



SLEEP QUALITY AND SLEEP PARALYSIS IN PAKISTANI UNDERGRADUATE MEDICAL STUDENTS

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Abstract:

Background: Undergraduate medical students are exposed to huge academic loads, that's why most of them report sleep issues including sleep paralysis and poor sleep quality.

Aim: To determine the levels of sleep quality and sleep paralysis and its association with different socio-demographic characteristics of undergraduate medical students

Methods: Analytical cross-sectional study was done on 2nd year medical students of a public sector medical college of Punjab, Pakistan in March-April 2023. A self-administered questionnaire was provided to the students containing questions about socio-educational data (age, gender and residence), index of Pittsburg sleep quality and self reported sleep paralysis.

Results: Out of 224 undergraduate medical students of 2nd year MBBS, majority were females (67%), median age of the students was 19+₂. Residence wise, 50.4% students were hostellites and 49.6% were day scholars. Sleep paralysis was present in 40.6% students. Overall, 84.4% students were having bad sleep quality. 88% of the females were bad sleepers. 87% of the hostellites were having bad sleep quality. Majority of the day scholars were having sleep paralysis.

Conclusion: Majority (84.4%) of the students were having poor sleep quality. A considerable percentage (40.6%) of students was suffering from sleep paralysis. Positive association was there between sleep paralysis and residence of students ($p < .05$) with majority of the day scholars having sleep paralysis. Also there was a positive association between sleep quality and gender ($p < .05$) with majority of the females having bad sleep quality.

Keywords: Sleep quality, Sleep paralysis, Medical students, Gender differences.

INTRODUCTION:

Sleep paralysis is usually taken to denote a disorder, the salient manifestative features of which are brief accesses of inability to move one's limbs, to speak and even to open one's eyes on awakening

(hypnopompic sleep paralysis) or more rarely when falling asleep (hypnogogic sleep paralysis) [1,2]. Sleep paralysis is a common condition with a prevalence of 5-62% [3]. Sleep paralysis is relatively common in the general population and more frequent in students and psychiatric patients [4]. In a research conducted in 1995 in Canada, in sample of 1798 university undergraduates (females, $n = 976$; males, $n = 822$) 21% reported one or more episodes of sleep paralysis [5]. As university level students face lot of academic pressure, so they are more prone to sleep problems. Up to 60% of all college students suffer from a poor sleep quality, and 7.7% meet all criteria of an insomnia disorder. Sleep problems have a great impact on the students' daily life, for example, the grade point average [6].

Especially medical students face a huge academic load as they have to study a very extensive and difficult syllabus and along with it they have to manage their clinical practice. In 2020, a meta-analysis was done, Forty-three studies involving a total of 18,619 students from 13 countries were included in the analyses, it was concluded that sleep problems are highly prevalent among medical students and are therefore a severe problem [7]. In a research conducted in Brazil in 2017 it was stated that "Medical students seem to be more exposed to sleep disturbance than other university students, and first and second-years are more affected than those in other class years because they have worse subjective sleep quality" [8].

Because of all these sleep problems associated with academic loads, medical students mostly suffer from poor sleep quality. In a meta-analysis it was reported that Poor sleep quality is common among medical students, especially in Europe and the Americas' continents [9]. In the current study,, we want to find out if there exists any relation of sleep quality and sleep paralysis with socio-educational details of the students' as no remarkable empirical studies could be traced conducted on Pakistani medical students in this regard.

MATERIALS AND METHODS:

We conducted an analytical cross-sectional study on undergraduate medical students of a public sector medical college (Faisalabad Medical University, Faisalabad) of Punjab. A sample of 224 students of second year MBBS participated in this research via convenient sampling technique. Second year of MBBS is supposed to have the most lengthy syllabus and students are under huge academic pressure during this. After having authorization from the institution, a lecture explaining sleep paralysis was delivered to the students. Verbal consent was taken from the students and at the end of lecture, they were requested to fill a questionnaire. The questionnaire was self administered and consisted of three sections: 1) socio-educational data to investigate the gender, age and residence of students, 2) Pittsburgh Sleep Quality Index [10], It has 19 questions to measure sleep quality in the last month based on seven components (subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of hypnotic medication, and daytime dysfunction). Each component presents a score between 0 points (no difficulty) to 3 points (very difficult). Then, a total sum of the components was obtained, in a range from 0 to 21 points, whose cut-off point was 5 points to differentiate the group of good and bad quality of sleep [11] and finally, 3) data on the presence or absence of sleep paralysis (self reported sleep paralysis). Each questionnaire was entered into a data base designed in the Microsoft Excel and data analysis was done using SPSS version 23. Sample size was calculated as follows;

Sample size $n = [DEFF * Np(1-p)] / [(d^2 / Z^2 1 - \alpha / 2 * (N-1) + p * (1-p)]$

RESULTS:

Out of the total 224 students who participated in this study, 150 were females and 74 were males. Residence wise, 50.4% students were hostellites and 49.6% were Day-scholars. A considerable percentage (40.6%) of students was suffering from sleep paralysis. Positive association was there between sleep paralysis and residence of students (p value=0.031) with majority of the day scholars having sleep paralysis. Overall, 84.4% students were having poor sleep quality. Majority of the females (88%) had poor sleep quality (p value=0.033). No significant association was found between sleep quality and sleep paralysis.

Table#1:

Variables	Frequency	Percentages
Gender		
Male	74	33
Female	150	67
Residence		
Hostellite	113	50.4
Day Scholar	111	49.6
Sleep Quality		
Good	35	15.6
Bad	189	84.4
Sleep Paralysis		
Yes	91	40.6
No	133	59.4

Table#2:

		Residence		Total
		Day Scholar	Hostellite	
Sleep Paralysis	No	58	75	133
	Yes	53	38	91
Total		111	113	224

P value=0.031 (Chi-square test)

Table#3:

		Gender		Total
		Female	Male	
Sleep Quality	Bad	132	57	189
	Good	18	17	35
Total		150	74	224

P value= 0.033 (Chi-square test)

Table#4:

		Sleep Paralysis		Total
		No	Yes	
Sleep Quality	Bad	108	81	189
	Good	25	10	35
Total		133	91	224

P value= 0.114 (Chi-square test)

DISCUSSION:

In the population evaluated, majority (67%) of the students were females. In the past few years females are scoring high merit that's why percentage of female students is increasing day by day in all educational institutions including medical colleges and also in universities offering BS programs. Majority (50.4%) of the students were hostellites while 49.6% students were day scholars.

In our study, a considerable percentage (40.6%) of students was suffering from sleep paralysis. A positive association was found between presence of sleep paralysis and residence of students (either day scholar or hostellite), with majority of the day scholars suffering from sleep paralysis. In 2010, in a research study out of the total samples studied, 16.25% had experienced predormital, postdormital, or both types of sleep paralysis [12]. In a recent research, conducted in 2023 in

Karachi it was found that among the respondents, a significant number of females (n=209, 70.3%) reported experiencing sleep paralysis [13]. In a study conducted in Argentina in 2023, The prevalence of Sleep Paralysis was 40.7% (95% CI 33.5–47.8). [14]. In 1998 a research was done to check the Prevalence of Sleep Paralysis Among Canadian and Japanese College Students, it was found that the prevalence of sleep paralysis was almost the same (Canada: 41.9%, Japan: 38.9%) [15].

Overall 84.4% students were having poor sleep quality. Gender wise, females had relatively more percentage of having poor sleep quality (Table#3). Similarly in a study conducted in 2005 in Karachi positive association was found between sleep quality and gender. In this study out of the total participants, 199(39.5%) were classified as "Poor Sleepers". Poor sleep quality was associated with female gender ($p < 0.05$) [16]. Contrary to the prevalence ratio of poor sleep quality reported in our study, in a research done in 2011, in Nigeria only a third (32.5%) of medical students reported poor quality sleep [17]. In a research conducted in Tehran in 2008, out of total students, 133 (59.4%) students evaluated to have good sleep quality and 91 (40.6%) poor sleep quality. Of these 91 students, 38% were female and 44.8% were male ($p=0.307$). [18]

No significant association was found between sleep quality and sleep paralysis in our study. In contrast, in a study done in 2022 it was stated that, In terms of subjective sleep variables, worse sleep quality has been found in multiple studies to be associated with increased odds of sleep paralysis occurrence [19]. Also a research study was conducted in Paraguay in 2020 and their findings suggested that there is a positive association between quality and sleep paralysis ($p=0.001$)

CONCLUSION:

Majority (84.4%) of the students were poor sleepers. 40.6% students were suffering from sleep paralysis. Positive association was there between sleep paralysis and residence of students (p value=0.031) with majority of the day scholars having sleep paralysis. Also there was a positive association between sleep quality and gender (p value=0.033) with majority of the females having bad sleep quality.

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