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Prevalence and the contributing factors of insomnia among adolescents in selected secondary schools of Udupi district Karnataka

Saraswathi Hebbar Ms
Manipal School of Nursing, Manipal College of Nursing, Manipa, sarasahebbar@gmail.com

Tessy Treesa Jose Dr
Manipal College of Nursing, tessy.j@manipal.edu

Shalini Nayak Ms
Manipal College of Nursing, shaludevu@gmail.com

Original article

Prevalence and the contributing factors of insomnia among adolescents in selected secondary schools of Udupi district Karnataka

Saraswathi Hebbar*, Tessy Treesa Jose, Shalini Nayak

Email: sarasahebbar@gmail.com

Abstract

Background: Sleep is a necessary constituent of an individual's health and wellbeing. The relationship between insomnia and psychiatric condition is now receiving increased attention. In adolescents, the sleep deprivation over time increases risk of depression, lowered self-esteem, and engagement in unsafe behaviour. Screening is very important to prevent further complications of insomnia. **Methods:** A cross-sectional survey among 1,070 adolescents by using demographic proforma, Athens insomnia scale, and self-structured questionnaire. **Results:** Out of 1,070 subjects, the prevalence of insomnia was found to be in 40% of the adolescents. The physical, psychological, social, academic, family, and environmental factors contribute to adolescent insomnia. **Conclusion:** The present study suggests that early diagnosis or screening for insomnia may prevent further complications. Thus, more studies to screen, reference, and required interventions in adolescent insomnia are highly recommended.

Key words: Prevalence, insomnia, adolescents, contributing factors

Introduction

Sleep is a universal and observable fact for human beings; defined most consistently as a temporary loss of consciousness. Sleep is a necessary constituent of an individual's health and wellbeing; without sleep one's quality of life is more often than not severely compromised. For most individuals, sleep comes easily and without disturbance, and is frequently taken for granted. But for others, the simple task of "falling" and staying asleep is thorny and laborious (Bae & Schaefer, 2005).

A nationwide representative survey was conducted on prevalence of insomnia among Japanese adolescents. Cluster sampling method was used for the selection of sample. Self-reported questionnaires were sent to 1, 03, 650 adolescents. The prevalence rate of insomnia was 23.5% (Kaneita, et al., 2006), a cross-sectional study conducted on the prevalence of insomnia in Australia. The sample consisted of 384 adolescents in the age group of 13-18 years and 34.6% of adolescents reported symptoms of insomnia. (Dhont, Gradisar & Short)

Insomnia may affect the physical and mental health of the adolescents. There are very few studies presently available, which explored the prevalence of insomnia in India. Early screening of insomnia in adolescents would prevent the complications in adult life. Finding out the contributing factors for insomnia could be assumed as the reasons of adolescent insomnia, which would eventually help to take various measures, such as providing school health awareness program and, parental teaching, etc.

The objective of the study was to determine the prevalence of insomnia in adolescents, to find the

Saraswathi Hebbar[1], Tessy Treesa Jose[2], Shalini Nayak[3]

[1]Assistant Lecturer, Manipal School of Nursing, Manipal College of Nursing, Manipal.

[2]Professor and Head, Dept. of Psychiatric/Mental Health Nursing, Manipal College of Nursing, Manipal, Manipal University.

[3]Asst. Professor, Dept. of Psychiatric/Mental Health Nursing, Manipal College of Nursing, Manipal, Manipal University.

* Corresponding Author

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contributing factors to insomnia in adolescents, to find the association between insomnia and selected demographic variables, and to find the association between insomnia and contributing factors.

Materials and Methods

The cross-sectional survey design was adopted and the study was conducted among 1070 adolescents, in the age group of 13 to 16 years, studying in high schools. After obtaining the administrative permission, ethical approval from the Institutional Ethics Committee, Deputy Director of Public Instructor, Udupi district and the administrators of the heads of the selected high schools of Udupi district, the researcher approached the study subjects, explained the purpose of the study and obtained their assent after assuring them the confidentiality of the data. Subjects were selected through purposive sampling technique from eight schools of Bramhavara block, in Udupi district, Karnataka.

Data was collected using Demographic Proforma. It consists of age, gender, grade, birth order, religion, and type of family, place of current stay, family income, parents living status, and parents' habits. Athens Insomnia Scale and rating scale on contributing factors to adolescent's insomnia was used for this study. Athens Insomnia Scale is a standardized scale with eight items, in accord with the ICD-10 criteria for insomnia. Each item is scored on a four under the option: no problem, minor problem, considerable problem, serious problem, and with a total score of 24. A score of six or more indicated insomnia (Soldatos, Dikeos, & Paparrigopoulos, 2000). The rating scale on contributing factor to adolescent's insomnia was developed by the investigator. It consists of 49 items, which are categorized under physical, psychological, social, academic, family, and environmental factors. It is a five-point rating scale with possible options such as always, most of the time, sometimes, rarely, and never. Responses rated as 'always' or 'most of the time' were coded as contributing factors. The content validity of the tool was ensured from seven experts from the field of psychiatry, clinical psychology, psychiatric social worker, psychiatric nursing, and pediatric nursing. The Athens Insomnia Scale is a standardized tool. It was translated into Kannada. The reliability was found to be .82 and tool on contributing factors was found .9 by using Cronbach's alpha method. Pilot study was conducted on 100 students to assess the feasibility of the study, and to decide on a plan for analysis of main data as well as to decide the sample size. The study was found to be feasible.

The survey was conducted during January to February 2014 and the data was collected from adolescents studying in selected high schools of Udupi district. The researcher approached the study subjects, who met all the eligibility criteria and were willing to participate in the study. The purpose of the study was explained and written consent was obtained.

Results

The gathered data were coded and summarized in a master sheet and then analyzed using Statistical Package for the Social Sciences (SPSS) 16. Descriptive statistics (frequency and percentage) were used to describe the sample characteristics and inferential statistics (Chi-square) were used to determine the association between insomnia and demographic variable, insomnia, and factors contributing to insomnia.

Sample Characteristics

Table 1:

Distribution of Respondents Based on Socio-Demographic Characteristics

N=1070

Variables	Frequency	Percentage (%)
Age (in years)		
13-14	700	65.4
15-16	370	34.6
Gender		
Male	511	47.8
Female	559	52.2
Class		
8	375	35.0
9	371	34,7
10	324	30.3
Birth Order		
First	434	40.6
Second	378	35.3
Third	115	10.7
Fourth	29	2.7
Fifth	6	0.6
Only child	108	10.1

Variables	Frequency	Percentage (%)
Religion		
Hindu	898	83.9
Christian	120	11.2
Muslim	52	4.9
Type of family		
Nuclear	768	71.8
Joint	302	28.2
Current stay		
With parent	966	90.3
With relative	57	5.3
Hostel	47	4.4

The data in Table 1 demonstrates that the highest number of students, 700 (65.4%), belong to the age group of 13-14years. Data on gender show that 52.2% of the participants are females. With reference to birth order, the highest number of students 434 (40.6%), belong to the 'first child' group. Most of the adolescents 768 (71.8%), belong to the nuclear family. Data on current stay show that 966 (90.3%) are staying with parents. Concerning monthly income of the family, 434 (40.6%) of the samples are having the income below five thousand rupees p/m. Pertaining to status of students living together with parents, 997 (93.2%) are living together. Data present on habits of fathers and mothers, 647 (60.2%) and 975 (92.0%) are not habituated to alcohol, tobacco chewing, or smoking.

Prevalence of Insomnia

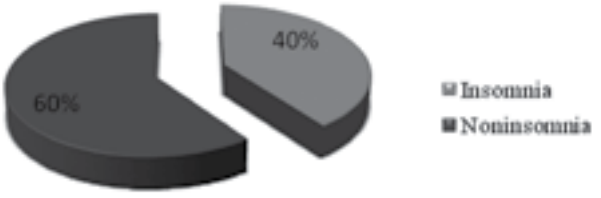

Figure 1: Percentage distribution of adolescent insomnia

The prevalence of insomnia among 1070 adolescents, 428 (40%) were found to be having insomnia according to Athens Insomnia Scale.

Contributing factors to Insomnia

Five top ranked factors contributing to adolescent insomnia is given in Table 2.

Table 2:

Frequency and Percentage Distribution of Factors Contributing to Adolescent Insomnia

N=428

Contributing Factors	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Physical				
Headache	213	49.8	215	50.2
Body ache	187	43.7	241	56.3
Tired easily	181	42.3	247	57.7
Not falling asleep fast at bedtime	115	36.2	273	63.8
Vision problem	119	27.8	309	72.2
Difficulty in breathing during sleep	81	18.9	347	81.1
Psychological				
Do not like to share feelings with friends	201	47.0	227	53.0
Do not like to share feelings with parents	208	48.6	220	51.4
Feeling unusually sad	149	34.8	279	65.2
Feeling anxious	148	34.6	280	65.4
Feeling depressed	130	30.4	298	69.6
Social				
Drink tea/coffee	306	71.5	122	28.5
Skip the night meals	150	35.0	278	65.0
Not feeling happy with friends	129	30.1	299	69.9
Not having friends	84	19.6	344	80.4
Friends pressure to indulge in unpleasant activities	78	18.2	350	81.8
Academic				
Not able to talk to teachers about personal or educational problems	294	68.7	134	31.3
Worry about poor academic performance	232	54.2	196	45.8
Difficulty in concentrating	203	47.4	225	52.6
Getting upset with teacher's scolding	192	44.9	236	55.1
Tough syllabus	150	35.0	278	65.0
Family factors				
Parents pressure to study hard	228	53.3	200	46.7
Lack of parental support	105	24.5	323	75.5
Father comes home late	98	23.4	330	76.6
Parents teasing in front of others	95	22.2	333	77.8
Parents' fights	85	19.9	343	80.1
Environmental				

Contributing Factors	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Watching TV at late night	167	39.0	261	61.0
Feeling sad by missing TV serials/movies	167	39.0	261	61.0
Feeling uncomfortable if TV is not working	137	32.0	291	68.0
Playing computer game	129	30.1	299	69.9
Spending time talking on the mobile phone and sending SMSs, etc.	94	22	334	78.0

Association between insomnia and demographic variables

Association between insomnia and contributing factors was determined by computing chi-square and findings are given in Table 3.

Table 3:
Association between prevalence of Insomnia and Selected Demographic Variable

N=1070

Variables	Insomnia		χ^2	*df*	*p value*
	Absent	Present			
Age (in years)					
13-14	441	259	8.667	2	.034*
15-16	201	169			
Gender					
Male	339	172	14.738	1	.118
Female	303	256			
Class					
8	235	140			
9	229	142	1.343	2	.511
10	178	146			
Birth order					
First	267	167			
Second	231	147			
Third	61	54	5.385	5	.371
Fourth	8	21			
Fifth	5	1			
Only child	70	38			
Religion					
Hindu	540	358			
Christian	73	47	3.846	2	.146
Muslim	29	23			
Type of family					
Nuclear	470	298	1.139	1	.286
Joint	172	130			
Current living					
With parent	595	371			
With relative	28	29	0.007	1	.935
Hostel	19	28			
Family income (Rupees/month)					
Below 5,000	237	197			
5,001-10,000	217	142	0.571	3	.335
10,001-15000	99	57			
Above 15,000	89	32			
Parents living status					
Living together	609	388			
Separated	12	12	3.396	3	.335
Divorced	1	2			
Single parent	40	26			
Parents habit					
Father					
No habit	426	221			
Alcohol	80	67			
Smoking	36	38			
Tobacco chewing	45	38	9.861	5	.079
Alcoholism + smoking	35	10			
Alcoholism + tobacco	25	8			
Smoking + tobacco	7	10			
Not applicable	18	6			
Mother					
Alcoholism	5	6			
Tobacco chewing	37	25	2.129	2	.345
No habit	578	397			
Not applicable	16	6			

**Significant at p<.05*

The data presented in Table 3 show that there is statistically significant association between insomnia and age in years (χ^2=8.667, *df*=3, *p- value=.034*).

Association between insomnia and contributing factors

Association between insomnia and contributing factors was determined by computing chi-square and findings are given in Table 4.

Table 4:
Association between prevalence of Insomnia and Contributing Factors

N=428

Contributing factors	χ^2value	p-value
Physical		
Headache	17.407	.001*
Earache	4.719	.030*
Vision problem	16.536	.001*
Body ache	34.404	.001*
Tired easily	22.957	.001*
Do not fall asleep fast at bedtime	7.771	.005*
Having difficulty in breathing during sleep	10.777	.001*
Psychological		
Problem of sleep walking	2.457	.001*
Feeling unusually sad	49.450	.001*
Feeling of friends neglect	21.749	.001*
Feeling of parents neglect	17.389	.001*
Feeling of loneliness	28.051	.001*
Feeling depressed	38.389	.001*
Feeling anxious	32.471	.001*
Social		
Not having friends	4.208	.040*
Skip the night meals	17.552	.001*
Academic		
Feeling of not fitting in with friends	16.986	.001*
Worry about poor academic performance	16.906	.001*
Difficulty in concentrating	30.196	.001*
Find homework as a burden	17.731	.001*
Syllabus is tough	10.734	.001*
Family		
Parents' tease in front of others	8.054	.005*
Parents' fight	11.307	.001*
Father coming home late	7.797	.006*
Parents pressurize you to study hard	7.671	.006*
Lack of parental support	11.689	.001*
Environmental		
Watching TV at late night	17.020	.001*
Feeling sad by missing TV serials movies		.001*
Spending time talking on the mobile phone and sending SMSs.	3.603	.001*

*df = 1; *Significant at p<.05*

The data represented in Table 4 show that there is statistically significant association between insomnia and physical factors like headache (p< .001), earache (p< .030), vision problem (p<.001), body ache (p<.001), tired easily (p<.001), not falling asleep fast at bed time (p<.005), and difficulty in breathing during sleep (p<.001). With regard to psychological factors, there is a significant association between insomnia and sleep walking (p=.001), unusual sadness (p<.05), friends neglect (p<.001), parental neglect (p <.001), loneliness (p<.001), feeling depressed (p<.001), and feeling anxious (p=.004). Regarding social factors like not having friends and skipping of night meals were the significant association with insomnia. Related to academic factors, there is a significant association between insomnia and feeling of not fitting with friends (p<.001), worry about poor academic performance (p<.001), difficulty in concentrating (p<.001), burden of homework (p<.001), and tough syllabus (p<.001). Pertaining to the family factors, there was a significant association between insomnia with parents' tease (p<.005), parental fight (p< . 001), pressurize to study hard (p< .006), and lack of parental support (p<.006).

Concerning to the environmental factors, there is a significant association with insomnia and watching television at late night (p<.001), feeling sad by missing serials/movies (p<.001), getting upset, when parents do not allow watching television during exams (p<.001), and spending more time with mobile (p<.01).

Discussion

The present study showed that overall prevalence of insomnia among adolescents is 40%. The findings of the present study are partially supported by a study conducted among 384 representatives-Australian adolescents within the age group of 13 to 18 years. The finding was 34.6% of adolescents, reported for frequent sleep-related day time consequences and

10.9% of adolescents having insomnia according to Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV criteria (Dhont, Gradisar & Short, 2012).

The present study showed that there was a significant association between adolescent insomnia and age (*p=.034*). This study findings support the findings of a study conducted in Norway, which found the association between insomnia and age (p<.05) (Gabrielsen, 2009). In the present study, the psychosocial factors like anxiety (*p*=.001) and depression (*p*= .001) are associated with adolescent insomnia. It supports the earlier evident put forth by Tonya et Al., (2012), who found that the psychosocial factors are significantly associated (*p*< .001) with the adolescent insomnia (Tonya, Palermo, Anna, & Wilson, 2011).

In the present study, the environmental factor like playing computer game was not significantly associated with adolescent insomnia (*p*=.820). In contradiction to this findings is a study conducted to assess the intensity of computer use and prevalence of insomnia among Greek adolescents, which found statistical significance between insomnia symptoms (Mann-Whitney Z=5.489, *p*<.001) and constant use of computer (Siomos, Braimiotis, Dafoulis, & Angelopoulos, 2010).

Conclusion

The prevalence of insomnia seems to be very common among adolescents. The physical, psychological, social, academic, family, and environmental factors contribute significantly to insomnia among adolescents. Insomnia in adolescents is associated with an increased risk of substance abuse, suicidal behavior, or any mental health problems. Early diagnosis or screening for insomnia may prevent further complications. More researches are needed to explore the contributing factors. Further research is necessary or appropriate for a specific purpose to explore all the factors that could predispose adolescents to insomnia and mental health problem.

Limitations

The study is limited to adolescents studying in selected secondary schools of Udupi district. The data on contributing factors for insomnia were collected with the help of tools prepared by the researcher. It is difficult to firmly establish the causal link between adolescent insomnia and the factors as it is a cross-sectional survey.

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