restoration. REM sleep is essential for memory consolidation and brain development. Normally recommended sleep duration is 7 to 9 hours. Effects of sleeplessness are fatigue, daytime drowsiness, poor concentration, increased stress and irritability, weakened immunity, higher risk of health problems like obesity, diabetes mellitus and heart diseases. Good sleep habits are regular sleep schedule, avoid caffeine and heavy meals before bedtime, limit screen use before sleep, and keep the bedroom quiet, dark and comfortable, exercise regularly. A total of 224 middle aged doctors in all specialities both males and female doctors in a tertiary care centre in Chennai, participated in the study and the responses were collected. Of the 224 doctors, 61.8% (136/224) were classified as "poor sleepers" having global PSQI (Pittsburgh Sleep Quality Index) score >5. Measures of sleep quality were significantly deranged among poor sleepers when compared to normal sleepers. Statistically significant differences were observed within sleep time, sleep onset latency, subjective sleep quality, use of sleep medications and daytime dysfunction.

INTRODUCTION

Sleep is a natural state of rest in which the body and brain reduce activity and recover from daily functions. It restores energy and repairs tissues. It supports memory, learning and concentration. It strengthens the immune system. It helps to regulate emotions and mental health. It maintains healthy growth and hormone balance. Sleep is classified as non-REM sleep and REM sleep. Non-REM sleep is essential for physical restoration. REM sleep is essential for memory consolidation and brain development. Normally recommended sleep duration is 7 to 9 hours. Effects of sleeplessness are fatigue, daytime drowsiness, poor concentration, increased stress and irritability, weakened immunity, higher risk of health problems like obesity, diabetes mellitus and heart diseases. Good sleep habits are regular sleep schedule, avoid caffeine and heavy meals before bedtime, limit screen use before sleep, and keep the bedroom quiet, dark and comfortable, exercise regularly.

Aim & Objective

1. To assess sleep quality among middle aged doctors for a better quality of life.
2. To correlate it with the predictors and its impact on personal, professional and social life.

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MATERIALS AND METHODS

Our study was conducted in a tertiary care centre in Chennai, Tamilnadu. It is a cross sectional study. The study included 224 middle aged doctors in all specialities both male and female. The study duration was 4 weeks. PITTSBURG SLEEP QUALITY INDEX was used to evaluate sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, sleep medications, day time sleepiness. The Epworth Sleepiness Scale was used to measures a person's excessive daytime sleepiness. The Perceived Stress Scale (PSS) was used to assess stress.

Sample size

N = 4pq / d*d = 4*71*29 / 6*6 =224

Inclusion Criteria

Doctors in all specialities -both male and female, both clinical and non-clinical departments, both physicians and surgeons were included. Age group of 35 to 45 years (early middle age) were selected.

Exclusion Criteria

Doctors with age group of <34 and >45 years and with history of Obstructive sleep apnoea, parasomnias, narcolepsy and psychiatric illness were excluded.

Statistical Analysis

The data entry and analysis were performed using the software package, Statistical Package for Social Sciences, version 17.0. P value < 0.05 is considered statistically significant.

RESULTS

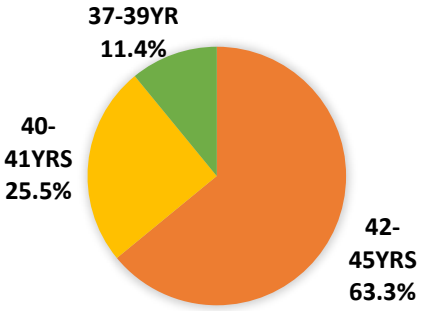

Figure 1: Age Distribution of the respondents

The study population consists of 224 middle aged doctors with 11.4%, 25.5%, 63.4%, being enrolled in 37–39 years, 40–41 years and 42-45 years age groups respectively. Mean age was 43years.

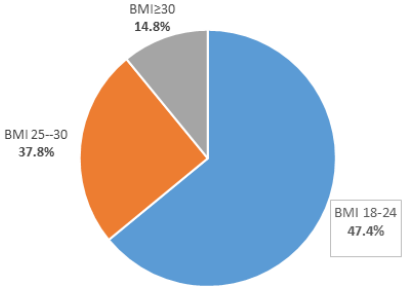

Figure 2: BMI of the respondents

Among 224, 14.8% were obese (BMI ≥ 30), 37.8% were overweight (BMI 25‑ 30), 47.4% were normal (BMI 18.5‑ 24.99).

Table 1: Socio demographic factors and work-related characteristics and their associations with poor sleep quality among the studied participants (no of subjects = 224)

S.NO		Good sleep	Poor sleep
1	**AGE** **≤40yrs** **≥40yrs**	55% 45%	23% 66.8%
2	**YEARS OF EXPERIENCE** **≤15yrs** **≥15yrs**	57.5% 46.5%	36.8% 57.8%
3	**Working hours / week** **< 48** **≥ 48**	57.5% 36.7%	30.5% 52.5%
4	**Night shifts (Yes)**	22.5%	52.5%
5	**With H/O Chronic illness**	20%	67.5%
6	**With H/O Medications for chronic illness**	12.5%	59.2%
7	**With H/O Alcohol intake**	62.5%	47.1%
8	**Having Financial instabilities**	52%	58.4%
9	**Medical errors (Yes)**	27.5%	47.1%

As regard work-related characteristics, 58.1% of participants worked equal or more than 48 hours weekly, 62.9% had night shifts and 68.5% had equal or more than 15 years' experience. Participants with chronic illness accounted for 63.5%. Alcohol intake and financial instabilities contributed to 49%.

Table 2: Comparison of various measures of sleep quality between poor and normal sleepers Variables

Variables	Poor sleepers	Normal sleepers	*p* value
Mean PSQI scores (SD)	**7.8**	**3.5**	<0.001
Total sleep time (SD) (h)	5.4	6.4	<0.001

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Sleep onset latency (SD) (min)	32	14	<0.001
Troubled sleep%	30%	14%	<0.001
Daytime dysfunction (3 or more times a week) (%)	28%	5.6%	<0.001
Use of sleep medications (once or more a week) (%)	34%	4%	<0.001
Sleep quality Good			52.,4%
Poor			48.6%

Of the 224 DOCTORS, 61.8% (136/224) were classified as "poor sleepers" having global PSQI score >5. Measures of sleep quality were significantly deranged among poor sleepers when compared to normal sleepers. Statistically significant differences were observed within sleep time, sleep onset latency, subjective sleep quality, use of sleep medications and daytime dysfunction.

Table 3: Comparison of sleep disturbances between poor and normal sleepers

Sleep disturbances (once or more per week)	Poor sleepers %	Normal sleepers %	p value
Cannot get to sleep within 30 min	49	6	<0.001
Wake up in the middle of the night or early morning	58	17	<0.001
Have to get up to use the bathroom	29	10	<0.001
Cannot breathe comfortably	7	1	<0.001
Feel too cold or too hot	5	1	<0.001
Have bad dreams	15	4	<0.001

In comparison with normal sleepers, poor sleepers also self-reported various sleep disturbances as summarized in Table 3. As evident from the table, can't get to sleep within 30 min after lying on the bed and waking up in the middle of the night or early morning were commonly report sleep disturbances.

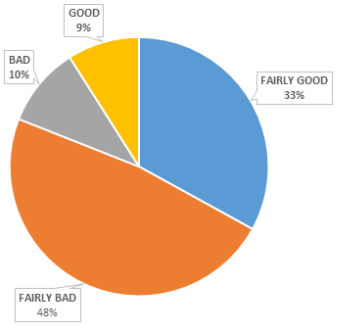

Figure 3: Subjective sleep quality

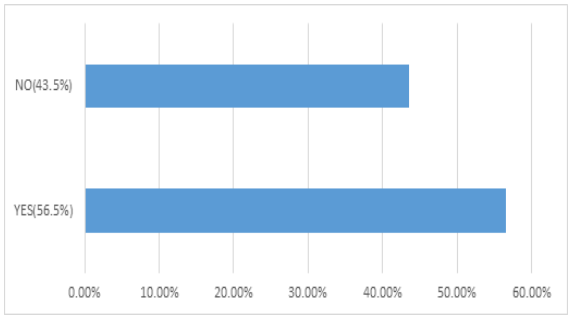

Figure 4: Late Night Sleepers

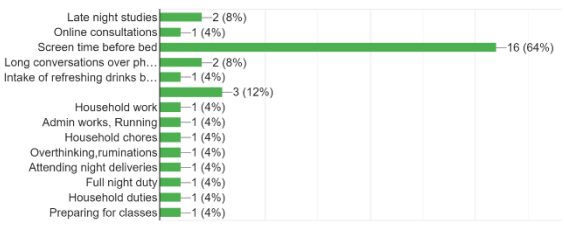

Figure 5: Reasons for Late Night Sleep

EPWORTH SLEEPINESS SCALE

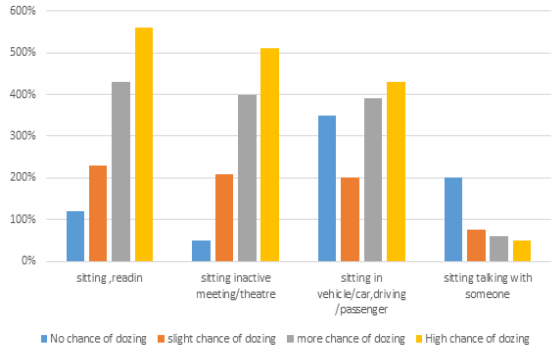

Figure 6:

Mean ESS score among poor sleepers was 7.93 versus 5.68 among normal sleepers. Abnormal ESS scores (ESS score > 10) were observed in 26.1% (58/224) study participants. Among poor sleepers, the prevalence of abnormal ESS scores was 29.5% (66/224) when compared to normal sleepers among which 11.2% (25/224) had abnormal ESS scores. From the table, it is evident that high chances of falling asleep on sitting and reading, falling asleep on sitting quietly after a lunch.

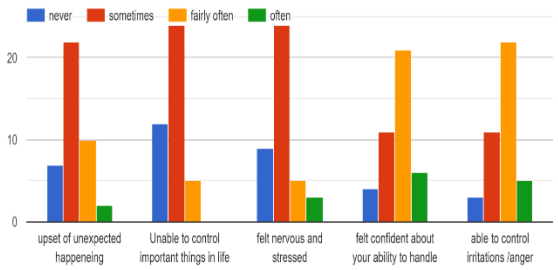

Figure 7: Stress scale

Moderate stress scores 15.4 were seen among the poor sleepers compared to low stress scores less than

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13 among normal sleepers. As seen in above table upset of unexpected happening in professional and personal life accounted to most stress followed by unable to control things in life.

DISCUSSION

This cross-sectional study aimed to measure the percentage of poor sleep quality among 224 middle aged and the results reported that nearly half of the studied doctors (48.6%) had poor sleep quality as diagnosed by PSQI >5.

Poor sleep quality is positively associated with excessive daytime sleepiness (EDS). Excessive daytime sleepiness (EDS) is defined as having increased propensity to fall asleep unintentionally during the daytime, especially in passive situations. EDS is one of the main contributing factors, mediating detrimental effects of poor sleep. Although EDS is also caused by certain medical and psychiatric conditions and sleep disorders, its association with deprived sleep has been extensively studied and validated. The overall prevalence of EDS, as observed in our study, was 20.1%. Poor sleepers compared to normal were 2 times more likely to develop EDS.

Sleep disturbances such as difficulty in breathing, need to use the restroom at night, feeling cold or hot, snoring, and pain could point to underlying medical causes. It warrants further clinical and laboratory investigations to exclude obstructive sleep apnoea and other medical problems as a potential causes of disturbed sleep among poor sleepers.

56.5% participants were late night sleepers which contributed to poor sleep quality and important contributor was screen time before bed which accounted to 65%. Stress score was above 13 among poor sleepers which shows mental well-being accounted to good sleep and work stress to poor sleep. Sleep-wake cycle is disturbed by changes in circadian rhythm due to changes in the neurotransmitters - Acetyl choline and serotonin, which mediate sleep.

Excessive daytime sleepiness, irritability, lack of concentration, use of sleep medications, were effects of poor sleep among middle aged doctors.

CONCLUSION

Nearly half of middle aged doctors were reported to have poor sleep quality. It is associated with less total hours slept, more sleep onset latency; and increased level of daytime sleepiness. Proper sleep hygiene should be considered as one of the EDS preventing strategies. Therefore, doctors should be educated about the importance of proper sleep practices and consequences of poor sleep quality. Only 30% seek help in-spite being frontline health caregivers compared to 13.8 % in General population. So necessary actions should be taken to establish proper policies and guidelines governing duty hours, call schedule and workload of doctors. Further studies employing objective measures are required to validate the relationship of various factors leading to impaired sleep quality.

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