

*Original Article****Prevalence of sleep disorder among medical students in an Eastern university in Iran***Mohsen Heidari Mokarrar¹ Aboozar Afsharmanesh² Mahdi Afshari³ **Fatemeh Mohammadi^{4*}**

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Abstract

Background and purpose: Sleep disorder is mostly an early manifestation of psychological diseases. It is defined as disturbances in the regularity, quality and quantity of sleep as well as daily activity.

Methods: In this cross-sectional study, 200 medical students were assessed for sleep status using Sustainable health questionnaire and general health questionnaires. Data analysis was carried out using descriptive statistics (mean, standard deviation, frequency) and Chi square test through the statistical package of SPSS V.16.

Results: The frequency of sleep disorder among students was found to be 21.5%, which was significantly more common among older students ($p < 0.05$), males ($p = 0.005$), employed students ($p = 0.004$), smokers ($p = 0.001$), and those with other psychological disorders ($p = 0.001$).

Conclusion: Sleep disorders were higher among students who were men, smokers, or had psychological disorders, and were also employed students. Although a considerable group of medical students were found to be suffering from sleep disorders, this prevalence was lower than those reported in the previous studies.

Keywords: Sleep disorder; Psychological disorder; Medical students Prevalence

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1. 1. Introduction

Sleep disorder is defined as irregular sleep with abnormal quality and quantity leading to daily activity dysfunction (1). In many cases, this disorder is an early signal of developing psychological disorders and can negatively affect the normal life from the viewpoint of individual, familial and social levels (2-4).

Sleep disorder is classified to early or late insomnia, extreme sleepiness, sleep and waking schedule problems and parasomnia (1). Among sleep problems, insomnia and sleepiness are the most common complaints leading to abnormal function and quality of life (4). Generally, sleep disorder occurs following physical, psychological, or environmental factors, especially age, gender, job, lifestyle, and emotional tensions (1,5). Sleep quality has a strong influence on physical and mental health. Sleep deprivation can reduce the function of immune system and hypothalamus, develop blood pressure problem, cardiovascular events, and impaired mental activities (2, 6). Different prevalence cases of sleep disorder have been reported in various populations. These rates are 15- 42% in general populations, 13.5% - 86.4% among Iranian students, and 19.2% - 57.5% among students in other countries (7-12). It is more common among women, elders, and shift-working persons. It was also reported that medical students have higher frequencies of sleep disorder as compared to general population, which means that the duration of sleep among these groups is lower than that of general population. Moreover, it has been found that any reduction in the average sleep time is directly associated with its educational function (13, 14). In a study carried out among

Taiwanese medical students, sleep disorder was more common among females and higher grade students (15). The above evidences show that sleep disorder has a great deal of varieties among general population and medical students and in different regions. It could also be inferred that any disturbance in the sleep quality can develop severe complications leading to reduction in the quality of social, familial, and economical activities. Such problems among medical students can make irreparable effects on their job functions. Because of the importance of these problems and due to the lack of similar studies in Sistan area, the present study aimed to determine the prevalence of sleep disorder among medical students in an eastern university in Iran.

2. Materials and Methods

This cross-sectional study was carried out in 2013 among medical students attending university at different grades. The sampling method was census, based on which, all 200 students studying in the Zabol School of Medicine were recruited. The data for this study was collected through Sustainable health questionnaire (SHG) and general health questionnaire (GHQ). GHQ includes 28 questions assessing different aspects of health such as physical, mental, and sleep status. Sleep History Questionnaire including 28 questions was also applied to determine the presence of sleep disorder. More than 50% score was considered as sleep disorder. This questionnaire contains four components (physical, anxiety and sleep, social function and depression) each of which has seven questions. Questions were quantified based on Likert Scale from one to

three. Before collecting the data, the content validity was determined based on specialist opinion. The internal consistency of questionnaire was investigated by Cronbach alpha which was in the acceptable range of 71%. The questionnaires were filled out by students while the researchers were present during the data collection. The questions attributed to roommate were filled by one of the roommates of the student. The data analysis was carried out using descriptive statistics (mean, standard deviation, frequency) in addition to Chi2 test by means of SPSS Software, Version 16. Statistically, a P-value less than 0.05 was also considered significant.

3. Results

Most of the students were female (53.5%), and the average age of the participants was 22.5

(2.8) years, most of whom (73.5%) were staying in dormitory. The frequency of cigarette smoking and psychological disorders among the target students were 12.5% and 40%, respectively, while 21.5% of them had sleep disorder. As documented in the present study, there was a significant positive correlation between sleep disorder and age ($p < 0.05$). Sleep disorder among males and females were 27.9% and 15.9%, respectively ($p = 0.005$). It was also found that about 40% of employees and 18.8% of jobless students had sleep disorder ($p = 0.004$). Moreover, the prevalence rate of sleep disorder among smoker and none smoker students as well as students with and without mental disorders were 52% vs. 17.1% ($p < 0.001$) and 35% vs. 12.5% ($p < 0.001$), respectively (table 1).

Table 1. Frequency of sleep disorder among different subgroups

Variables	Sleep disorder		P- value	
	Yes	No		
Gender	Male	No (%) 26(27.9)	No (%) 67(72.04)	0.005
	female	17(15.9)	90(84.1)	
Job status	employee	10(40)	15(60)	0.004
	jobless	33(18.8)	142(81.1)	
Smoking	yes	13(52)	12(48)	<0.001
	no	30(17.1)	145(82.9)	
Psychological disorder	yes	28 (35)	52 (65)	<0.001
	no	15 (12.5)	105 (87.5)	

4. Discussion

The findings of the current survey showed that more than one-fifth of medical students in the Zabol Medical University were suffering from sleep disorder. It was also found that sleep disorder was more common among males, smokers, and employed students.

As mentioned earlier, many studies have been conducted in the past to estimate the prevalence of sleep disorder among medical students. These studies reported the prevalence as of 40.6% in Zanjan (6), 57.4% in Kordestan (16) and 78.8% in Babol (2) and 80% in Jahrom (1). Among the studies carried out in foreign countries, 22% of Estonian medical students (17) and 28.1% of Brazilian medical students (18) were suffering from sleep disorder. In examining the consistency of results of the present study with the above-mentioned reports, it was seen that the frequency of sleep disorder in the present study was lower than those observed in most of other medical universities. The results of the current study revealed that males as compared to females had more

frequency of sleep disorder, which was in contrast with those observed by Boltz et al. in the USA (19) and Canellas et al. (20) in Mallorca, reporting that the prevalence of sleep disorder was more common among females. Loayza in Brazil showed that women had more difficulty in maintaining sleep, while men had more difficulty in initiating sleep (18). In addition, Mahon and Yercheski reported that the latent sleep period among females was longer than that of males, and also initiating sleep was the most common sleep problem (21). In the present study, the mean age of students with sleep disorder was higher than that of normal students, which was consistent with previous studies reporting that the prevalence of sleep disorder was increasing with age (2,6). Moudi found that sleep duration was associated with age (2), while Arasteh found no relationship between age and sleep disorder (16). Pagal et al. in a study conducted in 2010, reported that 7.69% of students with low average scores complained about sleep initiation, and 6.65% had difficulty in sleep

maintenance. They found that 7.72% of students with sleep problems, reported attention deficit during awakening (22). Eller et al. in 2006 observed high frequencies of problems among medical students in Estonia in terms of sleep initiation, sleep maintenance, morning tiredness, daytime sleepiness, nightmares, and early wakening (23). Different studies reported that sleep disorder has a key role in individual dysfunction (2, 16). Alapin et al. (24), for instance, found the psychological problems as the main risk factors of sleep disorder which was in consistency with the findings observed in the current study.

One of the limitations of the present study was determining the sleep disorder based on self-reported information. It might be an explanation for the heterogeneity between the results of different studies. However, the researchers attempted to perform the data collection in standard situations. In addition, because of the cross-sectional design of the study, some observed relationships might be due to reverse associations. Further longitudinal studies are required to find the exact risk factors of sleep problem. The present study showed that although a relatively large number of medical students had sleep disorder, the prevalence of this disorder in the studied population was lower than other areas.

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Conflict of interest

The authors report no conflict of interest related to this paper.

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