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ORIGINAL ARTICLE

Knowledge, Attitude And Behaviour Towards Sleep Among Fourth Semester Medical Undergraduates In Pokhara, Nepal

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ABSTRACT

Context: Sleep disturbances are a common problem and exert a significant economic burden. Sleep medicine has not been emphasized in medical schools. Studies on the knowledge, attitude and practice (KAP) towards sleep among medical students are lacking.

Methods: The present study was carried out at Manipal College of Medical Sciences, Pokhara, Nepal among three successive batches of fourth semester medical students using a previously developed and validated questionnaire. The mean knowledge, attitude and practice scores were calculated and compared among various subgroups of respondents.

Results: A total of 189 of the 225 students (84%) participated. Ninety-seven students (51.3%) were male. The mean \pm SD knowledge, attitude and practice scores were 86.5 ± 14.6 (maximum score 120), 69.4 ± 18.7 (maximum score 130) and 184.3 ± 27.5 (maximum being 240) respectively. No significant differences in scores were seen among various subgroups of respondents.

Conclusions: The knowledge of the respondents regarding sleep was satisfactory but the attitude scores were low. The practice of sleep was average to good. Further studies among clinical students and in other medical schools are required.

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Introduction

Sleep disorders though highly prevalent are rarely diagnosed. Disturbed sleep is a common complaint and in United States (US) it has been estimated to affect up to 70 million Americans [1]. Sleep problems are seen across a wide age spectrum from children to elderly. Sleep disorders can involve a number of specialties in their management [2]. The prevalence of particular kinds of sleep problems may vary with age, lifestyle, shift work, co-morbid states etc [3].

In Europe, the prevalence of severe insomnia ranges from 4 to 22% [4]. Patients attending general practice clinics have a high prevalence of insomnia and doctors must be able to offer appropriate treatment [5]. A study in US shows that majority of primary care physicians had fair to poor knowledge of sleep disorders [6]. Only a small number of cases of sleep disorders are identified or diagnosed by an appropriate healthcare provider (HCP) [1]. Sleep disorders exert a significant economic cost and in 1995 in US the total direct cost of insomnia was US \$ 13.9 billion [7].

Sleep medicine has not been emphasized in medical school education. In US in early 1990s few medical schools had formal training programs in recognizing and managing sleep disorders [8]. Steps to address this problem have been taken since then but the problem still remains. In Singapore, medical students and certain postgraduate trainees had sleep related education in their curriculum [2]. A study

conducted among third, fourth and final year students had shown that the knowledge of medical students regarding sleep medicine was poor to fair [2]. Another study in Tamilnadu, India among final year medical students had shown that future doctors had insufficient knowledge and misconceptions regarding sleep [3]. The authors had recommended an educational strategy to improve knowledge regarding sleep related problems and to develop proper sleep practices among students.

The Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal is affiliated to Kathmandu University for undergraduate medical (MBBS) course. The college mainly admits students from Nepal, India, Sri Lanka and a few students from other countries. The seven basic science subjects (Anatomy, Physiology, Biochemistry, Pharmacology, Pathology, Microbiology and Community Medicine) are taught in an integrated organ system based manner during the first four semesters with regular clinical contact. In Pharmacology, students are taught about non-drug measures for insomnia and choosing an appropriate drug for the condition when necessary and communicating the information to a simulated patient. Other sleep disorders are also mentioned but are not covered in detail.

The authors of a study in Tamilnadu, India had prepared a questionnaire and administered it to final year medical undergraduates [3]. I used the same questionnaire after obtaining permission from the authors. There have been limited studies on the prevalence of sleep disorders in Nepal. Studies on disturbance of sleep at high altitude have been carried out. A study had shown correlation between Lake Louise score, altitude and periodic breathing [9] Another study in the Kathmandu valley had shown that sleep apnea syndrome is not common in Nepalese populations [10] Obesity, hypertension, chronic obstructive pulmonary disease and cardiac diseases were common associated co-morbidities with the condition. Previous studies on

knowledge, attitude and practice (KAP) towards sleep among medical students could not be found in the literature.

The present study was carried out to obtain information on knowledge, attitude (belief) and practice (KAP) of fourth semester students towards sleep. These students were on the verge of completing their basic science training and attending clinical semesters. Differences in KAP scores among various subgroups of respondents, if any were also studied.

Methods

The study was carried out among fourth semester undergraduate medical students at the Manipal College of Medical Sciences, Pokhara, Nepal. The students had studied about physiology of sleep, various sleep disturbances and the different treatment modalities available. Students were explained objectives of the study and were invited to participate. Verbal consent to participate was obtained.

The study was carried out among three successive batches of students. First batch was studied during the month of May 2006, second batch during November 2006 and last batch during May 2007. At this point of the course, students had completed major portion of their course of study and were preparing for the semester and University examinations. Student responses were obtained using a questionnaire. Demographic details like gender, nationality, method of financing of medical education, occupation of parents and whether the student belongs to town or village were noted. Gender had been noted as a demographic variable by authors of previous studies [2], [3] and it was decided to include gender as a characteristic and note whether it had any influence on the KAP scores regarding sleep. In this institute where the study was conducted, Nepalese students are selected through entrance examinations while foreign students are selected on basis of their twelfth standard marks. As a group, Nepalese students do

better academically compared to foreign students. In previous studies, author had found that knowledge of the Nepalese students regarding various subjects was better compared to other nationalities. The authors of a previous study [3] on which our study is based had collected information on whether participants were from village or town. The sleep practices are different in urban and rural areas and previously a significant difference in belief scores was noted between urban and rural respondents [3]. A certain proportion of the Nepalese students are selected on the basis of an entrance examination conducted by the Ministry of Education, Government of Nepal. These students receive full tuition fee scholarship and perform better academically compared to other groups. In previous studies, this particular group was found to have better knowledge and perceptions compared to others. The author was interested in evaluating whether children of doctor parents have better knowledge about sleep compared to others. This could be the result of being exposed to a medical background since beginning. This parameter has also been discussed in previous studies and there were occasional significant differences in scores among children of doctor parents and others.

Student knowledge about sleep was studied using a questionnaire originally developed by Sivagnanam G et al. The knowledge and attitude towards sleep were studied using a set of 25 statements. The practice of sleep was investigated using a separate set of 6 questions. The instrument focused on a limited set of questions pertaining to knowledge (12 items) and beliefs (attitude) (13 items), covering certain, important basic aspects of sleep physiology, pharmacology, sleep requirements, use and toxicity of hypnotics, consequences of sleep deprivation, sleep-hygiene misconceptions, and sleep practices of respondents. Focus was to elicit the basic knowledge necessary for a general practitioner while treating a patient. The responses were close-ended with 3 possibilities: "yes," "no," or "don't

know." Sleep problems of respondents during the week preceding the study were noted for the Practice component.

Scoring was done by awarding marks (correct response = 10, wrong = 1, don't know = 2, and not reported = 0) for each item of Knowledge and Belief (attitude). The response for items concerning Practice was a frequency-based rating scale (with options, such as "not at all" = 40, "on 6-7 days" = 10, with equal gradation in-between and not reported = 0). Theoretically, maximum scores for Knowledge, Belief (attitude) and Practice were 120, 130, and 240 marks, respectively, with a maximum grand total of 490. As stated by Sivagnanam and coworkers it is conventional to use chi-square test to compare qualitative data, but because we used a scoring system (converting the nonparametric data into parametric data), we applied Student *t* test for intergroup comparison of scores of Knowledge, Belief (attitude), and Practice for dichotomous variables while ANOVA was used for others ($p < 0.05$).

The questionnaire was pretested among ten fifth semester students during April 2006. Respondents had no difficulty in understanding the questionnaire or other problems.

Results

A total of 189 of the 225 students (84%) participated in the survey. Ninety-seven students (51.3%) were male. The most common nationality was Nepalese [88 respondents (46.6%)] followed by Indians [79 respondents (41.8%)], Sri Lankans [15 (7.9%)] and others [2 (1.1%)]. Forty-one students (21.7%) were studying on government scholarship. [Table/Fig 1] shows the demographic patterns of respondents. The survey instrument was distributed during Pharmacology practical session and completed questionnaires were returned next day by the students.

(Table Fig 1) Demographic Details Of The Student Respondents

Characteristic		Number (percentage)
Gender	Male	97 (51.3)
	Female	91 (48.1)
Nationality	Nepalese	88 (46.6)
	Indians	79 (41.8)
	Sri Lankans	15 (7.9)
	Others	2 (1.1)
Financing	Scholarship	41 (21.7)
	Self-financing	138 (73)
Occupation of father	Doctor	47 (24.9)
	Other	128 (67.7)
Occupation of mother	Doctor	23 (12.2)
	Other	38 (20.1)
	Housewife	118 (62.4)
Place of family residence	Urban	160 (84.7)
	Rural	17 (9)

(Table Fig 2) Knowledge Score Among Various Subgroups Of Respondents

Characteristic		Mean ± SD score	P value
Gender	Male	87.1 ± 15.3	0.639
	Female	86.1 ± 14	
Nationality	Nepalese	86.9 ± 15	0.514
	Indians	86.9 ± 14.7	
	Sri Lankans	82.9 ± 14.5	
	Others	97.5 ± 6.4	
Financing	Scholarship	89.1 ± 14.5	0.279
	Self-financing	86.4 ± 13.7	
Occupation of father	Doctors	87.5 ± 14.1	0.791
	Non doctors	86.9 ± 13.4	
Occupation of mother	Doctor	82.9 ± 14.8	0.596
	Non doctor	88.1 ± 14	
	Housewife	86.6 ± 14.3	
Place	Urban	86.7 ± 13.8	0.101
	Rural	80.5 ± 21.9	

(Table Fig 3) Attitude (Belief) Scores Among Various Subgroups Of Respondents

Characteristic		Mean ± SD score	P value
Gender	Male	67.6 ± 19.4	0.156
	Female	71.5 ± 17.7	
Nationality	Nepalese	69.3 ± 19.7	0.404
	Indians	68.9 ± 18.1	
	Sri Lankans	72.8 ± 16.5	
	Others	90 ± 5.6	
Financing	Scholarship	72.1 ± 21.8	0.326
	Self-financing	68.8 ± 17.4	
Occupation of father	Doctors	67.1 ± 18.3	0.235
	Non doctors	86.9 ± 13.4	
Occupation of mother	Doctor	67.4 ± 17.5	0.567
	Non doctor	73.2 ± 16.8	
	Housewife	68.6 ± 19.2	
Place	Urban	69.8 ± 18	0.930
	Rural	69.3 ± 25.1	

(Table Fig 4) Practice Scores Of Various Subgroups Of Respondents

Characteristic		Mean ± SD score	P value
Gender	Male	183.8 ± 31.7	0.843
	Female	171.5 ± 17.7	
Nationality	Nepalese	184.5 ± 27.1	0.581
	Indians	181.9 ± 29.6	
	Sri Lankans	194.7 ± 22	
	Others		
Financing	Scholarship	183.9 ± 19.7	0.883
	Self-financing	183.2 ± 29.1	
Occupation of father	Doctors	183.2 ± 24.6	0.790
	Non doctors	184.5 ± 29.2	
Occupation of mother	Doctor	190 ± 23.5	0.468
	Non doctor	180 ± 27.5	
	Housewife	185.2 ± 29	
Place	Urban	183.5 ± 28.5	0.418
	Rural	189.4 ± 25.1	

Appendix: Questionnaire used for the study

Knowledge, attitude and behavior towards sleep among medical undergraduates in Pokhara, Nepal

Dear student!
We are undertaking a research on the knowledge, attitude and practice of people about sleep. We request you to tick the answers you consider as most appropriate in the box. Do not tick more than one answer for each statement. Please answer all the questions including the basic details asked for. Please do not write your name.

Sex: M/F Nationality: Method of financing: Scholarship/Self-financing Occupation of father: Occupation of mother: Place of family residence: Town/Village

Kindly tick one response you feel correct to each of the questions in the box. Please answer all the questions. Thank you

S. No.	Statement	Yes	No	Don't know	
1	Sleep disturbances are more common in the elderly				
2	Sleep deprivation impairs performance				
3	Many psychiatric illnesses present with complaint of insomnia				
4	Children should only be rarely given sleeping pills (hypnotics)				
5	Drinking milk before bed time promotes sleep				
6	Overdose of some sleeping pills like diazepam (Valium) do not cause death even when 10 times the usual dose is taken				
7	Narcolepsy is a sleep disorder				
8	There is usually an underlying cause for chronic insomnia				
9	Obstructive sleep apnea may be associated with hypertension				
10	The duration of action of a hypnotic has a role in selection of a drug for insomnia				
11	Small naps during day time may affect the quality & quantity of sleep at night				
12	Degeneration of sleep results in psychiatric problems				
13	Snoring is a strong indication for sleeping pill				
14	Insomnia can be cured by hypnotic drugs				
16	Minimum of eight hours sleep is a must for any human being				
17	It is always better to abruptly stop a hypnotic drug to avoid dependence				
18	Reading/watching TV/ while lying in bed are good habits				
19	Heavy meals just before bed time usually aids in sleep				
20	Regular exercise finished at least 3-4 hours before bed time adversely affects sleep				
21	Sleepiness can be overcome by motivation, commitment, dedication, or sheer will				
22	Medical professionals can overcome sleepiness more effectively than others				
23	If sleep is not achieved in 20 minutes after going to bed, counting numbers will help				
24	Drinking alcohol promotes good quality sleep				
25	Keeping a totem/footwear nearby the bed while sleeping, drives away evil forces				
How often during the past week did you:		Not at all	1-2 days	3-5 days	6-7 days
26	Have trouble falling asleep?				
27	Have to wake up several times during the night?				
28	Have trouble staying asleep (Woke up earlier than usual)?				
29	Have to wake up feeling tired and worn out?				
30	Feel alert during daytime hours?				
31	Feel well rested?				

The scores were calculated according to method of Sivagnanam and coworkers already described in Methods section. The mean ± SD knowledge score was 86.5 ± 14.6, the mean ± SD attitude score was 69.4 ± 18.7 and the mean ± SD practice score was 184.3 ± 27.5. [Table/Fig2], [Table/Fig3],[Table/Fig 4] show the mean knowledge, attitude and practice scores among various subgroups of respondents. There were no significant differences in scores among different groups.

The maximum number of incorrect answers were seen with statement 14 (insomnia can

be cured by hypnotic drugs), statement 16 (minimum of 8 hours sleep is must for any human being) and statement 17 (it is always better to abruptly stop a hypnotic drug to avoid dependence).

Discussion

The mean \pm SD knowledge score was 86.5 ± 14.6 (maximum score 120), the mean \pm SD attitude score was 69.4 ± 18.7 (maximum score 130) and the mean \pm SD practice score was 184.3 ± 27.5 (maximum score 240). There was no significant difference in scores among various subgroups of respondents. Certain statements had maximum incorrect responses.

A previous study had noted no significant gender difference regarding KAP of sleep [3]. In Singapore, female medical students who needed an alarm clock to wake up and used caffeinated products were significantly more than male students [2]. No other significant differences between groups were seen. This study had used a different questionnaire compared to the present study. In our study the knowledge score was higher among male students, scholarship students, students with doctor parents (father) and students from urban areas though the difference was not statistically significant. The attitude (belief) score was higher among female students, Sri Lankans, scholarship students and students of non-doctor parents. The practice scores were higher among males, Nepalese, scholarship students and students from rural areas. These differences were not significant and the differences noted were not consistent.

Racial differences in sleep medication use and in duration of sleep were noted in previous studies. In a study in United States, it was noted that use of sleep medications (prescription and non-prescription) was significantly less among African-Americans compared to whites [11]. Another study had shown that Blacks had more prevalence of short and long sleep durations and a greater variation in sleep time. The study concluded

that blacks might be at increased risk of developing medical conditions associated with short and long sleep [12]. A similar result was noted in another study, where black respondents had significantly higher risk of being short or long sleepers [13]. The study had also shown that living in a central city environment and increased population of city of domicile increased the odds of short sleeping. Other factors associated with short sleep duration were being male, being divorced or widowed or having low education levels [13]. In Nepal, mixing of races from Indian subcontinent and from Tibet has occurred through the ages and certain ethnic groups have more Tibetan characteristics compared to others. However, studies on effect of racial status (ethnic groups) on sleep are lacking. A confounding variable may be the intermingling of races which has occurred in Nepal. A recent study conducted in India had shown that sleep problems are frequent among healthy school going children and sleep disorders were significantly higher in nuclear families and bruxism, a sleep related disorder was more common in male children [14]. Thus gender and racial differences have been noted in sleep patterns and sleep problems. These differences may also be reflected in differences in KAP regarding sleep.

It can be concluded that the knowledge of fourth semester students of the institution regarding sleep was satisfactory. The number of students who gave incorrect answers for statements like 'Drinking milk before bed time promotes sleep', 'Overdose of benzodiazepines is non fatal', 'Narcolepsy is a sleep disorder'. 'Obstructive sleep apnoea may be associated with hypertension' was less than that noted previously [3]. Overall, the knowledge, attitude and practice scores were similar to those observed previously [3]. There were problems with the attitude (belief) of respondents towards sleep. Misconceptions were seen as noted previously [3]. Authors of the study argued that misconceptions may be evidence of possessing incorrect

knowledge. Ingrained false beliefs among medical students may be reflected in their future practice.

A study in Croatia had shown low knowledge of sleep medicine among medical students as well as physicians [15]. Authors had suggested that this may be because of lack of adequate education in sleep medicine during medical school.

In our study, majority of students had average to good sleep practice in the preceding week. Sleeping habits and sleep problems vary significantly between countries and between age groups [16]. The majority of students reported that they felt well rested and alert during day time. This is in contrast to that reported previously [3]. May be, the peaceful environment of the tourist city of Pokhara had a role to play.

Sleep medicine courses are conducted in many countries. In Singapore [2] medical students and postgraduate trainees in certain specialties have sleep related education in their curriculum. In Croatia, an elective undergraduate course in sleep medicine is offered at the Zagreb University School of Medicine. In south Asia, sleep laboratories to diagnose sleep disorders exist but specific courses on sleep medicine were found to be lacking.

Sleep is covered in Physiology, Pathology, Pharmacology, Medicine, Pediatrics and Psychiatry in a disjointed manner. Lack of time in medical curriculum and need for better resources and teaching facilities were the major problems noted in a survey [17]. Additional education on sleep disorders for medical undergraduates, postgraduates and practitioners has been recommended [18]. In United States, an intensive role-play based workshop during family medicine clerkship was found to be an effective fun way to improve students' sleep knowledge and skills [19]. In this institution (MCOMS), a student seminar on sleep both during basic sciences and during clinical years can be a means of integrating information from

various sources and subjects. In basic sciences, student seminars have been shown to be effective in integrating subjects and orienting them towards patient problems and diseases [20].

The study had limitations. Only the fourth semester basic science students participated. Clinical students, interns and house officers were not studied. The questionnaire used was developed by authors of a previous study [3]. While the questionnaire was pretested, it was not revalidated by the author. While the time period in relation to academic calendar was similar, two groups (classes) were examined in May during summer season while one group of students (class) was examined in November at the beginning of winter. Change in season may have had an effect on practice of sleep. Physical parameters of respondents were not studied and lifestyle drug history was not investigated. These factors can influence sleep.

Conclusions

The knowledge of respondents regarding sleep was satisfactory but the attitude scores were low. The practice of sleep was average to good. The study shows no significant differences among various groups. A similar teaching-learning modality regarding sleep can be adopted for the various groups if these results are confirmed by further studies. Studies among clinical students are required. Studies in other Nepalese medical schools and even among the general population can be useful. Based on the results a case can be made for introduction of a module on sleep medicine in the curriculum.

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References

- [1]. Rosen rc, zozula r, jahn eg, carson jl. Low rates of recognition of sleep disorders in primary care comparison of a community based versus clinical academic setting. *Sleep med* 2001;2:47-55.
- [2]. Mahendran r, subramanam m, chan yh. Medical students' behaviour, attitudes and knowledge of sleep medicine. *Singapore med j* 2004;45:587-9.
- [3]. Ivagnanamg,thirumalaikolundusubramaniam p, sugirda p, rajeswari j, namasivayam k, gitanjali b. Study of the knowledge, beliefs and practice of sleep among medical undergraduates of tamilnadu, india. *Med gen med* 2004;6(4):5. [Http://www.medscape.com/viewarticle/489715](http://www.medscape.com/viewarticle/489715). Accessed on december 23, 2007.
- [4]. Chevalier h, los f, boichet d, et al. Evaluation of severe insomnia in the general population: results of a european multinational survey. *J psychopharmacol* 1999;13 (suppl 1):s21-s24.
- [5]. Blais fc, morin cm, boiscalar a, grenier v, guay b. Insomnia: prevalence and treatment of patients in general practice. *Can fam physician* 2001;47:759-67.
- [6]. Papp kk, penrod ce, strohl kp. Knowledge and attitudes of primary care physicians towards sleep and sleep disorders. *Sleep and breathing* 2002;6:103-9.
- [7]. Walsh jk, engelhardt cl. The direct economic costs of insomnia in the united states for 1995. *Sleep* 1999;22 suppl2:386-93.
- [8]. Wake up america: a national sleep alert. The report of the national commission on sleep disorders research. Washington, dc: national commission on sleep disorders research, 1992.
- [9]. Burgess kr, johnson p, edwards n, cooper j. Acute mountain sickness is associated with sleep desaturation at high altitude. *Respirology* 2004;9:485-92.
- [10]. Chokhani r, pathak v, kanth r. Sleep apnoea syndrome in nepal. *Nepal med coll j* 2005;7:32-5.
- [11]. Allen kd, renner jb, devellis b, helmick cg, jordan jm. Racial differences in sleep medication use: a cross-sectional study of the johnston county osteoarthritis project (september). *Ann pharmacother*. 2008 jul 15. [epub ahead of print]
- [12]. 12) nunes j, jean-louis g, zizi f, casimir gj, von gizycki h, brown cd, mcfarlane si. Sleep duration among black and white americans: results of the national health interview survey. *J natl med assoc*. 2008;100:317-22.
- [13]. Hale l, do p. Racial differences in self-reports of sleep duration in a population-based study. *Sleep* 2007;30:1096-1103.
- [14]. Bharti b, malhi p, kashyap s. Patterns and problems of sleep in school going children. *Indian pediatrics* 2006;43:35-8.
- [15]. Kovacic z, marendic m, soljic m, pecotic r, kardum g, dogas z. Knowledge and attitude regarding sleep medicine of medical students and physicians in split, croatia. *Croat med j* 2002;43:71-4.
- [16]. Tynjala j, kannas l, valimaa r. How young europeans sleep. *Health educ res* 1993;8:69-80.
- [17]. Rosen r, mahowald m, chesson a et al. The taskforce 2000 survey on medical education in sleep and sleep disorders. *Sleep* 1998;21:235-8.
- [18]. Owens ja. The practice of pediatric sleep medicine: results of a community survey. *Pediatrics* 2001;108:e51.
- [19]. Schillinger e, kushida c, fahrenheit r, dement w, lebaron s. Teaching family medicine medical students about sleep disorders. *Family medicine* 2003;35:547-9.
- [20]. Giri br, shankar pr. Student seminars as a means of integrating basic science subjects at the manipal college of medical sciences, pokhara, nepal. *New zealand medical student journal* 2006;5:24-5.