

Insomnia: Presence of somatic–psychological complaints and personality traits in the Indian population

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Abstract

Study Objectives: To investigate the association of somatic–psychological complaints (SPCs) and personality traits with insomnia in a clinically unselected sample of adult Indian population. The effects of extraversion (E), neuroticism (N), depression and anxiety, somatic complaints in addition to demographic variables were examined using a questionnaire in patients with insomnia.

Design: A retrospective descriptive design with convenient sampling. A direct interview using a structured questionnaire, which solicited information about sleep, somatic complaints (headache, backache, stiff neck/shoulder, fatigue), psychological variables (anxiety and depression), personality (extraversion, neuroticism) and socio-demographic information was administered.

Setting and Participants: Patients visiting the hospital with chief complaint of disturbed and poor sleep were clinically interviewed. Overall, 150 consecutive patients were selected for the study. Out of 150 subjects, 89 met the inclusion criteria.

Interventions: N/A.

Measurements and Results: Those meeting the criteria were administered the psychometric battery. The cutoff score for poor quality of sleep on Pittsburg Sleep Quality Index (PSQI) was >5, whereas for severe depression and anxiety on Hospital Anxiety and Depression Scale (HADS) was >11. A total of 89 subjects with a mean age of 34.56±12.17 years were examined. Overall, 56% of them had poor quality of sleep, whereas 60% of them suffered from depression and anxiety. Somatic complaints were reported by 76.4% of subjects. Overall, 72% had SPCs and these were more prevalent in younger males and females. Univariate analysis showed that insomnia was significantly associated with age (middle aged), marital status (married), somatic complaints, anxiety, depression and neuroticism.

Conclusions: SPCs were common in patients with insomnia in an unselected sample of an adult Indian population. Neuroticism, somatic and severe psychological complaints seem to have a strong association with insomnia in this population. Further study is needed to examine the casual links between SPCs and insomnia in the Indian population.

Keywords: Somatic Complaints, Depression, Anxiety, Personality, Sleep Quality

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Introduction

The State of the Science Conference on Manifestations and Management of Chronic Insomnia defined insomnia as: 'complaints of disturbed sleep in the presence of adequate opportunity and circumstance for sleep.'¹

Insomnia is marked by subjective complaints about quantity and/or quality of sleep that result in daytime impairment. Sleep-related symptoms include difficulty initiating sleep at the beginning of night, difficulty staying asleep, waking earlier than the desired time in the morning and being unable to go to sleep and the perception of non-restorative sleep or poor quality of sleep. Research diagnostic criteria (RDC) for insomnia were established by the American Academy of Sleep Medicine, including the requirement of daytime impairments resulting from sleep disturbance².

Nowadays, sleep problems are common among different populations of various cultural backgrounds. However, not much literature is available on the aspect about Indians. Hamilton et al reported that between 13% and 52% of the population was suffering from different kinds of sleep insufficiency³.

About one-third of the United States general population have presented with one or more symptoms listed in the criteria in DSM-IV^{4,5}. Nearly 10-15% of adults presented with chronic insomnia⁶.

This high frequency of complaints about sleep is reflected in the widespread use of prescribed hypnotic medication and non-prescription remedies. Hypnotics are one of the most commonly prescribed groups of drugs with 15 million prescriptions in Britain annually⁷. Ohayon reported that 20.1% of a representative sample of 5622 French subjects had sleep dissatisfaction or took medication for sleep problems⁸. SPCs are also common in the general population. Somatic symptoms are frequent among people in the community, and >75% of respondents in a community study reported at least one subjective somatic complaint during the past 30 days⁹. No such study was available about the Indian population. Escobar et al¹⁰ reported that somatisation symptoms occurred in ~4% of the general population.

In a sample of 13,538 individuals interviewed at the Epidemiologic Catchment Area Program, Kroenke et al¹¹ found that physical symptoms had been a problem for >10% of people at some point in their lives. Only about

one-third of patients with somatic symptoms in general seek medical consultation^{12,13}. Insomnia and anxiety disorders commonly co-occur. Among individuals with current insomnia, 42% report elevated levels of anxiety¹⁴. Research suggests that anxiety disorder symptoms can worsen from sleep deprivation¹⁵⁻¹⁷. On the other hand, the prevalence rate of insomnia and depression in the general population was ~10%¹⁸⁻¹⁹.

Mellinger et al¹⁴ reported that people with serious insomnia tend to report more anxiety, psychic distress, symptoms resembling major depression and multiple health problems than do people without insomnia. Depression and depressive symptoms are the largest and most consistent risk factors for insomnia^{1,20}. A depressive or anxiety disorder was present in 30% of patients presenting with physical complaints²¹.

However, data for individual symptoms and for factors such as socio-demographic factors are unavailable. Moreover, the association between personality, SPCs and insomnia in the general population has not yet been systematically investigated.

This study was conducted to investigate the association of SPCs with insomnia in a clinically unselected sample of an adult Indian population. The effects on subjective poor sleep quality on personality (extraversion, neuroticism), symptoms of depression and anxiety, somatic complaints in addition to socio-demographic variables were examined using a questionnaire.

Methods

Participants and Procedure: Patients visiting the hospital with chief complaint of disturbed and poor sleep were clinically interviewed. Overall, 150 consecutive patients were selected for the study. Out of 150 subjects, 89 met the inclusion criteria. Clearance from the ethics committee was obtained, and 89 participants who gave their consent for the study and met the criteria were included in the study and administered the psychometric battery (including Pittsburg Sleep Quality Index (PSQI), Hospital Anxiety and Depression Scale (HADS), EPQ-R, socio-demographic profile). Two groups based on the cutoff score on PSQI (>5 or <5) were formed and compared for SPCs and personality traits.

Inclusion criteria: Chief complaints of disturbed sleep, preoccupation with sleeplessness, difficulty falling asleep.

Exclusion criteria: Known cases of anaemia, liver and

kidney disease, neuro-psychiatric disorders, those on multiple drugs, cardiac failure, known case of spine disorder and any significant medical disorder contributing to poor sleep.

Measures

The questionnaire solicited information about demographic characteristics, sleep quality and other habits potentially related to sleep (eg, intake of sleeping pills, alcohol consumption, smoking), somatic complaints (headache, backache, stiff neck/shoulder, fatigue), psychological variables (anxiety and depression) and personality (extraversion, neuroticism). In addition to these, the questionnaire contained items on socio-demographic variables like sex; age (younger adults, ≤ 30 years; middle-aged adults, 31-50 and older adults, 50-70 years); socioeconomic status (low, middle, high); marital status: married (including divorced, widow), unmarried; education (high, middle school, graduate, post graduate and above) and family structure (joint, nuclear). Personality and psychological complaints were measured using the following structured questionnaires:

- a. Pittsburg Sleep Quality Index (PSQI) by Buysee, D.J., Reynolds III, C.F., Monk, T.H., Berman, S.R., & Kupfer, D.J. (1989) ²².

The PSQI is a 19-item questionnaire that asks participants to report their typical sleep habits within the past month. Each question of the PSQI is assigned a value between 0 and 3. The PSQI measures sleep duration, sleep latency, daytime dysfunction due to sleepiness, the efficiency of sleep, overall sleep quality and the need for medication to aid sleep. The overall score of the PSQI is the combined scores of each of the individual measures (ranging from 0 to 21), with scores < 5 representing better sleep quality and > 5 representing worse sleep quality (Buysse, 1989).

- b. Hospital Anxiety And Depression Scale (HADS) ^{23,24}

HADS was designed to identify clinically significant cases of anxiety or depression, and respondents were classified on the basis of scores as: 0-7—no depression/anxiety, 8-10—possible and ≥ 11 —definite.

- c. Eysenck Personality Questionnaire Revised by Eysenck, Eysenck and Barrett (1985) to measure Extraversion (E) and Neuroticism (N), using responses to 24 items each in the EPI. Each item used a yes-or-no format; each yes was scored 1 and each no was scored 0; thus, the total score could range from 0 to 24.

The completion of battery took ~40 minutes.

Analysis

Continuous variables were presented as mean \pm SD and categorical variables as frequencies. Differences between groups were assessed using the Chi-squared or Fisher's exact test for categorical variables. ANOVA were used for comparison of continuous variables between the groups. Association between personality, SPCs and insomnia was analysed. $P < 0.05$ was considered statistically significant. Statistical analysis was performed using the SPSS version 17.0 software.

Results

A total of 89 subjects (61 males and 28 females) with a mean age of 34.56 years were included in this study. The majority of the subjects were young (≤ 30 years) men (68.5%), married (61.7%) living in nuclear families (75.3%), from middle socio-economic status (83.1%), with a graduate degree (51.1%).

Table 1 gives the socio-demographic characteristics of the respondents.

Table 1: Demographic characteristics of participants

Demographic variables	Percentage (%)
Age (Mean \pm SD)	34.56 \pm 12.17
Gender (Male)	68.5
Marital status (Married)	61.7
Family structure (Nuclear)	75.3
Education (Graduate)	51.1
SES* (Middle)	83.1

*SES: Socioeconomic status.

Overall presence of poor sleep quality, SPCs and personality traits

The overall presence of somatic complaints was 76.4%. Depression and anxiety as measured by HADS was noted in 60% subjects.

Table 2 shows the overall mean score of sleep quality (6.76), depression and anxiety (13.13) and personality – N (10.22), E (12.09).

Association between SPCs, personality traits by age and sex.

Table 3 shows the association between SPCs and

Table 2: Somatic, psychological complaints, personality and sleep quality data* among participants with insomnia

Variables (%)	Mean±SD
PSQ (56)	6.76±3.84
D&A (60)	13.13±7.95
Neuroticism	10.22±5.52
Extraversion	12.09±3.99
SC (76.4)	N=68
SPCs (72)	N=49

(*Percentage and Mean±SD, PSQ=poor sleep quality; D&A=depression and anxiety Scale; SC=somatic complaints; SPCs=somatic and psychological complaints).

personality traits by age and sex. Various somatic complaints were more common in young adults (men=31; women=15). There was no significant difference across age and between men ($P=0.086$) and women ($P=0.657$). A total of 50 subjects scored >5 on PSQI (poor quality of sleep). Middle-aged men ($n=13$) and women ($n=10$), between 31 and 50 years reported higher sleep complaints ($P=0.001$; $P=0.049$, respectively), whereas severe depression and anxiety (HADS>11) were most prevalent in younger men and women (d >30 years; $P=0.180$; $P=0.689$, respectively). The differences between these groups of SPCs were statistically insignificant. The personality scores (N, E) across age and gender stand statistically insignificant.

Association of socio-demographic characteristics with insomnia

Table 4 shows that age (middle aged; $P=0.001$) and marital status (married; $P=0.001$), were significantly associated with poor quality of sleep.

Association of personality traits and SPCs with insomnia

Table 5 shows a significant correlation between the two

Table 4: Univariate analysis of demographic variables with sleep quality

	Sleep quality			P-value
	Good (n=39)		Poor (n=50)	
Age	Mean±SD	29.9±9.72	38.44±12.51	0.001
Marital status	Married	17	42	0.001
	Single	22	8	
Family structure	Joint	8	14	0.417
	Nuclear	31	36	
Education	SSC*	1	8	0.105
	Grad*	21	25	
SES	PG+*	17	17	0.244
	Low	0	2	
	Med	35	39	
	High	4	9	

SSC*=Senior Secondary Certificate, Grad*=graduate, PG+*=post-graduate and above

groups of sleep quality and SPCs and personality. Somatic complaints were more common in subjects with poor quality of sleep than in those with good quality of sleep ($n=44$ vs 24 ; $P=0.004$). Similarly, depression, anxiety and neuroticism traits significantly correlated with poor quality of sleep ($P=0.0001$; $P=0.0001$, respectively).

Neuroticism and SPCs were significantly associated with insomnia.

Discussion

Presence of SPCs and gender differences.

Of 89 subjects recruited, 77% reported somatic complaints, and we found that men reported a larger number of somatic complaints than did women ($P=0.86$; $P=0.657$, respectively). With regard to psychological complaints, 60% suffered from severe depression and anxiety. Males as compared with females reported

Table 3: Data on poor sleep quality, somatic, psychological and personality by age and sex

Variables	Men			P-value			P-value
Age	>-30	31-50	51-70	>-30	31-50	51-70	
PSQ*(n)	6	11	10	0.001	9	10	0 0.049
D&A*(n)	12	11	5	0.18	10	8	0 0.689
N*(M±SD)	7.29±5.10	9.94± 5.23	9.67±4.38	0.154	13.94±5.19	13.40±4.48	0 0.078
E*(M±SD)	12.19±4.71	11.29±3.77	12.0±3.13	0.774	13.76±3.70	11.0±3.23	0 0.06
SC (Yes)	31	18	12	0.086	15	9	0 0.657

Table 5: Univariate analysis of somatic psychological complaints, personality with poor and good sleep quality on PSQI

SPCs	Sleep quality		P-value
	Good (n=39)	Poor (n=50)	
	MEAN±SD	MEAN±SD	
Neuroticism	7.74±5.04	12.16±5.12	0.0001
Extraversion	12.59±4.38	11.42±3.84	0.184
D&A*	9.51±6.86	15.96±7.64	0.0001
S C (Y/N)	24/15	44/6	0.004

psychological complaints more, which is inconsistent with the findings in most previous studies²⁷⁻³². This can be attributed to the initial ratio disturbance during recruitment.

As in previous population-based surveys, female sex³³⁻³⁵ and low educational status were significantly associated with insomnia; in contrast to other studies³⁵, our analysis suggested that males were more likely to complain of somatic and psychological symptoms than were female subjects.

Possible mechanisms of these differences in somatisation and psychological symptoms can be attributed to gender differences in willingness to admit to discomfort, readiness to seek medical attention and the prevalence of psychiatric disorders with prominent somatic features; innate differences between men and women in their threshold, tolerance; and work-related issues like highly stressful work environment, long working hours, office politics, etc.

No significant correlation was observed between education and sleep.

Presence of poor sleep quality and SPCs with regard to age yielded mixed results.

In this study, young subjects reported more somatic complaints and depressive and anxiety symptoms than did the elderly. These results can be attributed to irregular eating schedules and unhealthy food habits, prolonged sitting, incorrect postures while at work, physical inactivity and faulty coping mechanisms adopted by most of the youngsters. Potential health behaviours related to lifestyle might be taken into consideration in future investigations.

It was found that middle-aged subjects had more complaints of poor quality of sleep than did younger

subjects and the elderly. These results are rather surprising because it might have been expected that medical conditions and physiological factors would have been strongly associated with age, and therefore that SPCs would increase with age. However, our findings are consistent with Koenig and Blazer's³⁶ observation, in a comparison of younger and older epidemiological catchment area subjects by symptom frequency, that both somatic and psychological symptoms decrease in old age.

SPCs as correlates of insomnia

This study was conducted to examine the association of SPCs with insomnia in a sample from the general population.

Overall, 65% of insomniacs (PQSI>5) reported having somatic complaints, whereas 42% had severe depression and anxiety with insomnia. The presence of insomnia showed a significant association with SPCs. The overall presence of SPCs in the sample was 72%. Previous studies have suggested that compared with the general population, individuals reporting disturbed sleep are more likely to report persistent or recurrent health problems, or emotional distress³⁷.

Numerous investigators have demonstrated increased prevalence of insomnia in subjects with somatic diseases and in subjects with depressive symptoms^{38, 40-43}.

The association of insomnia with SPCs can be attributed to insomnia as a cause of SPCs. Poor quality of sleep could be because of sleep disturbance and/or sleep insufficiency. Previous studies have demonstrated that sleep deprivation has wide adverse effects on psychological and physical functions and on daytime activity and alertness^{34, 35}. Moreover, the significant association may be due to high comorbidity between insomnia and SPCs. Both insomnia and SPCs may be caused by similar psychological factors, such as chronic life stressors, physical disease, etc.

The crucial question of whether insomnia causes SPCs or *vice versa* needs to be addressed in future studies.

Conclusions

In our selected population, insomnia was significantly associated with SPCs and neuroticism. The management of insomnia includes identifying and treating these SPCs in order to treat it effectively.

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