Gender Difference on Sleep Quality Among Medical Students

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Abstract

Objective: This cross-sectional study was designed to determine prevalence of sleep quality among medical students and to find out if there is any difference in quality of sleep among male and female medical students.

Method: In this cross-sectional study, total of 221 first year medical students from Bachelor of Medicine and Bachelor of Surgery (MBBS) and Bachelor of Dental Sciences (BDS) were included by non-probability convenient sampling technique. The semi structured questionnaire included a 12 item demographics section and the PSQI, SDQ questionnaire to assess sleep quality and sleep disorders. Data analysis was done using SPSS 25.0. Chi-square test was used and P value <0.05 was taken as significant.

Results: A greater percentage of females as compared to males were "Poor sleepers" (91.4% females as compared to 84% males). The consumption of coffee/tea/caffeinated drinks per day was associated with gender (0.040). Although there was found no association between the global PSQI score and gender (0.470) but females experienced greater difficulties than males to go to sleep within 30 minutes (.038)

Conclusion: This is the first study that aims to find out association between gender and sleep quality in first year medical students. Whilst, study did not report any statistically significant difference of sleep quality with gender, but there was an alarmingly high prevalence rate of very poor sleep quality among medical students and females were suffering more from poor quality of sleep as compare to male students. Students should be counselled on the topic of sleep health and taught to abstain from self-medication with caffeine.

Keywords: Sleep quality, PSQI, Medical students

Introduction

Sleep quality is defined as one's satisfaction of the sleep experience, integrating aspects of sleep initiation, sleep maintenance, sleep quantity, and refreshment upon awakening. Whilst, it has been reported that a good quality of sleep is essential to the memory process,[1]

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almost half of university students experience poor sleep quality.[2] This incidence can be attributed to technology, particularly the use of it at bedtime, which has been proven to decrease sleep quality[3], as well as the consumption of tobacco and an unhealthy lifestyle.[4] But perhaps the most predominant factor and one particularly applicable to medical students is "Academic Stress". Considerably higher levels of stress and associated poor sleep quality have been reported in medical students as compared to other professional students,[5] so much so that 77% of Pakistani medical students have reported poor sleep quality.[6]

According to the Pakistan medical system, an MBBS degree consists of two preclinical years and three clinical years. Whilst first year medical students have just made the life changing experience of just entering medicine, they haven't been the subject of many researches;

Mojtaba et al[7] concluded that no extensive study on the sleep condition of medical students at pre-clinical stages has been carried out, but they fail to make any comparison between the individual preclinical medical years. Another research conducted in Botucatu, Brazil reported first and second year medical students having greater daytime dysfunction and sleep quality worse than medical students in other years of study.[8] Amina Nadeem et al results suggested that the mean nocturnal sleep period was significantly shorter for 1st year medical students than for 2nd year medical students.[9] Another study was conducted by Jaydeep et al in which 83% of students reported that they had experienced a change in sleeping pattern after getting admission in M.B.B.S.[10]

There has been a widely reported disparity in sleep quality between the two genders. Males on average tend to have better sleep quality,[11] sleep quality significantly associated with lifestyle factors[11] and smartphone addiction,[12] and higher mortality when associated with difficulties initiating sleep[13] in comparison to women. Females on the other hand, have a higher incidence of myocardial infarction when sleep deprived and difficulties maintaining sleep and an overall prevalence of poor sleep quality as compared to their male counterparts.[14] It has already been established that medical students experience greater stress and hence worse sleep quality than students of other studies.[15]

Keeping in view all the above factors, this study was designed to determine prevalence of sleep quality among 1st year medical students and to find out if there is any difference or association in quality of sleep between male and female medical students.

Material and Methods

The setting of this cross-sectional study was (here text hide from Editor) and comprised of 221 newly enrolled healthy 1st year medical students of both MBBS and BDS. It was approved by the Ethical Review Committee.

The sample size was calculated to be 221 students using the following formula $n = Z^2 1 -\alpha/2 \, p(1-p) / d^2$ with 95% confidence interval and 5% error margin.

After taking informed written consent, all healthy 1st year medical students inclusive of the age group 17-23 were included in the study by non-probability convenient sampling technique. Students diagnosed with a sleep disorder (apnea, insomnia), or students medicating themselves already for a sleep disorder were excluded from the study.

Pre-tested and semi structured questionnaires designed in English language were distributed to the students in a classroom setting. The first section consisted of 12 questions pertaining to the demographics of the subject. The latter portion of this designed questionnaire included the Pittsburgh sleep quality index (PSQI)[16] and sleep disorders questionnaire (SDQ).[12] The PSQI pertains to the various aspects of the sleep quality, habits and hygiene of the subject. It derives 7 components of sleep; subjective sleep quality, sleep latency, sleep quality, sleep efficiency, sleep disturbance, sleep medication, and daytime dysfunction by scaling it on an equally reflective scale for all the components of 0 to 3 from none too severe. The Global PSQI Score is obtained by simply summing the scores of the all the 7 components. A global sum of "5" or greater indicates a "poor" sleeper, whereas those with a global sum of less than "5" are labeled as "good" sleepers. The PSQI questionnaire has a diagnostic specificity of 86.5% and a sensitivity of 89.5%.[16] The data was analyzed using SPSS 25.0. Qualitative variables were presented in the form of frequencies and percentages. Chi-square test was used to determine association between two groups. P-value <0.05 was taken in consideration to be significant.

Table 1: *Basic characteristics of study participants*

Characteristic	Participants (n=384) No. (%)
Sex	
Male	81 (36.7%)
Female	140 (63.3%)
Age (years)	
18	55 (24.9%)
19	110 (49.8%)
20	51 (23.1%)
21	5 (2.3%)
Discipline	
MBBS	146 (66.1%)
BDS	75 (33.9%)
Social Background	
Rural	11 (5%)
Semi-Urban	36 (16.3%)
Urban	174 (78.7%)
Hostelite/Day Scholar/Medical Cadet	
Hostelite	96 (43.4%)
Day Scholar	95 (43.0%)
Medical Cadet	30 (13.6%)

Results

Out of 221 participants, there were 146 students from MBBS (66.1%), and 75 students from BDS (33.9%). There were 140 female students (63.3%) and 81 male students (36.7%). Table 1

Overall a greater percentage of females as compared to males were "Poor sleepers" (91.4% females as compared to 84% males). Overall, total 89.6% students reported that they took less than 7 hours sleep. There were 29.1% females who only take less than 5 hours sleep and 16% males also reported the same finding

In sleep disorder questionnaire, there were four questions in which we found significantly higher number of females suffering from symptoms of sleep disorders as compare to male, significant p-value, Do you have trouble falling asleep? (0.006). Do you take anything to help you sleep? (0.073) Do you feel sad, irritable or hopeless? (0.000) Do you feel nervous or worried? (0.000). Also females reported a higher PSQI score; the highest global PSQI score reported by a male was 13, whereas the highest global PSQI score reported by a female was 16. Also, the number of females who had a PSQI score of 10 and above were 36; the number

Table 2: *Frequency distribution of sleep quality measured by PSQI*

Sleep disturbances(during past month)	Gender	Not During the Past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)	P-value
a. Cannot go to sleep within 30 minutes	Female	31.4%	21.4%	18.6%	28.6%	.038*
	Male	38.3%	22.2%	27.2%	12.3%	
b. Wake up In the middle of the night or early morning	Female	35.7%	25.7%	22.1%	15.7%	.076
	Male	49.4%	29.6%	14.8%	6.2%	
c. Have to get up to use the bathroom	Female	53.6%	25.7%	14.3%	6.4%	.483
	Male	50.6%	34.6%	9.9%	4.9%	
d. Cannot breathe comfortably	Female	80.7%	8.6%	8.6%	2.1%	.112
	Male	91.4%	6.2%	1.2%	1.2%	
e. Cough or snore badly	Female	91.4%	5.0%	2.9%	0.7%	.562
	Male	86.4%	6.2%	4.9%	2.5%	
f. Feel too cold	Female	51.4%	22.1%	18.6%	7.9%	.017*
	Male	64.2%	27.2%	6.2%	2.5%	
g. Feel too hot	Female	55.0%	27.9%	12.1%	5.0%	.483
	Male	48.1%	27.2%	19.8%	4.9%	
h. Have bad dreams	Female	41.4%	30.0%	18.6%	10.0%	.217
	Male	50.6%	32.1%	13.6%	3.7%	
i. Have pain	Female	60.7%	24.3%	10.0%	5.0%	.165
	Male	72.8%	18.5%	3.7%	3.7%	
How often have you taken medicine (prescribed as "over the counter" to help you sleep?	Female	88.6%	2.1%	3.6%	5.7%	.169
	Male	90.1%	6.2%	2.5%	1.2%	
How often have you had trouble staying awake while driving, eating meals, or engaging in social activities?	Female	17.1%	17.9%	26.4%	38.6%	.826
	Male	21.0%	19.8%	25.9%	33.3%	
How much of a problem has it been for you to keep enthusiasm to get things done?	Female	12.9%	35.7%	32.1%	19.3%	.635
	Male	18.5%	35.8%	30.9%	14.8%	
		Very good (0)	Fairly Good (1)	Fairly Bad	Very Bad (3)	
Rate your sleep quality overall	Female	12.1%	49.3%	32.1%	6.4%	.323
	Male	21.0%	48.1%	25.9%	4.9%	

of males on the other hand was 14. However, there was found to be no association between the global PSQI score and gender (p value = 0.470). The consumption of coffee/tea/caffeinated drinks per day was greater in the female population than the male population and was positively associated with gender (p value = 0.040). Also females experienced greater difficulties than males to go to sleep within 30 minutes, (p value 0.038). No association was observed between obstructive sleep symptoms and gender (cannot breathe comfortably (0.112) and cough or snore badly (0.562). 6.4% females and 4.9% males rated their overall sleep quality very bad.(.323) Table 2.

Discussion

Our findings suggest that first year medical students have very poor sleep quality and this finding was supported by previous studies.[17-20] This study found out that 89.6% participants take less than 7 hours sleep. The prevalence of poor sleep quality in this study is higher than reported in literature, with the prevalence of poor sleep quality ranging between 30% and 59%.[21] Although a greater percentage of females are 'poor sleepers', but there is no statistical difference between male and female sleep quality in this study.

Results of this study showed a very high prevalence of poor sleep quality among medical students, with males tending to be only slightly better than their female counterparts; not only this but females also found it more difficult to go to sleep (28.6%) three and more times a week, 5.7% females had to take something to help them sleep while only 1.2% males suffered from this problem. Results of the study done by Surani et al supported these findings.[22] This was also supported by two more studies who stated in their study that as compared to the 20% of males, 66% of females suffer from severe problem and psychological distress.[23-24]

In our study, the consumption of coffee/tea/ caffeinated/ energy drinks per day was greater in the female population than the male population and was positively associated with gender (p-value = 0.040). The poor sleep quality of women as compared to men can be suggested to be to the increased caffeine intake of women as compared to men. This is in line with a study where participants who consumed energy drinks had PSQI scores higher than those participants who did not.[24] However, there are other studies that disagree with this notion, stating that caffeine consumption

does not predict difficulties inducing sleep or other sleep disturbances.[25]

Conclusion

This study did not find any association of sleep quality with gender among medical students but there was an alarmingly high prevalence rate of very poor sleep quality among medical students and females were suffering more from poor quality of sleep as compare to male students. Medical students are already an increased risk for various mental disorders owing to the tremendous stress placed on them. To see students having this poor sleep quality at such an early stage of their medical study surely prompts the need for immediate action. Students should be counselled on the topic of sleep health and taught to abstain from self-medication with caffeine.

Limitation

Sample size of 221 students is not sufficient to generalize our findings for all Pakistani medical students; thus it should be done on greater sample size and include other medical colleges. Also, to produce more concrete results, these first year students should be followed up in the next year too to determine the presence of factors unique to first year that could account for their sleep quality.

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Authors Contribution

FI, ARA: Conceptualization of Project

ARA: Data Collection

MAN, RKA: Literature Search

HS, AA: Drafting, Revision

ARA, RKA: Writing of Manuscript

Cephalic Index of Students of Sialkot Medical College

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Abstract

Objective: The aim of study was to find out cephalic index of the students of Sialkot medical college. It will help in identification.

Method: Only students of Sialkot medical college were selected by non-probability purposive sampling technique. Sample size was 141. Both males and females were selected. Study setting was Sialkot medical college, Sialkot. Duration of study was one month. After taking informed consent measurements were taken i.e., from mastoid to mastoid and from glabella to external occipital protuberance. The measurements were taken in centimeters. Frequency and percentage was calculated by using SPSS 21. Graphs and table were formed.

Results: The results indicate that most of the students were hyperbrachycephalic. Hyperbrachycephalic were predominant with 63 %, 94.5 and 43.8 % for collective, male and female respectively. Mesaticephalic were 11%,0% and 18% in both sexes, males and females respectively. Brachycephalic were 26%, 5.5% and 38.2% for both sexes, males and females respectively.

Conclusion: This study indicates that cephalic index of most of students was hyperbrachycephalic. Males predominantly belong to hyperbrachycephalic group. While in females hyperbrachycephalic group predominated then brachycephalic.

Keywords: anthropometry. mesaticephalic, brachycephalic, hyperbrachycephalic, cephalic index.

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Introduction

Cephalic index has been described in late sixteenth and early seventeenth century in Sweden. Retzius derived a formula by multiplying hundred with span between the most extending focuses along the edges of the head, above and behind the ears. Then dividing the outcome with measurement from the craniometric point to the most extending point at the rear of the head.[1]

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When this formula is applied to the head dimensions of alive one it is called cephalic index but when such dimensions are taken in dead ones head without soft tissues then it will be named cranial index.[2]

Measurements of different body parts have long been used to individualize the person.[3] Among those head measurements also provide useful data to differentiate on the basis of race. Race is a significant idea and boundary to contemplate people in light of the fact that every one of them are unique. Race is a natural idea identified with actual qualities as opposed to mental characteristics or interaction of people while living in a community.[4]

Cephalic index is not only utilized to differentiate the individuals depending upon the race. It can also be used to differ the males from females. It also provides meaningful information about genetics and environmental effects.[5] In addition, cephalic index can also be used in finding the quality and success of certain cranial operations.[1,6] It has also been used to help the diagnosis