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Prevalence of Sleep Disorders among Medical Students.

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ABSTRACT

Having a healthy behavior and physiology is impossible without normal sleep pattern. Between the ages 18 and 25, people are prone to sleep disturbances. The aim of this study was to investigate the prevalence of insomnia among medical students of Hormozgan University of Medical Sciences. This cross sectional study was conducted on 400 medical students of Hormozgan University of Medical Sciences, Bandar Abbas, Iran in 2013. Insomnia severity index was used to assess their sleep disorder. Also, demographic data were collected by a checklist. Data were analyzed by SPSS v. 16 software using descriptive statistics such as mean, standard deviation, percent, t- test and chi-square and a p-value below 0.05 was considered as significant. The mean age of the participants was 22.42 ± 1.74 and 157 of them (46.2%) were male and 183 (53.8%) were female. Also, 111 were in the Basic Sciences period, and 68 were passing their clerkships. Among all the participants, 254 (74.7%) were in dormitories. Among all the participants 14 (4.1%) had no insomnia, 172 (50.6%) had below the threshold insomnia, 130 (38.2%) had moderate clinical insomnia and 24 (7.1%) had severe insomnia. Due to the importance of this issue and its long term impacts on the general health, further studies should be conducted to investigate this issue.

Keywords: sleep disorders; medical students; prevalence

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INTRODUCTION

Having a healthy behavior and physiology is impossible without normal sleep pattern. Between the ages 18 and 25, people are prone to sleep disturbances [1, 2]. College life, which mostly occurs during this ages also affects the sleep pattern [2]. Social and physical changes, entering adult life and having to make various choices that affect the rest of their lives are several risk factors that affect sleep pattern [3].

Many sleep disorders remain undiagnosed. However, insomnia affects their quality of life and decreases their productivity. Sleep disorders influence the nervous, endocrine and immune systems and make the individual vulnerable to diabetes, psychosocial stress, cognitive dysfunction, learning disability, decreased work efficacy, hypertension, obesity and increase the risk of cardiovascular diseases [4]. Studies have shown that mood disorders, alcohol and medication abuse and misuse, and inactivity are related to sleep disorders [5-9]. It can also be an early symptom of depression and anxiety [9].

Studies in Jordan, Palestine, Saudi Arabia and Lebanon have shown that a large number of college students have poor sleep quality [4, 9-11]. Other studies have suggested that academic performance is highly related to these disorders [10, 12, 13].

Pagel et al showed that 69.7% of students with poor academic records had problems falling asleep [13]. Eller et al showed that difficulty falling and remaining asleep, morning fatigue, daytime drowsiness and nightmares have high prevalence among students [14].

Even though it is important to assess sleep patterns and the prevalence of sleep disorders among university students, few studies have been conducted on this group [4]. Medical students are one of the most important groups and effort must be made to maintain their focus [9]. Factors that help them improve their skills directly impact the general health. Therefore, we aimed to investigate the prevalence of insomnia among medical students of Hormozgan University of Medical Sciences.

METHODS

This cross sectional study was conducted on 400 medical students of Hormozgan University of Medical Sciences, Bandar Abbas, Iran in 2013. Participants were selected among all medical students by simple randomization. All medical students who attended Hormozgan University of Medical Sciences were eligible for the study. Those who were not willing to participate in the study, did not fill above 80% of the questionnaire or were consuming medications that affect normal sleep were excluded from the study.

Data was collected by a checklist for demographic data such as age, gender, marital and occupational status along with 14 questions that described their daily habits during the previous month; bed time, awake time, daily sleep duration, number of night shifts, using sleep medications (milligrams per week), daily exercise (hours per week), smoking, hukkah and alcohol usage (amount per week), avoiding sleep due to television or computer usage (number of nights avoided) and consuming methylphenidate (milligrams per week).

Also, Insomnia Severity Index (ISI) which is a standard questionnaire that evaluates sleep disorders during the past two weeks was used to assess insomnia. This questionnaire consisted of seven questions about problems in falling asleep and staying asleep, sleeps satisfaction, daily activity interference caused by insomnia, if the sleep disturbances are noticeable by housemates, having concerns about current sleep pattern and anxiety related to sleep pattern. Each question had five options which were rated between 0 and 4 and the final score was between 0 and 28. A total score below 7 indicates no insomnia, scores between 8 and 14 described insomnia that is below threshold, between 15 and 21 described clinical insomnia (moderate insomnia) and scores of 22 and above indicated severe clinical insomnia. The ISI questionnaire was retrieved from Kaplan and Sadock's comprehensive Textbook of Psychiatry.

Since the sleep pattern of most students changes during the exams, the questionnaires were distributed in other periods. All participants provided informed consent and data remained confidential.

Data were analyzed by SPSS v. 16 software using descriptive statistics such as mean, standard deviation, percent, t- test and chi-square and a p-value below 0.05 was considered as significant.

RESULTS

The mean age of the participants was 22.42 ±1.74 and 157 of them (46.2%) were male and 183 (53.8%) were female. Also, 111 were in the Basic Sciences period, and 68 were passing their clerkships. Among all the participants, 254 (74.7%) were in dormitories.

Among all the participants 14 (4.1%) had no insomnia, 172 (50.6%) had below the threshold insomnia, 130 (38.2%) had moderate clinical insomnia and 24 (7.1%) had severe insomnia. As shown in table -1, 103 participants (30.3%) had no problems in falling asleep and few students (2.9%) had severe problems in falling asleep. On the other hand, 144 out of 340 students (42.3%) had no problem in staying asleep.

Table 1: Prevalence of problems related to falling and staying asleep

		Male		Female		Total	
		Number	Percent	Number	Percent	Number	Percent
Problems in falling asleep	No problems	29	18.5	74	40.4	103	30.3
	Mild	58	36.9	51	27.9	109	32
	Moderate	49	31.2	43	23.5	92	27
	Severe	14	8.9	9	4.9	23	6.8
	Very severe	7	4.5	6	3.3	13	3.9
	Total	157	100	183	100	340	100
Problems in staying asleep	No problems	25	15.9	62	33.9	87	25.6
	Mild	75	47.8	69	37.7	144	42.3
	Moderate	36	22.9	32	17.5	68	20
	Severe	15	9.6	17	9.3	32	9.4
	Very severe	6	3.8	3	1.6	9	2.7
	Total	157	100	183	100	340	100

Among the participants, 39 (11.5%) reported that sleep disorders had no interference with their daily activities, while 123 (36.3%), 128 (37.6%), 43 (12.6%) and 7 (2%) reported mild, moderate, high and very high disturbances, respectively.

As shown in table -2, male gender, computer and internet, smoking, study period and alcohol use might be related to sleep disorders.

Table 2: Prevalence of insomnia among different factors evaluated in this study

		No insomnia		Below threshold insomnia		Moderate clinical insomnia		Severe clinical insomnia		P-value
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Gender	Male	3	19	72	45.8	67	42.6	15	9.5	<0.0001
	female	11	6	100	54.6	63	34.4	9	4.9	
Dormitory Residents	Yes	9	3.5	129	50.7	94	37	22	8.6	0.127
	No	5	5.8	43	50	34	39.5	2	2.3	
Delayed sleep due to television per week	Never	7	4.1	93	55	55	32.5	14	8.2	0.459
	Below once	4	4.8	48	57.8	29	34.9	2	2.4	
	1-2 times	3	5	22	36.6	31	51.6	4	6.7	
	3-5 times	0	0	5	31.2	11	68.8	0	0	
	Every night	0	0	4	50	0	0	4	50	
Delayed sleep due to computer and internet usage per week	Never	3	2.9	59	55.1	41	38.3	4	3.7	0.042
	Below once	9	9.7	48	51.6	32	34.4	4	4.3	
	1-2 times	0	0	43	53.8	27	33.7	10	12.5	
	3-5 times	0	0	15	38.5	23	58.9	1	2.5	
	Every night	2	10.6	7	36.8	5	26.3	5	26.3	
Smoking	Never	14	4.8	150	51.1	112	38.2	17	5.8	<0.0001

per week	Below once	0	0	6	35.3	9	52.9	2	11.7	
	1-2 times	0	0	10	66.7	3	20	2	13.3	
	3 times or more	0	0	6	40	6	40	3	20	
Exercise per week	Never	8	4	106	52.2	67	33	22	10.8	0.741
	Below once	4	4.2	47	48.9	43	44.7	2	2	
	1-2 times	2	5.6	17	47.2	17	47.2	0	0	
	3-5 times	0	0	1	33.4	2	66.6	0	0	
Study period	Every day	0	0	1	50	1	50	0	0	0.0001
	Basic Sciences	1	1	59	53.1	40	36	11	9.9	
	Physiopathology	0	0	43	57.3	29	38.7	3	4	
	Clerkship	9	11.5	36	46.1	23	29.5	10	12.8	
Stimulant usage	Internship	4	5.3	34	44.7	38	50	0	0	0.632
	Yes	2	11.1	2	11.1	14	77.8	0	0	
Alcohol Drinking per week	No	12	3.7	170	52.8	116	36	24	7.5	0.001
	Never	14	4.7	155	51.8	113	37.7	17	5.6	
	Below once	0	0	13	50	9	34.6	4	15.4	
	1-2 times	0	0	4	36.4	4	36.4	3	27.2	
Studying before sleep	3 times or more	0	0	0	0	4	100	0	0	0.472
	Never	1	1.1	42	48.4	36	41.3	8	9.2	
	Below once	3	4.2	31	43.7	30	42.2	7	9.9	
	1-2 times	6	4.8	78	62.9	35	28.2	5	40.1	
	3-5 times	4	9.5	16	38	20	47.6	2	4.9	
	Every night	0	0	5	31.2	9	56.2	2	12.6	

DISCUSSION

This study was conducted in Iran in order to assess the prevalence of insomnia among medical students. Most participants had below threshold insomnia (50.2%). Also, 7.1% of participants suffered from severe clinical insomnia. Mousavi et al conducted a similar study and reported that 2% of the students participated in their study had severe sleep disorders. Marlit et al also conducted a study in 2004 in Estonia and reported that about 1% of students had severe insomnia.

Araste et al also conducted a study on 244 medical students and reported a prevalence of 57.4%. Nojumi et al also reported that 56.3% of their participants had sleep disorders. In another study conducted by Abdulghani et al in Saudi Arabia, 36.8% of medical students had poor sleep patterns. Kaffashi et al showed that the sleep pattern of 14% of students was desirable.

In our study, male students showed higher rates of insomnia which was consistent with a study conducted in India. However, Ghalebani et al, Canellas et al and Abdulghani et al reported inconsistent results.

Some studies have shown that the situation of dormitories is associated with students' sleep pattern. However, this relation was not confirmed by our study. A number of studies have shown that television is can worsen the sleep pattern. This result was also inconsistent with our study. However, internet had negative effects on their sleep pattern. Other studies have also shown similar results.

In our study, the prevalence of hukkah, alcohol consumption, and smoking was low and therefore, their relationship with insomnia could not be assessed. Other studies reported that substance abuse can decrease sleep quality. As shown in this study, in Iran, due to cultural situation and social stigma, the prevalence of smoking and alcohol usage is very low, thus it is not cost effective to intervene on this issue in order to improve the sleep quality.

Our study showed that exercise was not relevant to insomnia and its severity. On the other hand, other studies reported that exercise can improve the quality of sleep. In our study, few students exercised regularly. Therefore, the results cannot be reliable and further studies should be conducted to investigate this relationship.

By comparing our results to other studies, it can be found out that sleep disorders are more prevalent among medical students compared with the general population. Many factors may be responsible for this issue; being distant from family, lack of social, economical and emotional support of their family, having to study more in order to keep up with their courses, consecutive exams in short periods of time and night time shifts may result in sleep disturbance.

The diagnosis of insomnia was based on participants' self report. Therefore, it is not completely reliable. On the other hand, this was a cross sectional study and could not accurately determine whether these factors have absolute relationship with insomnia or not.

According to the results of our study, about 45% of the participants had moderate or severe clinical insomnia. This issue can decrease their quality of life and educational status, especially during internship. Our results suggested that alcohol, smoking, internet, computer, and gender can affect the quality of sleep. Also, interns have the worse sleep pattern and since they are directly involved with patient care, interventions must be made to cure their insomnia.

Thus, due to the importance of this issue and its long term impacts on the general health, further studies should be conducted to investigate this issue.

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Conflicts of interests:

The authors of this article declare that they have no conflicts of interest.

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