Research Article

Insomnia and its associated factors: A cross-sectional study in rural adults of North India

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ABSTRACT

Background: Insomnia is one of the common but most neglected issues which may have many serious long-term ill-health effects, thus affecting quality of life. Its incidence is showing an upward trend in ever-increasing present stressful life. **Objectives:** The objectives of this study were to determine the prevalence of insomnia in rural adults and to find out various associated risk factors and comorbidities. **Materials and Methods:** A community-based cross-sectional study was conducted among 405 adults residing in rural area of Jammu. A 13-item self-reported insomnia symptom questionnaire was used to determine the prevalence of insomnia. Chi-square test was used to find out the association of various factors. **Results:** The prevalence of insomnia was found to be 12.8%. Occupation, type of family, and socioeconomic status emerged to be significant determinants of insomnia. The presence of diabetes, chronic respiratory disorders, thyroid disorders, and any form of stress was significantly associated with higher prevalence of insomnia ($P < 0.05$). **Conclusion:** Insomnia is a common sleep disorder which is many times missed by a primary care physician until/unless asked for. Health-care professionals should assess the sleep pattern of every patient and give adequate counseling or treatment for the same.

KEY WORDS: Insomnia; Prevalence; Insomnia Symptom Questionnaire

INTRODUCTION

Insomnia is one of the most common but neglected issues in the present time, which can have adverse health effects in later parts of life. As per diagnostic and statistical manual of mental disorders (DSM-5), insomnia is defined as difficulty in getting to sleep, staying asleep, or having non-restorative sleep despite having adequate opportunity for sleep, together with associated impairment of daytime functioning, with symptoms being present for at least 4 weeks.[1] Worldwide, the prevalence of insomnia varies from 10% to 48% among general population as reported by various studies,[2-4] and the reason for this wide variation can be attributed to the varying definitions of insomnia used by different authors in different studies.

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Insomnia is classified into three types on the basis of duration: (1) Transient (in which symptoms last for <1 week), (2) acute (inability to consistently sleep well for 1–4 weeks/less than a month), and (3) chronic (in which symptoms are present for at least 3 nights/week for at least 1 month, and not be linked to other sleep, medical, or mental disorders).[1,5] Psychological stress, heart problems, hyperthyroidism, menopause, certain medications, and alcohol are important risk factors for insomnia.[6] Insomnia may be classified as primary or secondary. Primary insomnia mainly occurs because of irregular sleep patterns, poor sleep hygiene, excessive caffeine intake, excessive alcohol, certain medications, stress, etc. Secondary insomnia is mainly seen in older adults with some medical or psychiatric disorders.[7]

Insomnia may affect the quality of life of the individuals and may lead to the development of depression,[2] poor work efficiency, and an increased risk of motor vehicle

accidents.[8] It is revealed from literature that advanced age females, especially perimenopausal, mental health problems, and chronic medical morbidities, are associated with increased prevalence of insomnia.[9,10] It is easy to diagnose the condition with many self-answerable questionnaires, but still, the problem remains unrecognized due to different reasons.

The review of literature revealed that studies on insomnia were conducted mostly in developed countries covering urban and geriatric population. Although a few studies have been carried in our country, also there was dearth of studies in this part of India. Hence, the authors planned to conduct the present study in rural adults aged 18 years and above to find the prevalence and various factors associated with insomnia.

MATERIALS AND METHODS

The present cross-sectional descriptive study was carried out in Miran Sahib Zone of RS Pura block of Jammu district. RS Pura block serves as field practice area at the Department of Community Medicine, Government Medical College, Jammu. Using convenience sampling technique, two villages from the Miran Sahib zone were chosen for the study purpose. A house-to-house visit was made for data collection. The house which was found locked on the 1st day of visit was revisited on the 2nd day and if, found locked on the 2nd day also, was excluded from the study. All the adults aged 18 years and above who were willing to participate in the study constituted the study population. The study was carried out for 2 months (January and February 2018).

Exclusion Criteria

Persons <18 years of age, those suffering from any psychiatric illness, regular shift work, daily alcohol consumption more than 4 units, and on chemotherapy or radiotherapy and those not consenting to participate were excluded from the study.

Ethical Clearance

Due permission was sought from the Institutional Ethical Committee of GMC, Jammu, before the conduct of study.

Study Tool

Questionnaire consisting of two parts: First part was meant to collect sociodemographic details of respondents and the presence of any medical comorbid conditions while the second part was a 13-item self-reported insomnia symptom questionnaire (ISQ).

The ISQ is a 13-item self-reported questionnaire to identify insomnia[11] which is based on the criteria laid down by the American Psychiatric Association's DSM-IV for primary insomnia which are consistent with the American Academy of Sleep Medicine (AASM's) research diagnostic criteria. The ISQ items contain multiple choices on an ordinal scale to: (1) Determine the presence of a complaint of difficulty in initiating or maintaining sleep or feeling that the sleep was non-restorative or unrefreshing, (2) determine the frequency of complaints (questions 1–5) and duration of these symptoms, and (3) assess the extent to which the individual's sleep complaints affect daytime activities (questions 6–13). The ISQ scoring algorithm as described by Okun *et al*.[11] results in a simple dichotomous outcome of insomnia (present or absent) based on the following responses: (1) Presence of at least one of three sleep symptoms: Difficulty initiating sleep, difficulty maintaining sleep, or unrefreshing sleep; (2) the symptom occurs with a minimum frequency of ≥ 3 times per week; (3) duration of the sleep symptom ≥ 4 weeks; and (4) at least one aspect of daily life (e.g. difficulties at work or in social life) is affected "quite a bit" or "extremely" by endorsed sleep symptoms. Based on this algorithm, participants were assessed for the presence of insomnia.

The instrument was pre-tested on 20 adults aged 18 years and above from some another village which was not part of our study population. The feedback so obtained was incorporated into the questionnaire. The questionnaire was translated to Hindi and then retranslated back to English language to see whether the meaning of the questions changed due to translation or remained same. Each participant was interviewed through face-to-face technique to collect the relevant information.

Statistical Analysis

Data were analyzed using SPSS version 20.0. Proportions were used to report descriptive variables and Chi-square test was used to find out the significant association. $P < 0.05$ was taken as statistically significant.

RESULTS

After fulfilling all the eligibility criteria, a total of 405 participants constituted our study population. Majority (63.9%) of the subjects were in the age group of 40–60 years with a mean age of 46.5 ± 11.08 years. Overall, the prevalence of insomnia was 12.8%. Problem of insomnia was found to be on higher side in elderly subjects (20.7%), followed by subjects who were <40 years old (17.1%). However, there was no statistically significant association of age with insomnia ($P > 0.05$). The proportion of females suffering from insomnia was on lower side as compared to their male counterparts (11.2% vs. 14.7%) with statistically insignificant difference. Insomnia when analyzed according to occupation of participants, it was revealed that unemployed and retired subjects suffered from a significantly higher proportion of insomnia ($P < 0.005$). Subjects living in joint families and lower socioeconomic strata have shown a significantly higher

prevalence of insomnia ($P < 0.05$). Although the participants who were divorcee or widow have shown a higher prevalence of insomnia, the association of marital status with insomnia was found to be statistically insignificant ($P > 0.05$) [Table 1].

Table 2 depicts that when the presence of different medical morbidities was studied in relation to insomnia, it was revealed that diabetes, chronic respiratory disorders, thyroid disorders, and presence of any form of stress were significantly associated with higher prevalence of insomnia ($P < 0.05$).

DISCUSSION

Insomnia is one of the most commonly encountered sleep disorders in the present time, occurring due to changing lifestyle, work profile, and different life stresses which influence sleep patterns and result in sleep-related disorders. Worldwide, the prevalence of insomnia ranges from 10% to 48% according to various studies conducted.[2-4] In the present study, the prevalence of insomnia assessed by ISQ was found to be 12.8%. Yardi and Adsule in their study among Indian corporate employees revealed a prevalence of 13.8%.[12] The present findings on prevalence are corroborated with some other studies.[2,3,13] The prevalence of insomnia was found to be maximum in elderly age group, the findings in collaboration with other studies.[4,11,13] Females were found to have lesser problem of insomnia as compared to their male counterparts, though the association between the two was found to be statistically insignificant. These findings are in consistence with the findings of some other studies.[13,14] In contrast to our findings, many studies have shown a significant association between female sex and insomnia.[8,15] Unemployed and retired subjects were having higher prevalence of insomnia (35.7% and 35.5%) in the current study. Bhaskar *et al.* also reported a prevalence of 38% among unemployed participants.[16]

Similar to the findings of Roy *et al*.,[13] the prevalence of insomnia was found to be significantly higher among persons living in joint family. The lack of privacy or overcrowding in the house, rapid change of traditional social and moral values, may explain the higher prevalence of insomnia in joint families. A statistically significant association was observed between insomnia and socioeconomic status, with higher prevalence seen among subjects belonging to lower class. These findings are supported by a study conducted by El Gilany *et al*. who reported a higher prevalence of insomnia among illiterate and those with not enough income.[17] Subjects who were single (unmarried, divorcee, or widow) have shown a higher prevalence of insomnia, the findings supported by various other authors.[13,14]

Table 1: Association of sociodemographic variables with insomnia (n=405)

Variable	Frequency	Insomnia		Chi-square	*P* value
	n (%)	Present	Absent		
Age					
<40	117 (28.8)	20 (17.1))	97 (82.9)	5.305	0.07
40–60	259 (63.9)	26 (10)	233 (90)		
>60	29 (7.2)	6 (20.7)	23 (79.3)		
Gender					
Male	190 (47)	28 (14.7)	162 (85.3)	1.151	0.28
Female	215 (53)	24 (11.2)	191 (88.8)		
Occupation					
Unemployed	14 (3.4)	5 (35.7)	9 (64.3)	23.43	<0.0001
Employed	211 (52.1)	22 (10.4)	189 (89.6)		
Housewife	149 (36.8)	14 (9.4)	135 (90.6)		
Retired	31 (7.8)	11 (35.5)	20 (64.5)		
Type of family					
Nuclear	186 (45.9)	17 (9.1)	169 (90.9)	4.207	0.04
Joint	219 (54.1)	35 (15.9)	184 (84.1)		
Socioeconomic status*					
Lower class	52 (12.8)	14 (26.9)	38 (73.1)	11.57	0.003
Middle class	275 (67.9)	27 (9.8)	248 (90.2)		
Upper class	78 (19.3)	11 (14.1)	67 (85.9)		
Marital status					
Married	352 (86.9)	42 (11.9)	310 (88.1)	4.007	0.13
Single	44 (10.9)	7 (15.9)	37 (84.1)		
Divorced/widow	9 (2.2)	3 (33.3)	6 (66.7)		

*Modified Uday Pareek scale

Table 2: Association of chronic medical comorbidities with insomnia

Morbidity	Frequency	Insomnia		Chi-square	*P* value
	n (%)	Present	Absent		
Diabetes					
Present	20 (4.9)	8 (40)	12 (60)	13.87	0.001
Absent	385 (95.1)	44 (11.4)	341 (88.6)		
Hypertension					
Present	48 (11.8)	8 (16.7)	40 (83.3)	0.71	0.39
Absent	357 (88.1)	44 (12.3)	313 (87.7)		
Chronic respiratory disorders					
Present	18 (4.4)	7 (38.9)	11 (61.1)	11.42	0.0007
Absent	387 (95.6)	45 (11.6)	342 (88.4)		
Thyroid disorders					
Present	64 (15.8)	22 (34.4)	42 (65.6)	31.5	<0.0001
Absent	341 (84.2)	30 (8.8)	311 (91.2)		
Any stress in family					
Present	84 (20.7)	24 (28.6)	60 (71.4)	23.44	<0.0001
Absent	321 (79.3)	28 (8.7)	293 (91.3)		
Musculoskeletal disorders					
Present	32 (7.9)	7 (21.8)	25 (78.1)	2.53	0.11
Absent	373 (92.1)	45 (12.1)	328 (87.9)		

The presence of one or other forms of medical comorbidity increased the risk of insomnia. A strong positive association was observed between insomnia and diabetes, chronic respiratory disorders, thyroid disorders, and presence of any form of stress in the family. These findings are in collaboration with various other studies which also have reported a positive association of different comorbidities with insomnia.[12,14,16,17]

Strength and Limitations of Study

The strength of the present study is that very few studies on insomnia have been conducted in North India and especially in our state (Jammu and Kashmir). Smaller sample size and convenient sampling technique are important limitations of the study which restrict the generalizability of results. Another important limitation of this study, which is also the limitation of the study instrument we used, is its inability to classify the insomnia as primary or secondary.

CONCLUSION

Insomnia is one of the common sleep disorders which remain unrecognized many a times, until/unless asked for. Overall, the prevalence of insomnia in the present study is 12.8%. Like other studies in different parts of the world, the present study also showed positive statistical association between insomnia and joint family, occupation, socioeconomic status, and presence of chronic medical comorbidities. However, larger epidemiological studies from time to time are needed to understand the complete epidemiology of insomnia.

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