Journal of Cardiovascular Disease Research
ISSN: 0975-3583, 0976-2833 VOL15, ISSUE 11, 2024

Sleep Related Disorders Among Healthy Volunteers Working In A Multinational Company In Metropolitan City.

Dr Kavyashree H M[1], Dr Tejashwini VB [2] , Dr Umadevi B[3] , Dr Sendil Kumaran D [4]

[1] Associate Professor, Department of Physiology, Sri Madhusudan Sai Institute of Medical Sciences & Research, Chikkaballapur, Karnataka.
[2]Assistant Professor, Department of Physiology, Haveri Institute of Medical Sciences, Haveri, Karnataka
[3] Professor & Head, Department of Physiology, The Oxford Medical College Hospital & Research Centre, Bangalore, Karnataka.
[4] Professor & Head, Department of Physiology, Sri Madhusudan Sai Institute of Medical Sciences & Research, Chikkaballapur, Karnataka.

Corresponding Author
Dr Kavyashree H M
Associate Professor, Physiology
SMSIMSR
9449169221
drkavyashreehm@gmail.com

ABSTRACT

OBJECTIVE: To estimate the prevalence of sleep related disorders (SRDs) in subjects working in a company & to analyze different varieties of sleep related disorders and their causes.

METHODS: 52 healthy persons of age between 20-55 years working in a multinational company as Engineers were included. Body mass index was calculated, Blood pressure was recorded using sphygmomanometer. The data was collected using standard questionnaire to evaluate sleep quality & identify individual sleep disorder consisting of Sleep Disorders Proforma, Epworth Sleepiness Scale, Pittsburgh Sleep Quality Index.

RESULTS: Methods of statistical analysis applied is Mean & standard deviation. The mean age of the respondents was 31.82$\pm$7.87 years, work hours were 9.26$\pm$1.01 h. Body Mass Index (BMI) was > 25 in 48.07%, average time to fall asleep was19 min (range: 5-90 min), average duration of actual sleep was 6.61 h (range: 4-8 h) with 50% reporting good quality sleep (global PSQI$\leq$5). The reported rate of SRDs was 50% depending on the questionnaire. Insomnia, sleep related breathing disorders (SRBD) were reported by 23.07% and 11.53%. Obesity was not associated with SRDs. In 34.16% of subjects with SRDs BMI was <25 kg/m^2. Respondents attributed SRDs to stress, office tensions, financial problems and family tensions.

CONCLUSION: Changing lifestyle, work profile, eating habits, leisure activities & different life stresses influence sleep patterns & result in sleep related disorders. They share common risk factors with heart disease, hypertension & diabetes mellitus. These have to be addressed & awareness needs to be created about sleep disorders & their health related negative consequences.

Keywords – Sleep disorders, stress, BMI

INTRODUCTION

Sleep related disorders (SRDs) impair quality of life, pose several health related problems and have been considered an unmet public health problem.[1] Recognition and treatment of these disorders may help to prevent accidents, cardiovascular diseases, psychological disturbances and improve individual performance.[2] There are few Indian studies providing information about sleep disorders in general population and in working population especially the productive age group. The present study was planned to assess sleep related disorders in working population. About 20-30% of the general population is estimated to have various types of sleep disorders.

MATERIALS AND METHODS

This study was conducted at a Multinational company in a metropolitan city. The study was approved by Institutional Ethics Committee. Approval was taken from Medical Officer of the company. Around 52 healthy persons of age between 20-55 years working in the company as Engineers were included. Those who consented were explained about the study and written informed consent was obtained. Exclusion criteria included: subjects younger than 20 years or older than 55 years, subjects other than engineers.

The proforma was in English and had two parts: Sleep related questionnaires (Part-1) and Socio-demographic information (Part-2). Information pertaining to age, gender, marital status, education, occupation, number of working hours, sleep schedule and general health status of subjects were enquired. Body mass index was calculated using weight in kilograms & height in centimeters. Blood pressure was measured using sphygmomanometer. The data was collected using standard questionnaire to evaluate sleep quality & identify individual sleep disorder using

1. Sleep Disorders Proforma (SDP)[3]: This questionnaire contains questions on age, education, height, weight in Section 1. Section 2 enquires about presence/ absence of sleep disorder and its nature. Section 3 contains question relating to major sleep disorders like insomnia, sleep related breathing disorders. Section 4 contains questions about associated medical illness, current medications, personal habits like smoking/ alcohol use, usual bedtime and wake time.

2. Epworth Sleepiness Scale (PSQI)[4]: This is a simple screening tool designed to evaluate self rated sleep quality over the preceding month, helps to differentiate good and poor sleepers. 19 items generate 7 component scores: A. subjective sleep quality, B. sleep latency, C. sleep duration, D. habitual sleep efficiency, E. sleep duration, F. use of sleep medication and G. daytime dysfunction. The components have score value of 0-3. The sum yields one global score can range from 0-21. A score >5 suggest poor sleep quality. The questionnaire requires 5-10 mins to complete.

3. Pittsburgh Sleep Quality Index (ESS)[5]: Most common questionnaire for excessive daytime sleepiness with 8 questions. Response is obtained on a scale from 0 (not at all likely to fall asleep) to 3 (very likely to fall asleep). Total score is between 0 and 24. An ESS score of 10 and more is suggestive of significant daytime sleepiness.

Respondents completed the questionnaires under supervision, after detailed explanation. No laboratory investigations were undertaken during the present study.

STATISTICAL ANALYSIS

The data was entered into an Excel datasheet. Mean and Standard deviation was calculated. Odds ratio was calculated for finding degree of association.

RESULTS

The study enrolled 52 healthy subjects prospectively. Mean age of respondents was 31.82$\pm$7.87 years (20-54 years). Male to female distribution was 43:9. Average daily work hours were 9.26$\pm$1.01 h (7-15 h). Mean Body Mass Index (BMI) was 25.02$\pm$3.05 kg/m^2 (range: 17.62-30.15 kg/m^2) BMI was > 25 in 22 (42.03%) respondents and >30 in 3 (5.76%).[Table 1]

Daily tea, coffee, tobacco (smoking cigarettes) and alcohol consumption was reported by 3 (5.76%), 36 (69.23%), 4 (7.69%) and 13 (25%). Average consumption of coffee was 1.9 cups per day. Working hours were 9.26±1.01 (7-15 h), using laptop/computers 7.57±2.42 (2-10 h), watching television 1.69±1.06 (15 mins - 3 hours), speaking over mobile phones 2±1.70 (0.5-8 hours) and time spent for exercise (Yoga, jogging, walking) 30.48±27.04 mins (0-2 h) per day.

PSQI provided information regarding overall sleep architecture. Average time to fall asleep was 19 min (range: 5-90 min), average duration of actual sleep was 6.61 h (range: 4-8 h) [Table 2] with 50% reporting good quality sleep (global PSQI≤5). The reported rates of SRDs were 50% depending on the questionnaire. Insomnia, sleep related breathing disorders (SRBD) were reported by 23.07% and 11.53%. Obesity was not associated with SRDs in 34.16% of subjects with SRDs BMI<25 kg/m^2. Respondents attributed SRDs to stress, office tensions, financial problems and family tensions.

SDP revealed significant sleep related problems in 19.23%. Sleep related breathing disorders were noted in 6 (11.53%). Snoring was noted in 17 (32.69%) respondents. Insomnia was noted in 12 respondents who had difficulty in sleep initiation and 1 reported of early morning awakening.

Health problems reported were Migraine in 8 (15.38%), High Blood Pressure in 2 (3.84%), Heart disease in 1 (1.92%), Asthma in 2 (3.84), Diabetes mellitus in 2 (3.84), Sinus problem in 11 (21.15%) and acidity in 16 (30.76%) of respondents. Stress was reported in 31 (59.61%) of respondents, causes were financial strain, office work, family tension and personal reasons.

On direct questioning, 15 (28.84%) respondents acknowledged suffering from a sleep disorder and only 1 had sought medical help. None reported of using sleeping pills. 17 (32.69%) of respondents reported that they had difficulty in working due to their sleep problems. Excessive daytime sleepiness was reported in 13 (25%) 0f respondents.

Table 1: Demographic characteristics of the study population

Variables	N= 52
Mean age (range) years	31.82±7.87 (20-54)
Male:female	43:9
Educational status	
Graduate	88%
Postgraduate	12%
Marital status	
Married	55%
Unmarried	45%

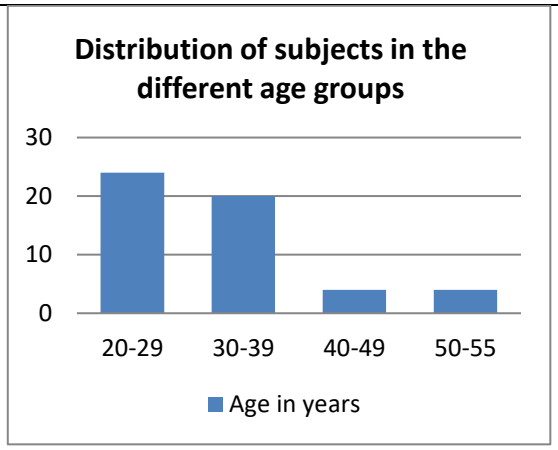

Table 2: Results of Pittsburgh Sleep Quality Index

Variable	N=52
Average time to go off to sleep (minutes) (5-90)	19.07±14.81
Average duration of actual sleep (hours) (4-8)	6.61±0.82
Subjective sleep quality	
Very good	23.07%
Fairly good	69.23%
Fairly bad	5.76%
Very bad	1.92%
Sleep latency	
< 15 mins	36.53%
15-30 mins	57.69%
31-60 mins	3.84%
>60 mins	1.92%
Sleep duration	
>7 h	40.38%
6-7 h	50%
5-6 h	7.69%
< 5 h	1.92%
Habitual sleep efficiency	
>85%	84.60%
75-84%	13.46%
65-74%	1.92%
Some sleep disturbances	34.61%
Global PSQI	
≤5	50%
>5 and ≤10	48.07%
>10	1.92%
Epworth Sleepiness Scale	
<10	75%
≥10	25%

DISCUSSION

SRDs results due to changing lifestyle, work profile, eating habits, less exercise and different life stresses which influence sleep patterns. Sharing common risk factors with non communicable diseases like obesity, hypertension and diabetes. SRDs are important emerging health issues in India. This study found SRD in 19.23% and insomnia in 23.07% of working population.

The cohort study done by Panda, et al.[6] found SRDs in nearly one-fifth (20%) of an apparently healthy, productive age group of the Indian population. Also reported 18.6% of insomnia. The reported prevalence of insomnia is 9% in the general population.[7]

A high prevalence of sleep disorders related to initiation and maintenance of sleep (28%) was reported in an urban population from North India.[8]

The limitation of the study is that the data is questionnaire based. There is poor knowledge and awareness about sleep disorders and their health related negative consequences in India. Educating about SRDs by healthcare providers is necessary. The present study, despite of its limitations, reveals the prevalence of sleep related problems to be higher in working population of metropolitan city.

ACKNOWLEDGEMENT

We are extremely thankful to all the participants working in ABB a multinational company, without whom study would not have been possible. We also thank Dr. Sunil, Medical Officer, ABB. I extremely thank my husband Mr. Sachin Kumar V Hiremath, for his support in collection of data.

REFERENCES

1. Colten HR, Altevog BM, editors. Sleep disorders and sleep deprivation: An unmet public health problem. Washington DC: National Academies Press; 2006. P. 67-209.
2. Metlaine A, Leger D and Choudat D. Socioeconomic Impact of Insomnia in Working Populations. Industrial Health 2005; 43: 11-19.

3. Bhatia M, Prasad K, Pandey RM. Inter-observer and Intra-observer Reliability of a Sleep Questionnaire in Indian Population. J Assoc Physicians India 2004;52:464-6.

4. Johns MW. A new method for measuring daytime sleepiness: The Epworth Sleepiness Scale. Sleep 1991;14:540-5.

5. Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index (PSQI): A new instrument for psychiatry research and practice. Psychiatry Res 1989;28:193-213.

6. Panda S, Taly AB, Sinha S, Gururaj G, Girish N, Nagaraj D. Sleep-related disorders among a healthy population in South India. Neurol India 2012;60:68-74.

7. Morin CM, Le Blanc M, Daley M, Gregoire JP, Merette C. Epidemiology of insomnia: Prevalence, self help treatments & consultation initiated, & determinants of help-seeking behavior. Sleep Med 2006;7:123-30.

8. Shah N, Bang A, Bhagat A. Indian research on sleep disorders. Indian J Psychiatry 2010;52:255-9.