



PREVALANCE OF SLEEP DEPRIVATION AND ITS RELATION WITH STRESS AMONG THE HEALTH CARE PROVIDERS OF A TERTIARY CARE CENTRE IN RURAL SOUTH INDIA.

Community Medicine

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ABSTRACT

BACKGROUND: The hours of sleep obtained and stress disorders among healthcare providers can have a significant impact on their work performance and in turn the safety of patients they are interacting with. **OBJECTIVE:** To assess the sleep pattern and stress level with its associations in health care providers. **METHODOLOGY:** A cross sectional study among health care providers in SMIMS, Kanyakumari during January 2020 using pretested questionnaire and DASS 42 & PSQI scale. **RESULTS:** Among 59 healthcare providers, gender wise 31 (52.5%) were males. 34 (57.6%) were Post Graduates and the rest being consultants. The overall prevalence of sleep deprivation and stress was found to be 69.5% and 33.9% respectively, with significant association between sleep deprivation and stress ($\chi^2=6.002; p<0.05$). **CONCLUSION:** Practicing good sleep hygiene and periodic screening from annual medical check-ups will help address this issue among health care providers.

KEYWORDS

Sleep, Stress, Health Care Providers.

INTRODUCTION:

Sleep disorders are a group of syndromes associated with disturbance in the duration of sleep, quality or timing of sleep and performance or physiological conditions associated with sleep¹. A doctor's ability to provide high quality care can be adversely affected by many factors including sleep deprivation². The amount of sleep that a person needs varies from person to another, but on average most adults need about 7-8 hours of sleep each night to feel alert and well rested. Sleep deprivation occurs when an individual had insufficient sleep with stress being a cause may a times³.

Factors such as excessive working hours, sleep deprivation, and repeated exposure to emotionally charged situations play an important role in causing stress. Chronic stress can cause destructive changes in the body such as depression, heart disease, cancer, stroke, ulcers, back pain, headaches, indigestion, raised blood pressure and a variety of other problems. All these symptoms attribute to experience an out of phase sleep wake cycle which is in direct conflict with their biological circadian rhythm⁴. Hence doctors are easily prone to fall into this because of the environment in which they work⁵⁻⁶.

This study was planned to address this issue that may help in developing interventions for future which would improve the overall quality of life and performance among the health-care providers.

OBJECTIVES

1. To assess the sleep pattern and stress level in health care providers.
2. To find the association between sleep pattern and stress.

METHODOLOGY:

This cross-sectional study was conducted among health care providers (consultants and post-graduates) at Sree Mookambika Institute of Medical Sciences, a private teaching tertiary hospital in Kanyakumari District, Tamilnadu, South India during January 2020. Doctors below 60 years of age and working minimum 45 hours per week were our study participants and those who were on any medication for neurological disorders were excluded.

A pilot study was conducted among 35 house surgeons to ascertain the feasibility and ease of administering the questionnaire, the availability and cooperation from the doctors and to determine the method of statistical analysis. With reference from previous study, the prevalence of chronic sleep deprivation⁷ was 62% thus the sample size for our study was calculated to be 59 using the formula, Sample size, $n = Z^2 pq / L^2$. Ethical clearance was obtained prior to the study.

Stratified random sampling method was used for selecting study participants. Based on parent department the study population was divided into 8 strata. A total of 59 doctors took part in the study which included 11 general surgeons, 6 orthopedicians, 10 physicians, 4

cardiologists, 3 nephrologists, 12 gynecologists, 7 pediatricians and 6 radiologists. A list of workers from these eight departments were obtained from the HR department and computer generated random numbers were used to recruit the study participants. Informed written consent was obtained.

Structured interview schedule:

The questionnaire consists of two parts. (i) socio-demographic details and (ii) Assessment of sleep quality and stress using PSQI⁸ and DASS 42⁹ scale. The data were entered in MS Excel and SPSS-20 software was used to analyse the data.

RESULTS:

Of the 59 participants 31 (52.5%) were males. Consultants were 25 (42.4%) and the rest being Post Graduates. A majority of them were unmarried 34 (57.6%) belonging to a nuclear family 44 (74.5%). Most of them had work experience of ≤ 5 years 28 (47.5%). Consultants worked in 6 hour shifts with 16 (36%) of them having monthly 5-6 night duties. All post graduates worked 8 hours per day with 8-10 night duties per month (Table:1).

Table1. Socio-demographic factors

Sl.No	Variables	Frequency(N)	Percentages (%)
1.	Age		
	25-35	31	52.5%
	35-45	18	30.6%
	45-60	10	16.9%
2.	Gender		
	Male	31	52.5%
	Female	28	47.4%
4.	Marital status		
	Unmarried	34	57.6%
	Married	25	42.4%
3.	Family type		
	Nuclear	44	74.5%
	3 Generation	12	20.3%
	Extended	3	5.02%
4.	Designation		
	Consultant	25	42.4%
	Post Graduate	34	57.6%
5.	Years of Experience		
	0-5	28	47.5%
	5-15	15	25.4%
	15-25	10	16.9%
	25-35	6	10.2%
6.	Working hours		
	6 hours	25	42.4%
	8 hours	34	57.6%

6. Night Duties/month			
No duties	9	15.3%	
More than 5	50	84.7%	

Among 59 participants 39(66.1%) were free from stress but 11(18.6%) were having mild to moderate stress and 9(15.3%) had severe to extremely severe stress according to DASS-42 scale.

When questioned about overall sleep quality although 48(81.4%) participants answered good about their sleep patterns, going by PSQI scale 41 (69.5%) doctors actually had poor quality of sleep.

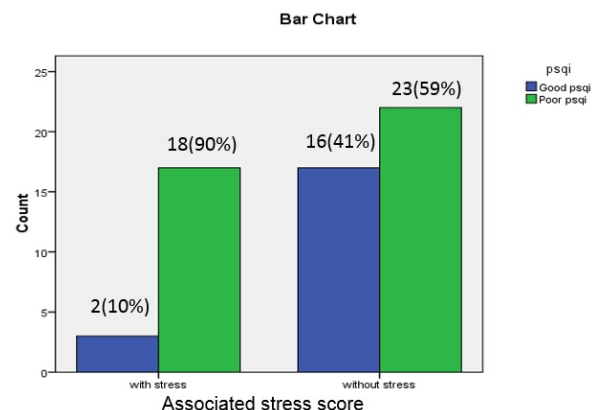


Fig.1. Association between Sleep Quality & Stress

A significant association turned out between sleep quality and stress ($\chi^2=6.002$; $p<0.01$) (Fig-1). There lies a significant association between family type and sleep quality (Table-2).

Table 2. Association between baseline variables and Sleep quality (PSQI)

S.N	Variable	PSQI >5	PSQI <5	OR	X ² -VALUE	p Value (level of significance = $p<0.5$)
1.	AGE					
	>40	12 (70.6%)	5 (29.4%)	1.07	0.9	0.77
	<40	29 (69%)	13 (31%)			
2.	GENDER					
	Male	21 (67.1%)	10 (32.3%)	0.84	0.09	0.75
	Female	20 (71.4%)	8 (28.6%)			
3.	YEARS OF EXPERIENCE					
	>15 years	12 (75%)	4 (25%)	1.4	0.31	0.57
	<15 years	29 (67.4%)	14 (32.6%)			
4.	MARITAL STATUS					
	Unmarried	25 (73.5%)	9 (26.5%)	1.5	0.61	0.43
	Married	16 (64%)	9 (26%)			
5.	FAMILY TYPE:					
	Nuclear	36 (81.8%)	8 (18.2%)	9	12.4	0.001
	Joint	5 (33.3%)	10 (16.7%)			
6.	WORKING HOURS					
	8 hours	26 (76.5%)	8 (23.5%)	2.7	1.8	0.17
	6 hours	15 (60%)	10 (40%)			
7.	NIGHT DUTIES					
	>5	33 (73.5%)	17 (26.5%)	0.24	1.8	0.17
	No duties	8 (90%)	1 (11%)			
8.	STRESS SCORE					
	with stress	18 (90.0%)	2 (10.0%)	6.2	6.002	0.01
	without stress	23 (59%)	16 (41%)			

DISCUSSION:

This study was conducted among 59 doctors among whom 50(94.3%) were exposed to more than 5 night shifts which itself is a major risk factor for sleep deprivation due to altered sleep pattern. Majority of the post-graduates 34(57.6%), had to work 8 hours and in addition

they had more than 5 night duties per month.

The prevalence of sleep deprivation according to our study was 69.5% which was similar to the study conducted by Esraa M Al-Maddah et al¹ in Saudi Arabia where the prevalence of chronic sleep deprivation among medical doctors was 63.2%. Significant association was found between sleep deprivation and depression. Among the studies conducted by BN Rusli et al¹⁰, Yuvaraj Krishna moorthy et al¹¹ and Ogunsemi Olawale et al¹² the prevalence of sleep deprivation was found to be 22.2%, 40% and 42.3% respectively.

In the present study, the mean stress score was found to be 13.8 ± 9.9 , which was lower compared to the study done by Narayan Sathya et al¹³ where it was 17.66 ± 5.25 . This can be attributed to the fact that a different scale was used (PSS Scale).

Our study finds association between family type and sleep quality and also with stress score which was similar to Jesly Joseph Mathew¹⁴ and few studies such as Balch CM¹⁵, Rosen IM¹⁶ only have examined the possible relationship between sleep deprivation and stress & depressive symptoms.

In our study 84.7% of participants had night duties more than 8 per month and they were almost two times at risk of being sleep deprived comparing to those who had no night duties. Study by N.K Saini et al¹⁷ found the overall prevalence of stress was 32.8% among doctors and the most commonest cause of stress was found to be the duty hours followed by academic duties in the department. The limitation of the present study is the limited sample size and since it is a uni-centric study it cannot be generalised.

CONCLUSION:

Medical practice implies a significant amount of sleep deprivation and many health professionals are unaware of its harmful effects, both for themselves and for their patients, threatening quality clinical practice. The number of hours and quality of sleep among doctors were strongly associated with depressive symptoms. Practicing good sleep hygiene and periodic screening from annual medical check-ups is recommended to help addressing this issue among health care providers.

Funds-Self

Conflicts of interest-None

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