TO STUDY THE SLEEP HABITS AND PREVALENCE OF SLEEP DISORDERS IN THE ADOLESCENT AND ADULT PARAMEDICAL PERSONNEL - A QUESTIONNAIRE-BASED STUDY

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ABSTRACT

BACKGROUND

Sleep is a physiological process, which is essential for life. Adequate sleep is important for better cognitive performance and also to avoid health problems and psychiatric disorders. Sleep habits and disorders have been ignored in the past and are still inadequately understood. Therefore, the present study was conducted to find the sleep habits and disorders in the adolescent and adult paramedical personnel.

MATERIALS AND METHODS

The study population included in this analysis comprised of a total of 150 adolescent and adult paramedical personnel (BPT students: 50, BSc nursing students: 50, Nursing staff: 50). The study was conducted at Mahatma Gandhi Medical College, Jaipur. After obtaining informed consent, the subjects were given a questionnaire. The questionnaire used for this study was Sleep History Questionnaire (Kaplan and Sadocks Synopsis of Psychiatry, 11th edition).

RESULTS

Majority of the subjects were in the age group 15-25 years and 64% were males and 36% were females. The usual time of going to bed on weekdays in all the three groups was between 9 pm - 12 midnight, but on weekends/holidays it was found that almost ¼ used to go to bed after 12 midnight, but there was no change in the timing to go to bed for nursing staff group. Wakeup time on weekdays was usually 5 am – 7 am, but on weekends ½ of the subjects woke up after 7 am, out of which 33% got up after 8 am. It was also observed that ¼ of the subjects took more than 20 minutes to wake up and among these 65% were from nursing staff group. Time taken to fall asleep, 66% of the subjects took more than 20 minutes to fall asleep out of which 22% took more than 30 minutes. It was also observed that there was a deficiency in total sleep time in ¼ of studied population. History of snoring was present in 15-20% and 1/3 of those complained that their sleep was disturbed by gasps, hesitations and snorts; ¼ of the subjects got up with dry mouth and headache in the morning. More than ½ of the subjects felt sleepy and unrefreshed on awakening and ¼ felt chronically sleepy and fatigued. Many of them had symptoms of insomnia, restless leg syndrome, nightmares and sleep walking.

CONCLUSION

In the present study, the sleep habits of paramedical personnel are not conducive to health. This reflects the phenomenal burden of undiagnosed sleep disorders in the adolescent and adult paramedical personnel and its implications on their social, physical and mental health. Proper counselling, better planning and support should be provided to the paramedical personnel likely to suffer from sleep disorders.

KEYWORDS

Paramedical Personnel, Sleep Disorders, Sleep Habits.

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BACKGROUND

Sleep is a universal behaviour. It is one of the most significant human behaviour occupying 1/3 of human life. Sleep is necessary for survival, because prolonged sleep deprivation leads to severe physical and cognitive impairment.

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Sleep is relevant to psychiatry, because sleep disturbances occur in virtually all psychiatric illnesses and are frequently part of the diagnostic criteria for specific disorders.

Sleep is not a dormant state. When prevented from sleeping, the body tries to recover the lost sleep time. Thus, the existence of sleep rebound after deprivation reveals that sleep is not simply a period of reduced activity or alertness regulated by circadian or ultradian rhythms.⁽¹⁾ Furthermore, sleep in most vertebrates display a specific architecture and dramatic changes in brain electrophysiology, neurochemistry and functional anatomy biologically distinguish the different sleep stages from one another.⁽²⁾

Although, the precise functions of sleep are still beyond a comprehensive understanding, a large body of data show its critical role in somatic, cognitive and psychological process.

Its vital importance is well documented by the fact that sleep deprivation in rodents and flies can cause death more quickly than food deprivation.⁽³⁾ It is believed that sleep is beneficial for energy conservation and neuronal recuperation,⁽⁴⁾ synaptic homeostasis⁽⁵⁾ and brain plasticity.^(6,7)

A number of common adolescent conditions beyond highly specific somatic and psychiatric disorders during this developmental period could substantially affect sleep architecture, and thus may lead to maladaptive functioning including obesity, poor academic achievement and decremented psychological processing. These conditions include making suboptimal decisions and actions, emotional lability, stress in social relationships with peers, increased incidence of unintentional injuries, violence, substance abuse and excessive use of online gambling and electronic media.^(8,9,10,11) These behaviours that typically hallmark adolescence^(12,13) are accompanied by psychological and physiological hyperarousal and chronic sleep loss,^(14,15) which in turn can deteriorate synaptic plasticity, especially during development.⁽¹⁶⁾ Therefore, such behaviours in adolescence in association with sleep alterations may be regarded as pre-conditions of developmental psychiatric disorders.

Insomnia is by far the most common sleep disorder, affecting nearly 60% of U.S. adults at least one night per week. Common symptoms of insomnia include difficulty going to sleep and waking up.

Sleep disorders are common in general population, but they are not diagnosed because of unawareness of these disorders. A person with sleep difficulties only consults a doctor when it is associated with psychiatric, medical or neurological problems. There are no studies of sleep habits and prevalence of sleep disorders as such. So the present study was planned to study the sleep habits and sleep disorders in general population by using a sleep history questionnaire.

Aims and Objectives

1. To study the sleep habits in paramedical personnel.
2. To find out the sleep disorders in paramedical personnel.

Inclusion Criteria

1. Students of General Nursing, Mahatma Gandhi Medical College and Hospital.
2. Students of Physiotherapy, Mahatma Gandhi Medical College and Hospital.
3. Nursing Staff Working at Mahatma Gandhi Medical College and Hospital.

Suggestions:

More groups should have been included for better comparability.

Exclusion Criteria

Not suffering from any organic brain disorders.

Tools

1. Consent form.
2. Sleep History Questionnaire 19 (Synopsis of Psychiatry, Kaplan and Sadock) has 13 parts, which include socio-demographic details, medication history, past history of any illness, sleep pattern on workdays and weekends, sleep time and sleep quality, details about sleep and breathing, any type of insomnia, sleep disturbances, personal habits (use of tobacco, smoking, alcohol and caffeinated beverages), details about any medical condition in family, detail about personal history and bed partner problems and in the end any other additional information.

MATERIALS AND METHODS

Sample of Study

Group 1 - Students of BSc Nursing, Mahatma Gandhi College of Nursing - 50.

Group 2 - Students of Bachelor of Physiotherapy (BPT) Mahatma Gandhi College of Physiotherapy - 50.

Group 3 - Nursing Staff of Mahatma Gandhi Hospital - 50.

Methodology

The present study was conducted at Mahatma Gandhi Medical College and Hospital, Jaipur.

Step 1 - Informed consent was duly obtained from each participant.

Step 2 - The investigator duly explained the procedure for filling up the questionnaire and extended all possible help in answering it.

Step 3 - All the subjects were asked to fill up the sleep history questionnaire in the presence of an investigator. In case there was any difficulty in filling up the questionnaire, they were asked to clarify their difficulties.

Step 4 - The questionnaires were then analysed.

Age	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
15yrs-20yrs	26	52%	29	58%	-	-	55	36%
21yrs-25yrs	24	48%	21	42%	21	42%	66	45%
26yrs-30yrs	-	-	-	-	20	40%	20	13%
31yrs-35yrs	-	-	-	-	9	18%	9	6%
Gender	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
Male	28	56%	29	58%	39	78%	96	64%
Female	22	44%	21	42%	11	22%	54	36%

Table 1

Marital Status	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
Married	2	4%	3	6%	36	72%	41	27%
Unmarried	48	96%	47	94%	14	28%	109	73%

Table 2

Time of Sleep on Weekdays	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
9 pm - 10 pm	13	26%	6	12%	19	38%	38	25.33%
10.01 - 11pm	25	50%	20	40%	22	44%	67	44.67%
11.01 pm - 12 am	11	22%	21	42%	9	18%	41	27.33%
After 12 am	1	2%	3	6%	-	-	4	2.67%
Time of Sleep on Weekend/Holidays	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
9 pm - 10 pm	11	22%	3	6%	22	44%	36	24%
10.01 - 11 pm	18	36%	20	40%	23	46%	61	40.67%
11.01 pm - 12 am	9	18%	15	30%	5	10%	29	19.33%
After 12 am	12	24%	12	24%	-	-	24	16%

Table 3

Wakeup Time in Weekdays	B.Sc. Nursing Students-50		BPT Students- 50		Nursing Staff-50		Total-150	
5 am - 6 am	38	76%	20	40%	39	78%	97	64.67%
6.01 - 7.00 am	11	22%	21	42%	11	22%	43	28.67%
7.01 - 8.00 am	1	2%	9	18%	-	-	10	6.66%
After 8 am	-	-	-	-	-	-	-	-
Wakeup Time in Weekend/Holidays	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
5 am - 6 am	9	18%	9	18%	28	56%	46	30.67%
6.01 - 7.00 am	16	32%	6	12%	6	12%	28	18.67%
7.01 - 8.00 am	18	36%	23	46%	15	30%	56	37.33%
After 8 am	7	14%	12	24%	1	2%	20	13.33%

Table 4

Time Taken to Fall Asleep	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
0 - 10 mints	3	6%	14	28%	19	38%	36	24%
11 - 20 mints	14	28%	9	18%	3	6%	26	17.33%
21 - 30 mints	23	46%	21	42%	26	52%	70	46.67%
> 30 mints	10	20%	6	12%	2	4%	18	12%

Table 5

Time Taken to Wakeup	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
0 - 10 mints	33	66%	23	46%	19	38%	75	50%
11 - 20 mints	11	22%	21	42%	3	6%	35	23.33%
21 - 30 mints	4	8%	6	12%	26	52%	36	24%
> 30 mints	2	4%	-	-	2	4%	4	2.67%

Table 6

Sleep Time	Actual Sleep		Required Sleep	
Less than 6 hrs.	12	24%	8	16%
6 - 8 hrs.	36	72%	30	60%
More than 8 hrs.	2	4%	12	24%

Table 7

Sleep Time	Actual Sleep		Required Sleep	
Less than 6 hrs.	14	28%	8	16%
6 - 8 hrs.	36	72%	30	60%
More than 8 hrs.	-	-	12	24%

Table 8

Sleep Time	Actual Sleep		Required Sleep	
Less than 6 hrs.	20	40%	1	2%
6 - 8 hrs.	30	60%	37	74%
More than 8 hrs.	-	-	12	24%

Table 9

Que. No.	B.Sc. N Students No.	% B.Sc. N Students	BPT Students No.	% BPT Students	Nursing Staff No.	% Nursing Staff	Total No.	Total %
1	0	0%	9	18%	13	26%	22	14.67%
2	0	0%	3	6%	0	0%	3	2%
3	0	0%	0	0%	0	0%	0	0%
4	0	0%	0	0%	3	6%	3	2%
5	9	18%	9	18%	9	18%	27	18%
6	3	6%	12	24%	12	24%	27	18%

Table 10

Quality of Sleep	B.Sc. Nursing Students - 50		BPT Students - 50		Nursing Staff - 50		Total - 150	
Unrefreshed on Awakening	3	6%	38	76%	30	60%	71	47.33%
Normal	47	94%	12	24%	20	40%	79	52.67%

Table 11

Que. No.	B.Sc. N Students No.	% B.Sc. N Students	BPT Students No.	% BPT Students	Nursing Staff No.	% Nursing Staff	Total No.	Total %
1	41	82%	35	70%	27	54%	103	68.67%
2	38	76%	18	36%	36	72%	92	61.3%
3	35	70%	27	54%	26	52%	88	58.66%
4	33	66%	21	42%	27	54%	81	54%
5	14	28%	29	58%	29	58%	72	48%
6	21	42%	30	60%	19	38%	70	46.67%
7	7	14%	18	36%	15	30%	40	26.66%
8	4	8%	6	12%	9	18%	19	12.66%
9	2	4%	12	24%	3	6%	17	11.33%
10	0	0%	0	0%	3	6%	3	2%
11	0	0%	0	0%	0	0%	0	0%

Table 12

Que. No.	B.Sc. N Students No.	% B.Sc. N Students	BPT Students No.	% BPT Students	Nursing Staff No.	% Nursing Staff	Total No.	Total %
1	14	24%	9	18%	28	56%	51	41.66%
2	2	4%	18	36%	26	52%	46	30.66%
3	9	18%	18	36%	11	22%	38	25.33%
4	4	8%	12	24%	14	28%	17	20%
5	8	16%	9	18%	9	18%	26	17.33%
6	3	6%	9	18%	15	30%	27	18%
7	1	2%	9	18%	13	26%	23	15.33%
8	0	0%	12	24%	9	18%	21	14%
9	1	2%	2	4%	10	20%	23	15.33%
10	1	2%	9	18%	8	16%	18	12%
11	0	0%	6	12%	4	8%	10	6.66%

Table 13

RESULTS AND DISCUSSION

The present study was conducted at Mahatma Gandhi Hospital, Jaipur, with the aim of studying the sleep habits and sleep disorders in general population by means of a standardised sleep history questionnaire.

Socio-Demographic Data

Majority of the subjects (81%) were in the age group of 15 - 25 years, 19% were in the age group 26 - 35 years who were mostly in the category of nursing staff (Table No. 1).

64% of the population were males and 36% were females (Table No. 1).

73% of the subjects were unmarried and 27% were married, out of which 89% were among the nursing staff and only 11% were in the student population (Table No. 2).

Time of Sleep

76% of the B.Sc. nursing students used to go to bed between 9 pm - 11 pm on weekdays and on weekends/holidays only 58% slept between 9 pm and 11 pm; 2% of the B.Sc. nursing students slept after 12 midnight on weekdays, whereas this number increased to 24% on weekends/holidays (Table No. 3).

Among BPT students, 82% slept between 10 pm - 12 midnight, 12% slept between 9 - 10 pm and 6% slept after 12 midnight. On weekends/holidays 6% of BPT students slept between 9 - 10 pm, 24% slept after 12 midnight.

Among nursing staff, there were not many variations between going to bed on weekdays and weekends.

Wakeup Time

64.67% of subjects got up between 5 - 6 am, 28.6% between 6 - 7 am and only 6.6% after 7 am on weekdays (Table No. 4).

When the data was analysed for wakeup time on weekends, it was found that 30.6% got up between 5 - 6 am, 18.67% between 6 - 7 am and 50.6% after 7 am (Table No. 4).

Time Taken to Fall Asleep

On analysis of the data for time taken to fall asleep, it was evident that 41.33% of the subjects used to take 5 - 20 minutes, whereas 58.67% had difficulty in going to sleep and took more than 20 minutes, out of which 12% took more than 30 minutes (Table No. 5).

Time Taken to Wakeup

50% woke up within 10 minutes, 23.33% took 20 minutes and 26.67% took more than 20 minutes, out of which 56% of the subjects were among the nursing staff (Table No. 6).

Actual and Required Sleep in B.Sc. Nursing Students

On analysis of the data for actual sleep time and required sleep hours, it was found that only 72% of B.Sc. nursing students were sleeping for 6 - 8 hours, 24% slept for less than 6 hours and 4% slept for more than 8 hours. When they were asked to report about their requirement of sleep, only 60% of this category wanted to sleep for 6 - 8 hours and 24% wanted to sleep for more than 8 hours (Table No. 7).

Actual and Required Sleep in BPT Students

Similar analysis for BPT students showed no difference in their actual and required sleep hours, which was 6 - 8 hours. Although none of the BPT students slept for more than 8 hours,

but 24% of the BPT students wanted to sleep for more than 8 hours (Table No. 8).

Actual and Required Sleep in Nursing Staff

In the nursing staff group 40% slept for less than 6 hours, 60% slept for 6 - 8 hours; 24% wanted to sleep for more than 8 hours (Table No. 9).

Sleep and Breathing

Analysis of data of sleep and breathing revealed that 14.67% of all the subjects (18% BPT students and 26% of nursing staff) do snore. These findings are similar to Adewole OO et al 2008,⁽¹⁷⁾ who reported in a cross-sectional study that 14% of the population studied were habitual snorers, a much higher percentage was reported 23% and 26% by IP MSM et al 2001⁽¹⁸⁾ and Udwardia ZF et al 2004⁽¹⁹⁾ respectively.

J. C. Suri et al 2008 reported snoring in 39.5% of subjects and found significant correlation with male gender; 28% reported habitual snoring.

6% BPT students reported that their snoring was broken by hesitations, gasps and snorts; 6% of the nursing staff reported that their snoring has driven out their bed partner from the bed room. Almost 18 - 20% of all the subjects got up with dry mouth and 6% of B.Sc. nursing students, 24% of BPT students and 24% of nursing staff woke up in the morning with headache (Table No. 10).

Quality of Sleep

On analysis of the data on the basis of quality of sleep, it was found that 76% of BPT students and 60% of nursing staff used to feel sleepy and unrefreshed on awakening, while only 6% of B.Sc. nursing students complained of getting up unrefreshed and sleepy.

18% of BPT students and 27% of nursing staff felt chronically sleepy and fatigued. J. C. Suri et al 2008 in their study reported excessive day time sleepiness in 48.6% of subjects and also showed significant correlation with male gender. Daytime hypersomnolence was found in 22% of the subjects in a study conducted by Udwardia ZF et al 2004.

Insomnia

Several questions were asked regarding sleep; 68.67% reported that heat, cold, hunger or thirst disturbed their sleep; 61.3% said that they had a habit of watching TV, reading or working while in bed. When subjects were asked whether their mind raced with thoughts while lying awake, 58.66% answered yes; 54% said that they felt sleepy prior to going to bed. Daytime worries kept 48% of the subjects awake at night and pain disturbed sleep in 46.6% of the subjects; 26.66% of subjects worried about being able to fall asleep on time; 12.67% reported that insomnia was the primary reason their life was in disarray; 11.3% had trouble falling and staying asleep, whereas 2% relied on sleeping medication.

The above findings reflect that sleep was disturbed by factors like heat, cold, hunger, thirst, watching TV or reading and working in bed, daytime worries, physical problems, but approximately 10 to 15% of all subjects were suffering from insomnia, these findings were similar to Johnson EO, Sleep Med Clin 2006.⁽²⁰⁾ In the present study, 20 - 30% of the subjects had experienced some symptoms of either initiation or maintenance of sleep, these findings are similar to J. C. Suri

et al 2008 at Delhi,⁽²¹⁾ who reported similar symptoms in approximately 25% of all the subjects.

In the present study, it was found that despite the fact that almost 20 - 30% of the population found it difficult to maintain sleep and 12% complained of insomnia, only 2% of all the subjects consumed sleeping medication. These findings were similar to J. C. Suri et al 2008,⁽²¹⁾ where 2.3% of the studied adult population consumed sleeping medication.

Sleep Disturbances

When subjects were asked questions regarding sleep disturbances 41.66% reported that they had nightmares or vivid dreams, 30.66% experienced unpleasant leg sensations at bedtime. These findings were similar to J. C. Suri et al 2008,⁽²¹⁾ who reported nightmares in 30.6% of the subjects; 25.33% had experienced weakness when laughing or angry; 20% experienced bitter or acid taste on awakening; 18% reported kicking or jerking of legs or arms during sleep; 17.33% said that they had seen or felt things from their dreams after awakening; 15.3% had sweats or awoken from sleep feeling flushed; 14% said they were unable to move for a few moments after awakening; 12% complained of walking during sleep, whereas J. C. Suri et al 2008⁽²¹⁾ reported sleepwalking in 6% only; 6.66% reported unusual movements or behaviour during sleep. Sleep walking has a heritable predisposition and occurs in 1% to 15% of the general population.⁽²²⁾ Restless leg syndrome was reported in 8.2% of the subjects in a study conducted by J. C. Suri et al 2008.⁽²¹⁾

The overall global prevalence of restless leg syndrome has been reported to be approximately 10%.⁽²²⁾ In Netherlands, prevalence of RLS/periodic leg movement disorder was found to be 5.2%.⁽²³⁾ The overall prevalence of symptoms suggestive of restless leg syndrome was approximately 15% in present study.

The prevalence of sleep bruxism with grinding in adult population has been reported to be about 10% (Lavigne GJ et al 1994)⁽²⁴⁾ and grinding of teeth (bruxism) during sleep was observed in 15.3% of subjects, which collaborated with the findings of J. C. Suri et al 2008.⁽²¹⁾

Personal Habits

Questionnaire related to personal habits, i.e. use of alcohol and tobacco was taken and data revealed that only 8% of all the subjects were using tobacco and 6% were using alcohol occasionally.

Family History

Medical disorders like Diabetes mellitus, Arthritis, HTN, Asthma and Headache were present in 3 - 5%.

Sleep related problems and snoring were present in 3% and 6% of all the subjects respectively.

Personal History

Personal medical history revealed that 6% of all the subjects were having nasal congestion; 2% of all the subjects had headache; 1% of all the subjects were suffering from hypothyroidism and 2% of the subjects complained of anxiety symptoms in the past.

LIMITATIONS OF THE STUDY

The sample size in this study was small, so the findings could not be generalised.

CONCLUSION

In this questionnaire-based survey, it was found that prevalence of sleep related disorders was quite high in general population for which they do not seek professional help. It reflects the phenomenal burden of undiagnosed sleep disorders in general population as well as its impact on social, mental, physical and economic health of the society.

This survey also suggests high need of educating masses regarding sleep pattern and sleep hygiene. There is a need for greater emphasis to be placed in training and education at various levels that include undergraduate and postgraduate medical curriculum, paramedical courses and nursing syllabi as far as sleep medicine is concerned. There is ample scope for future research in this arena.

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