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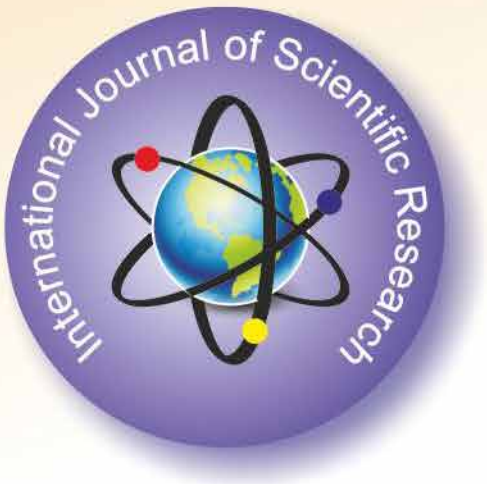

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Research Paper

Insomnia and the performance of general population: Results from the Insomnia Survey

Medical Science

KEYWORDS : Insomnia, epidemiology, employment, absenteeism, presenteeism, co morbidity

Miss Ketaki Sathe — Internee Doctor (Obst & Gyn), 26 New Ajantha Avenue, Blbg No.2, Wing A2, Pune

Dr G S Shekhawat — Associate Professor (Obst & Gyn), Smt Kashibai Navale Medical College, Narhe, Pune

ABSTRACT

Study Objectives: To estimate the prevalence and associations of broadly defined (i.e., meeting full ICD-10) insomnia with work performance in Insomnia Survey .

Design/Setting: Cross-sectional questionnaire and telephone survey.

Participants: Sample of 185 employed plan subscribers (ages 18+) in Kothrud and Daund area of Pune District.

Interventions: None.

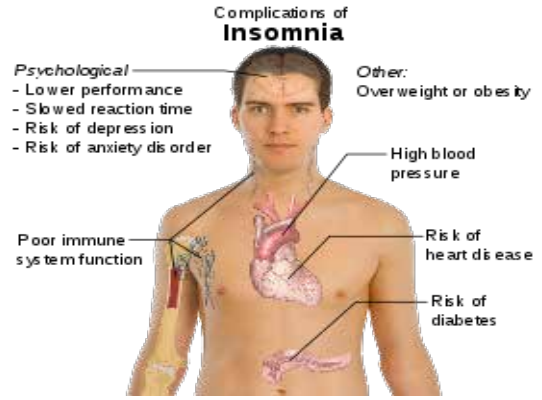
Measurements and Results: Broadly defined insomnia was assessed with the Brief Insomnia Questionnaire (BIQ). Work absenteeism and presenteeism (low on-the-job work performance defined in the metric of lost workday equivalents) were assessed with the WHO Health and Work Performance Questionnaire (HPQ). Regression analysis examined associations between insomnia and HPQ scores controlling 26 co morbid conditions based on self-report and medical/pharmacy records. The estimated prevalence of insomnia was 33%. Absenteeism has a mean value of 8.1% and an inter-quartile range (IQR; 25th-75th percentiles) between –10.0% and 6.4%. The mean of 8.1% is equivalent to somewhat less than one and a half days of absence in a 20-day work month.

INTRODUCTION:

Insomnia (or sleeplessness) is defined as an individual's report of sleeping difficulties. It is often diagnosed as a positive response to either of two questions: "Do you experience difficulty sleeping?" or "Do you have difficulty falling or staying asleep. The societal burden of insomnia is substantial, with an estimated one-third of all adults experiencing weekly difficulties with nighttime sleep and an estimated 50-70 million people complaining of nighttime sleep loss associated with daytime impairment [1].

Thus, it is both a sign and a symptom that can accompany several sleep, medical, and psychiatric disorders, characterized by persistent difficulty falling asleep and/or staying asleep or sleep of poor quality. After thorough investigations a patient with insomnia can be said to have (i) insomnia secondary to another condition (ii) primary insomnia co-morbid with one or more conditions or (iii) free-standing primary insomnia [2]. This disease has a number of psychosomatic manifestations. Its complications can be summarized as in diagram 1[3].

Diagram-1



METHODS IN SURVEY

The Sample

This is a survey taken in order to know the percentage of population having altered sleep habits/insomnia. It was conducted in the urban locality of Kothrud,Pune as well as a rural locality of Ambedkar chowk, Daund. Out of the 250 forms distributed, we received 185 filled forms exclusively from working population. The response was better in the urban sector. Out of 185, the male population is 110 and the female population is 75.

Measures

The questionnaire for this survey includes a detailed inquiry about every individual's sleeping habits, work pattern, diet, medical history, family history, recent medication if consumed [4]. Insomnia in the 30 days before interview was assessed with the Brief Insomnia Questionnaire (BIQ), a 32-question fully structured interviewer administered questionnaire developed for the survey to generate insomnia diagnoses according to the definitions and inclusion criteria of the 3 major insomnia classification systems: the Diagnostic and Statistical Manual, Fourth Edition, Text Revision (DSM-IV-TR), International Classification of Diseases-10 (ICD-10), and research diagnostic criteria/ International Classification of Sleep Disorders-2 (RDC/ ICSD-2) systems [5].

Other Physical and Mental Disorders

A total of 26 such disorders were considered. These included cardio metabolic disorders (congestive heart failure, diabetes, hypertension), musculoskeletal conditions (chronic back or neck pain, osteoarthritis, rheumatoid arthritis), respiratory disorders (chronic obstructive pulmonary disease, seasonal allergies, chronic bronchitis, emphysema, or other) digestive disorders (gastroesophageal reflux disease, irritable bowel syndrome, urinary or bladder problems), other sleep disorders (sleep apnea, restless leg syndrome), neuropathic pain, other chronic pain, migraine, other frequent or severe headaches, emotional disorders (major depression, generalized anxiety disorders, and a summary measure of any other emotional disorder), obesity, and climacteric symptoms common to perimenopausal women.

Absenteeism and work performance

Work performance was assessed with the WHO Health and Work Performance Questionnaire (HPQ). Absenteeism was defined on a 0-100 scale for percent of workdays the respondent missed in the past 30 days, while presenteeism was defined on a separate 0-100 scale, where 0 means doing no work at all on days at

Work and 100 means performing at the level of a top worker [6].

Analysis Methods

Linear regression analysis was used to estimate associations of insomnia with work performance controlling for sociodemographics and co morbid conditions. Given that the outcome variables are highly skewed with a large proportion of respondents having 0 values (i.e., reporting no absenteeism and no decrements in work performance), 2-part models and generalized linear models (GLMs) were used to investigate a number of different functional forms and error structures [7].

RESULTS

Prevalence and Sociodemographic Correlates of Insomnia

The estimated prevalence of insomnia in the total subsample of

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working people was 33%. (Table 1) Insomnia prevalence was significantly higher among women than men (38% vs. 28%; $\chi 2$ 1 = 57.1, P = 0.001).

Distributions and Sociodemographic Correlates of Absenteeism And Presenteeism

Absenteeism has a mean value of 8.1% and an inter-quartile range (IQR; 25th-75th percentiles) between −10.0% and 6.4%. The mean of 8.1% is equivalent to somewhat less than one and a half days of absence in a 20-day work month. The negative value at the lower end of the IQR represents the fact that some workers work more hours than required by their job description.

Associations of Insomnia with Work Performance

The annualized individual-level association of insomnia with the composite HPQ measure controlling for socio demographics was 11.3 days of lost work performance for each worker with insomnia before controlling for co morbidity and 7.8 days after controlling for co morbidity. Absenteeism has a mean value of 8.1% and an inter-quartile range (IQR; 25th-75th percentiles) between −10.0% and 6.4%. The mean of 8.1% is equivalent to somewhat less than one and a half days of absence in a 20-day work month.

METHOD OF REPRESENTATION OF DATA:

Graphical Representation-Bar diagram.

- variation according to sex – Table1

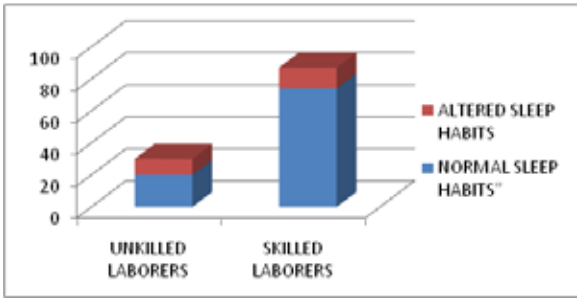
	MALES	FEMALES
NORMAL SLEEP HABITS -	85	54
ALTERD SLEEP HABITS -	25	21
Total (185)	110	75

The percentage of males with altered sleep habits = 25/110 * 100 = 22.72%

The percentage of females with altered sleep habits = 21/75 * 100 = 28%

- Variation according to occupation- Table2

	Unskilled labourers	Skilled labourers
Normal sleep habits	35	90
Altered sleep habits	25	35
Total (185)	60	125



The percentage of unskilled laborers with altered sleep habits = 41% The percentage of skilled labourers with altered sleep habits = 28%

Table 3—Distributions of HPQ absenteeism and presenteeism1 scores among employed Survey respondents (n = 185)

	Absenteeism		Presenteeism	
	Est	(SE)	Est	(SE)
Mean	8.1	(0.3)	15.2	(0.2)
Percentile scores				
99	-20	0	0	0
75	-10	0.6	9.9	0.2
50	0.5	1.0	18.7	0.2
25	7.5	1.0	28.2	0.3
0	100		100	
The WHO Health and Work Performance Questionnaire (HPQ) is a validated self-report measure of work performance.17,18 HPQ absenteeism is a continuous 0-100 scale.				

DISCUSSION

Although our finding that insomnia is associated with significantly reduced work performance is broadly consistent with previous studies [8]. However, the sample frame was a small in our plan than the large national plan. Furthermore, the survey oversampled subscribers with evidence of treatment of sleep disorders that included benzodiazepine hypnotics and antidepressant prescriptions that in some unknown proportion of cases were prescribed to treat anxious insomniacs and depression rather than sleep problems without adding a post-stratification weight to adjust for this sample bias. This sampling scheme might have undermined the representativeness of the subsample of insomniacs. The annualized individual-level estimate of lost work performance due to insomnia was in salary, which is equivalent to the 30% fringe benefits estimate used in the other studies [9]. Greater number of females complains of altered sleep habits. The probable reason being hormonal changes and associated greater stress levels. When the occupation is taken into consideration, a greater number of unskilled labourers complain of altered sleep habits. This group of people are the ones residing in the rural suburb. Their poor living condition, lack of awareness about health and lack of basic amenities might be the possible reason behind this. In addition to this, a lot of people who complain of altered sleep habits consume on and off medication for the same. This further aggravates the disturbed sleep pattern [10].

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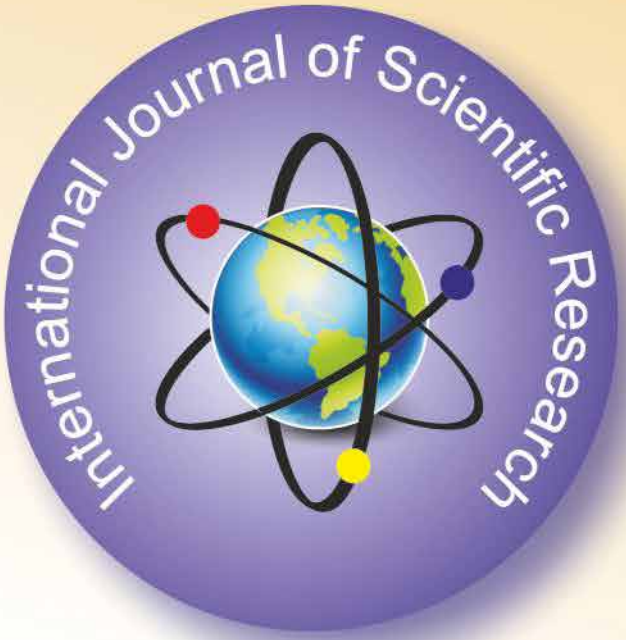

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