

Medical students' behaviour, attitudes and knowledge of sleep medicine

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ABSTRACT

Introduction: A seminar on sleep disorders was recently introduced for third, fourth and final year medical students rotating through the psychiatry posting in the Institute of Mental Health. This survey was conducted to assess the attitudes as well as knowledge of medical students towards sleep medicine.

Methods: Verbal consent was taken from the students who were willing to take part in the survey. The MED Sleep Survey, which is an inventory to assess behavior, attitudes and knowledge about sleep, was used to assess the same in the students.

Results: A total of 240 medical students completed the survey. There were 149 male and 91 female medical students. In terms of their basic sleep knowledge, 46.7 percent scored between 1 and 10 points, 51.7 percent scored between 11 and 20 points, and 1.7 percent scored between 21 and 30 points. There was no significant difference between the different groups in their scores on basic sleep knowledge.

Conclusion: Most of the medical students scored between 1 and 20 points on basic sleep knowledge items in part III of the survey. Of these, almost one-half had scores between 1 and 10 points. Education is clearly important, and the introduction of the teaching programme on sleep medicine is timely and necessary.

Keywords: attitudes, beliefs, medical students, sleep disorders, sleep survey

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INTRODUCTION

Sleep problems are seen across a wide age spectrum from children to the elderly, and sleep complaints are one of the most common presenting complaints to health care providers. Sleep disorders are interdisciplinary and involve a number of specialties

such as respiratory medicine, neurology, psychiatry and otolaryngology. Sleep disorders are believed to affect up to 70 million Americans⁽¹⁾. In Singapore, Puvanendran and Goh⁽²⁾ reported loud snoring in 24.09% of the population. 87.5% of the patients with loud snoring were also diagnosed to suffer from sleep disordered breathing, of which 72% complained of excessive daytime sleepiness. Yet, sleep medicine is not given emphasis in medical school education. In 1990, 37% of American medical schools offered no formal education in sleep medicine⁽³⁾. A study by Phillips et al⁽⁴⁾ showed that most American pulmonologists actively involved in the practice of sleep medicine had only informal training and their performance when dealing with non-pulmonary sleep disorders was unsatisfactory.

In Singapore, medical students and postgraduate trainees in specialties such as psychiatry and family medicine have sleep-related education in their curriculum. However, the student's interest and attitude towards sleep medicine is not known. A seminar on sleep disorders was recently introduced for third, fourth and final year medical students rotating through the psychiatry posting in the Institute of Mental Health. This study was undertaken to assess the knowledge and attitude among these students towards sleep medicine. We also wanted to examine if there was any correlation between a negative attitude and knowledge of sleep medicine.

METHODS

The study was carried out in the Institute of Mental Health (IMH). 250 students who were attending their psychiatry posting in IMH were invited to take part in the survey. The students were informed that their participation in the survey was purely voluntary, minimum demographical data would be collected, the information collected would remain confidential and if the data was published, there would be no identification of individual respondent. 240 students (96%) consented to taking part in the study and were surveyed over a period of two years.

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The survey was administered at the start of their psychiatry rotation about one week prior to the sleep disorders seminar.

The MED Sleep Survey, which is an inventory to assess behavior, attitudes and knowledge about sleep, was used for the survey. This survey was developed as a collaborative project by several academic institutions such as the University of Kentucky Medical Centre, UMDNJ - Robert Wood Johnson Medical School and the University of North Carolina at Chapel Hill, USA. Permission to use the survey form was received from Dr Raymond Rosen. The MED Sleep Survey is available on the Internet⁽⁵⁾. The part of the questionnaire assessing knowledge of sleep medicine has been constructed and validated by Zozula et al⁽⁶⁾. The instrument was designed as a standardised assessment measure for use in medical education in sleep.

The survey consists of three parts: Part I has 10 questions on sleep behavior of the respondents; Part II has ten questions on sleep attitudes and Part III has thirty questions on basic sleep knowledge. The first part has 10 questions that pertain to the sleep/ wake behavior of the students. Each statement has five responses that quantify the respondent's behavior on a minimum to maximum scale. The second part measures the students' attitudes towards sleep medicine (Likert type, minimum score 10, maximum score 50). A five-point scale was used to rank the answers: 5- strongly agree, 4- agree, 3- uncertain, 2- disagree and 1- strongly disagree. The third part of the questionnaire consists of 30 statements to measure the students' knowledge in sleep medicine. There were three answers for each statement: "True", "False" and "I don't know". Overall knowledge in sleep medicine was determined by adding up the correct answers. The highest possible score in Part III was 30 points. Data on student's sex, age and educational level was also collected.

Data collected from the returned questionnaires was entered into a database and analysed using Statistical Package for Social Sciences (SPSS) version 10.0 (SPSS Inc, Chicago, Illinois, USA). Proportions were measured for significance, using Chi-square test or Fisher's exact test. The distribution of sleep medicine attitudes scores followed a normal distribution while distribution of the sleep medicine knowledge test differed significantly from a normal distribution. Therefore, "independent-samples t test" and "one-way ANOVA" were applied to the mean values of attitude scores, while Mann-Whitney U and Kruskal-Wallis tests were applied to the values of the sleep medicine knowledge scores. Spearman's correlation was used to determine the relationships

Table I. Sleep attitude and knowledge scores in different groups.

Variable	(Number of respondents)	Total attitude scores	Total knowledge scores
		Mean \pm SD	Mean \pm SD
Gender	Male (149)	34.8 \pm 4.6	11.2 \pm 4.3
	Female (91)	35.4 \pm 4.0	11.1 \pm 3.8
Age in years	20 (1)	32.0 \pm 0.0	11.0 \pm 0.0
	21 (72)	35.2 \pm 3.9	11.1 \pm 4.1
	22 (116)	34.9 \pm 4.2	10.8 \pm 4.1
	23 (24)	35.4 \pm 5.2	11.8 \pm 4.4
	24 (26)	35.0 \pm 5.6	12.7 \pm 3.8
	25 (1)	30.0 \pm 0.0	18.0 \pm 0.0
Medical qualification	3 rd year medical student (73)	35.2 \pm 3.9	11.1 \pm 4.1
	4 th year medical student (116)	34.9 \pm 4.2	10.8 \pm 4.1
	5 th year medical student (51)	35.1 \pm 5.4	12.3 \pm 4.1

between attitudes and knowledge towards sleep medicine. Significance was measured at the level of $p=0.05$.

RESULTS

A total of 240 medical students completed the survey over two years. There were 149 male and 91 female medical students. The mean age of the students was 22 years, and ranged from 20 to 25 years. Of these, 73 were third year students, 116 were fourth year students, and 51 were final year students.

In terms of sleep behavior (Part I), there were only two significant differences between male and female medical students. Female medical students who needed an alarm clock to wake up and used caffeinated products to maintain alertness were significantly more than male medical students. ($\chi^2 = 11.3$, $p = 0.2$ and $\chi^2 = 8.1$, $p = 0.4$ respectively). However, there were no significant differences in the sleep behavior of students across age or educational level (i.e. third, fourth and final year of medical school).

All groups had similar sleep attitude scores, i.e. there were no gender, age or educational differences. Higher scores indicate a more positive attitude towards sleep medicine (Table I). There was a significant gender difference in the response given to two statements. The first being "sleep disorders should be included in the medical school curriculum" (Q13); and the second was "most behavior changes to improve sleep quality are common sense and that it was not a good use of their time to learn about them" (Q18). Significantly more female medical students agreed with the first statement ($p=0.03$) and disagreed with the second statement ($p=0.01$).

In terms of their basic sleep knowledge (Part III), 46.7% scored between 1 and 10 points, 51.7% scored between 11 and 20 points, and 1.7% scored between 21 and 30 points. There was no significant difference between the different groups in their scores on basic sleep knowledge (Table I). When medical students' attitudes were examined in terms of their basic sleep knowledge, students with higher scores in the latter area (Part III basic sleep knowledge) were significantly different in two areas. Firstly, those with higher scores in basic sleep knowledge agreed with the statement that "sleep disorders should be included in medical school curriculum" and secondly, they disagreed that "most behavior changes to improve sleep quality are common sense and not a good use of time to learn". Thus, a better "attitude" indicates a better learner and better knowledge scores. However, there was no correlation among overall sleep attitude and knowledge scores ($r=0.08$, $p=0.21$).

DISCUSSION

The results of our study reveal that sleep medicine knowledge is generally low in medical students, with only 1.7% scoring between 21-30 points. The medical students, with the exception of four students, scored between 1 and 20 points on basic sleep knowledge items and of these, almost half had scores between 1 and 10 points. These results are similar to those reported by Kovacic et al⁽⁷⁾. Using the same questionnaire, Kovacic et al reported that the proportion of correct answers in their entire study group (inclusive of undergraduate, postgraduate medical students and specialists) was 0.45, while the proportion of correct answers among medical students was 0.41. Phillips et al⁽⁴⁾ reported that a group of trained pulmonologists did not perform very well on questions about two nonpulmonary sleep disorders, using an interactive session. A study carried out by Papp et al⁽⁸⁾ to assess primary care physicians' sleep knowledge and attitudes reported that 10% of them rated themselves as good, 60% as fair, and 10% as poor in their knowledge of sleep medicine. The knowledge average in this group of physicians was reported to be 34%.

It is interesting to note that there were no significant differences in the knowledge scores among the groups based on age, gender or medical qualifications. As expected, medical students with higher scores in basic sleep knowledge felt it was an important inclusion in their curriculum and of use

to them. It is likely that these medical students had acquired this knowledge through their own reading and study, and had realised the usefulness of this knowledge. For this group, obviously the material presented would have to have additional impact either through clinical or research relevance. The attitude of the students towards sleep medicine was favourable with a mean \pm SD score of 35 ± 4.3 and a maximum score of 47. These scores were comparable to those reported by Kovacic et al⁽⁷⁾ where the students had a mean score of 38.7 ± 6.9 .

This study has some limitations. The sample size is small, it is a simple survey of attitudes and basic sleep knowledge, and comparing sleep knowledge scores at the end of the sleep medicine course could have enhanced it. The study nonetheless reflects the need for including sleep medicine education in the medical students' curriculum. In most countries, to date, medical school curricula do not include courses on sleep medicine and sleep-associated disorders. In the United States, the average time spent on sleep medicine during medical school education is 1.6 hours⁽⁹⁾, and pediatricians are reported to receive a mean of 4.8 hours of instruction⁽¹⁰⁾ on sleep medicine and sleep disorders. Given the extent of sleep problems in the population, attempts must be made to incorporate sleep medicine topics as a module into psychiatry or neurology rotations. It can be further emphasised at all levels of medical education.

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