

Evaluating the Relationship of Anxiety, Stress and Depression with Sleep Quality of Students Residing at the Dormitories of Tehran University of Medical Sciences in 2013

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Abstract: Students are the future-makers of society and the importance of this issue is doubled due to the young population of our country. Physical and mental health of students is directly related to the health and future of society. This study aimed at investigating the relationship between stress, anxiety, depression and sleep quality of students residing at dormitories of Tehran University of Medical Sciences. This descriptive and analytical cross-sectional study was conducted on 385 students of Tehran University of Medical Sciences. The samples were randomly selected by a demographic questionnaire and Pittsburgh Sleep Quality and DASS21 questionnaires. The collected data was analyzed using descriptive statistics (frequency tables, mean and standard deviation) and one-way ANOVA, chi-square, T-Test and Pearson correlation analysis with the aid of SPSS software version 21 at a significance level of 5%. The findings show that 16.1% of students suffer from anxiety, 5% from stress and 14.3% from depression and that the average sleep quality of students is 5.16 ± 2.88 which indicates a weak sleep disorder among 52.7% of students. There was no significant difference between scores of stress, anxiety, depression and sleep quality was of two genders. The most correlation was seen between stress and sleep quality (0.39). The results of this study revealed that academic study is associated with anxiety, depression and sleep quality fall due to the presence of various stresses. Here we recommend the authorities for reduction of stressors and creation of a calmer environment for students.

Key words: Anxiety • Stress • Depression • Sleep Quality • Student • Dormitory

INTRODUCTION

Today students are considered as one of the important communities due to their significant role in the governance for the future of the country. The importance of this role not only resides in that students constitutes the main segment of specialists in various fields of science, technology and art of each country, but also that this group would be the major managers in the governance for the future and leadership of other groups of society in directing them toward perfection and country's goals. On the other side, another part of

students would be responsible for training and education of next generations and hence would indirectly affect the course of the perfection of the next generation of society. According to available statistics and figures, Iran is a young country and the major part of its population is composed of the youth and adolescents. Given the importance of these issues, the health of students would be revealed more than before. Mental health is one of the most important aspects of the health of students as the future-makers of the country [1]. This group is exposed to numerous stresses, anxiety and depression, which are the most common types of mental disorders, due to their

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special age and social conditions. Although these do not impair cognitive abilities but affect the creative and productive power of students by reducing concentration, time-consuming and distracting preoccupations, impatience, irritability, restlessness and insomnia, etc. [2]. Several studies show that the prevalence of mental disorders and illnesses are rising among college students. Factors such as being away from home family and entering into a new environment, academic problems, competition with other students, exams, financial problems, career, inability to make decisions, overwhelming volume of courses and the environment of dormitories could be considered as the most important stressors present to students. According to Rezaie Ardani *et al.* regarding depression, anxiety, stress and life quality, 51.1% of students suffered from depression, 39.5% from anxiety and 71.7% of them from stress [1].

Shahbazi Moghaddam *et al.* concluded that 39% of students had low stress, 16% had moderate stress and 8% of them had severe stress. Stress of female students was significantly higher than male students [3]. In a study on students of Paramedic School of Kashan University of Medical Sciences, Karami has reported that out of 208 selected students, 30.76% were suspiciously depressed, 19.23% depressed and the rest normal and that regarding the gender, there was more prevalence among females (57.2%) and less in males (42.5%) [4]. Eslami Akbar [5] in a study on students of Jahrom University of Medical Sciences showed that 89.9% of female students and 84.5% of male students residing at its dormitories had sleep disorder. Xu *et al.* found in a study on the Chinese youth that 76.47% of students having stress hadn't good sleep. Also they obtained that stress increases the percentage of sleep deprivation and also their average performance in school [6]. Ghanei *et al.* conducted a study on the sleep quality of nursing students residing at the dormitories of Urumieh University. Their findings indicated that 9.2% of male students and 9.5% of female students were using sleeping pills. There was a significant relationship between intake of hypnotics and sleep quality so that 93.3% of individuals who had used these drugs had a bad sleep quality. There was not any statistically significant difference between male and female students. Also there was a significant relationship between sleep quality and total sleep time at night [7]. Given the importance of this issue, the present study investigated the relationship between stress, anxiety, depression and sleep quality in female and male students residing at the dormitories of Tehran University of Medical Sciences.

MATERIALS AND METHODS

An analytical cross-sectional study was conducted on the students residing in the dormitory of Tehran University of Medical Sciences in 2013. A sample of 385 students was selected (216 girls and 169 boys) from 41 dormitories including 5710 students (3227 girls and 2483 boys) using quota sampling. The data collection tool was a three-part questionnaire. The first part related to demographic information, the second one consisted of stress, anxiety and depression information based on DASS21 Questionnaire and the last part was based on Pittsburg Sleep Quality Questionnaire. Demographic data included items such as age, sex, marital status, educational level, field of study, employment status, leisure time activities, adherence to religious issues, drug use, disease and whether parents are alive or not. The second part included questions related to anxiety, stress and depression which in this study an standardized DASS21 Questionnaire was utilized composing of 21 questions within which 7 questions were dedicated to each subcategory, namely anxiety, stress and depression.

The sleep quality of the students was evaluated using a 19-question Pittsburg questionnaire. The collected data was analyzed using descriptive statistics (frequency tables, mean and standard deviation) and one-way ANOVA, chi-square, T-Test and Pearson correlation analysis with the aid of SPSS software version 21 at a significance level of 5%.

RESULTS

In this study a total of 216 (56.1%) of the participants were females and 169 (43.9%) of them were males. 342 individuals (88.8%) were single and 43 (11.2%) were married. The average age of females was 23.46 ± 3.65 , it was 24.34 ± 3.74 for males and for the overall respondents it was equal to 23.85 ± 3.71 . 317 (82.3%) individuals were employed and 68 (17.7%) were unemployed.

4.9% of the students had experienced some degrees of stress which this amount was specifically 4.1% for males and 5.6% for females. 16.1% of the students showed some degrees of anxiety which this amount was specifically 15.3% for females and 17.2% for males. The observed depression (to some degrees) was 14.3% in students (13% among female students and 16% among male ones) (Table 1).

Table 1: Prevalence of stress, anxiety, depression and sleep disorder separately for each gender

		Females		Males		Total	
		N	%	N	%	N	%
Stress	Normal	204	94.4	162	95.9	366	95.1
	Low	9	4.2	4	2.4	13	3.4
	Moderate	3	1.4	2	1.2	5	1.3
	Severe	0	0	1	0.6	1	0.3
Anxiety	Normal	183	84.7	140	82.8	323	83.9
	Low	20	9.3	18	10.7	38	9.9
	Moderate	12	5.6	10	5.9	22	5.7
	Severe	1	0.5	1	0.5	2	0.5
Depression	Normal	188	87	142	84	330	85.7
	Low	21	9.7	18	10.7	39	10.1
	Moderate	7	3.2	9	5.3	86	22.3
	Severe	0	0	0	0	0	0
Sleep Quality Score	< 5	103	47.7	79	46.7	182	47.3
	> 5	113	52.3	90	53.3	203	52.7

The results of this study suggest that the subjective quality of sleep of 69 individuals (17.9%) was very good, of 228 individuals (59.2%) was fairly good, of 64 individuals (16.6%) was fairly badly and of 24 students (6.2%) was too bad. The scores obtained from the delay in falling asleep among students showed that 103 students (26.8%) fall asleep in less than 1 min, 212 individuals (55.1%) fall asleep after 10 to 30 minutes and 70 ones (18.2%) after 30 to 50 minutes. The results showed that the actual sleep duration was more than 7 hours for 183 students (47.5%), between 6 to 7 hours for 107 students (27.8%), between 5 and 6 hours for 60 students (15.6%) and less than 5 hours for 35 students (9.1%). This is so while useful sleeping of 272 individuals (70.6%) obtained a score above 85%, 71 students (18.4%) obtained a score between 75 to 84%, 20 individuals (5.2%) a score between 65 to 74% and 22 individuals (5.7%) achieved a score less than 65%.

The findings showed that during the last month, 360 individuals (93.5%) had not used any medication to affect sleep, 22 students (5.7%) less than once per week; one person (0.3%) once or twice per week and 2 students had used sleeping drugs (0.5%) three times a week or more.

The average score of sleep quality and its sub-indices and also the scores of stress, anxiety, depression and quality of sleep didn't shown any significant difference based on the gender of students (Table 2). The average sleep quality of students being calculated was as 5.16 ± 2.88 , which indicates the presence of weak sleep disorder among them so that 203 students (52.7%) suffer from sleep disorder (Table 2).

Anxiety, stress, depression and sleep quality was significantly higher in single students compared with married students (Table 3).

The results of variance analysis of the scores of stress, anxiety and depression in terms of the educational level of students (BS, MS, PhD and MD) showed no significant difference but the scores of sleep quality of students at PhD and MD levels were significantly different from each other at the level of 5% ($P=0.037$) (Table 4).

Plotting the data of age and the scores of stress, anxiety, depression and quality of sleep of students (Figure 1) versus each other showed that age had an inversely significant relationship with stress, anxiety, depression and sleep quality (Table 5) although these correlations are very poor. Stress had a significant, direct and strong relationship with anxiety and depression which this relationship and correlation is approved by the achieved data (Table 5). Depression and anxiety had also a strong, direct and significant relationship with each other.

The results of this study suggest that the subjective quality of sleep was very good in 69 individuals (17.9%), fairly good in 228 individuals (59.2%), fairly bad for 64 individuals (16.6%) and very bad for 24 individuals (6.2%). The scores of delay in falling asleep among students showed that 103 students (26.8%) fall asleep in less than 1 min, 212 individuals (55.1%) fall asleep after 10 to 30 minutes and 70 ones (18.2%) after 30 to 50 minutes. The results showed that the actual sleep duration was more than 7 hours for 183 students (47.5%), between 6 to 7 hours for 107 students (27.8%), between 5 and 6 hours for 60 students (15.6%) and less than 5 hours for 35 students (9.1%). This is so while useful sleeping of 272 individuals (70.6%) obtained a score above 85%, 71 students (18.4%) obtained a score between 75 to 84%, 20 individuals (5.2%) a score between 65 to 74% and 22 individuals (5.7%) achieved a score less than 65%.

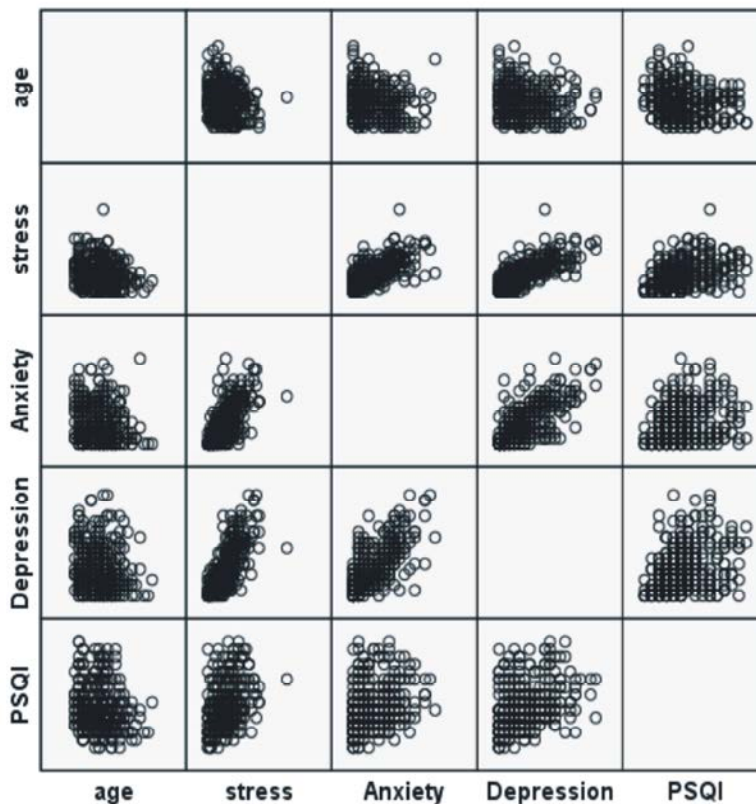


Fig. 1: Scatterplot of age and the scores of stress, anxiety, depression and quality of sleep of students

Table 2: Comparison of seven-item scales of sleep quality separately for each sex

	Sex		P-Value	Total
	Female	Male		
Subjective quality of sleep	1.08±0.72	1.15±0.81	0.411	1.11±0.76
Delay in falling asleep	0.89±0.66	0.94±0.68	0.490	0.91±0.67
Sleep duration	0.90±1.00	0.82±0.97	0.423	0.86±0.99
Useful sleep	0.48±0.83	0.44±0.84	0.650	0.46±0.83
Sleep disorders	0.72±0.45	0.74±0.44	0.703	0.73±0.44
hypnotics	0.06±0.31	0.95±0.35	0.378	0.08±0.33
Morning dysfunctions	1.09±0.83	0.90±0.87	0.037	1.01±0.85
Total score of sleep quality	5.23±2.86	5.08±2.91	0.627	5.16±2.88
Stress	6.66±4.43	6.78±4.64	0.800	6.71±4.52
Anxiety	3.50±3.44	3.76±3.38	0.455	3.61±3.41
Depression	4.45±3.84	5.18±4.22	0.075	4.77±4.02

Table 3: Comparison of stress, anxiety, depression and sleep quality based on marital status of students

	Marital Status		P-Value
	Single (Mean±Sd)	Married (Mean±Sd)	
Stress	6.99 ± 4.64	4.51 ± 3.17	< 0.001
Anxiety	3.76 ± 3.46	2.42 ± 2.81	= 0.006
Depression	5.01 ± 4.08	2.88 ± 2.87	< 0.001
Sleep quality	5.33 ± 2.9	3.81 ± 2.3	< 0.001

Table 4: Stress, anxiety, depression and sleep quality based on educational level of students

	Educational Level			
	BS (Mean±Sd)	MS (Mean±Sd)	PhD (Mean±Sd)	MD (Mean±Sd)
Stress	7.28 ± 5.55	6.35 ± 4.36	7.25 ± 3.44	6.09 ± 3.76
Anxiety	4.27 ± 3.75	3.19 ± 3.14	3.86 ± 3.30	4.00 ± 4.20
Depression	5.62 ± 4.53	4.5 ± 3.91	4.71 ± 3.62	3.91 ± 3.60
Sleep quality	5.43 ± 2.85	4.96 ± 2.94	5.89 ± 2.83	3.87 ± 2.01

Table 5: Correlation between research variables

		stress	Anxiety	Depression	PSQI
Age	Pearson Correlation	-0.147	-0.120	-0.109	-0.186
	P-Value	0.004	0.018	0.032	< 0.001
Stress	Pearson Correlation		0.685	0.747	0.390
	P-Value		< 0.001	< 0.001	< 0.001
Anxiety	Pearson Correlation			0.724	0.290
	P-Value			< 0.001	< 0.001
Depression	Pearson Correlation				0.346
	P-Value				< 0.001

DISCUSSION AND CONCLUSION

The results of this study show that the mean of anxiety, stress and depression scores in male and female students are very close to each other while this was reported as significantly different in the study of Rezaie Ardani *et al.* [1]. In Karami's study, depression was reported higher in females relative to males (4). Hadavi *et al.* observed a significant relationship between depression and gender of students [8]. In study of Shahbazi Moghaddam *et al.*, stress of male students was reported higher than that of females [3] and according to the study of Maleki *et al.* [2] the mean scores of anxiety and depression was higher in girls compared to boys. In that study stress and depression were significantly higher in singles [4] while there was no significant relationship between marital status and stress according to Shahbazi Moghaddam *et al.* [1].

There was no significant difference between the four educational level of students (BS, MS, PhD and MD) regarding the scores of stress, anxiety and depression but the scores of sleep quality of students at PhD and MD levels were significantly different from each other at the level of 5% (P-value= 0.037). In Karami study the most depression was reported for students at associate level while it was at the least value for bachelor students [4]. The study of Rezaie Ardani *et al.* didn't show any significant relationship between different educational levels in relation to depression, anxiety and stress [1].

In this study it was turned out that 52.7% of students residing in dormitory had undesirable sleep quality. Previous studies reached to below conclusions regarding

the prevalence of undesirable sleep quality among the studied populations: 73.3% of students residing in the dormitory of Tehran University of Medical Sciences had an undesirable sleep quality [9]; this was equal to 40.6% among the students of Zanjan University of Medical Sciences [10] ; the figure for the nursing students of Shiraz University of Medical Sciences stood at 61% [11] ; and 80% for the students of Jahrom University of Medical Sciences [5]. Suen *et al.* stated that 58% of the students participating in their study had poor sleep quality [12]. Given the high prevalence of poor sleep quality and noting that sleep is necessary in order to maintain energy, appearance and physical shape of body and that one third of our lives is in sleeping state, we shouldn't consider sleep as time-consuming. Sleep reduces stresses and anxiety helps person in recovering energy to better focus the person's attention, adaptability and enjoying everyday activities [8]. The average total score of sleep quality for the studied sample was calculated as 5.16 ± 2.88 on the Pittsburgh Scale which is very close to the outcome of Pallos *et al.* conducted in Japan (5 ± 2.7) [13] while the average total score of sleep quality was estimated at 8.57 ± 40.3 in Mansouri's study [9]. In this study, the actual sleep time of 47.5% of campus students were more than 7 hours. In a study on sleep quality of the students of Zanjan University of Medical Sciences, the average time of night sleep was 6 hours [10]. This was equal to 5.6 hours in Ghanei's study and there were just 6.2% of students having a sleep time more than 8 hours [7]. In the study of Fatima *et al.* on medicine students, the sleep time of 75% of students was reported as less than 6 hours [14].

Chorney *et al.* [15] have stated that depression and anxiety variables have overlaps with sleep disorders and Gallagher have also reported a significant relationship between undesirable quality of sleep and stress of parents [15]. In the present study there was statistically significant difference between the educational levels of PhD and MD but the two other educational levels were statistically the same. In a study conducted by Mansouri *et al.*, sleep quality of the students studying at bachelor and associate levels were lower in relative to other levels but not a statistically significant difference [9]. In the present study, sleep quality was significantly different between single and married students so that sleep disorder was higher for married ones. This finding is aligned with the finding of the study of Ghoreishi *et al.* [10], who reported the sleep quality of married individuals being significantly poorer than that of singles, while Mansouri *et al.* didn't observe any significant relationship between marital status and sleep quality [9]. The results of the present study showed a significant inverse relationship between the age of students and the quality of their sleep, while Ardani *et al.* in an study conducted on the students of Mashhad University of Medical Sciences found no significant relationship in this regard [1]. Our study indicated that there was no significant relationship between the sleep quality of male and female students residing in dormitories. This is in alignment with the findings of Modaresi on guidance school students which indicates no significant difference between the mean score of sleep disorder among two sexes [17]. Eslami Akbar reported the prevalence of sleep disorder the same in both male and female students [5]. Ghanei *et al.* [7] also observed no meaningful difference between male and female students in this regard. All these are co-aligned with our results. However, Mousavi *et al.* reported different prevalence of sleep disorder among male and female students in a study on the medicine students of Islamic Azad University of Tehran [18]. Middlekoop *et al.* have reported the prevalence of sleep disorder higher in elderly women than in elderly men [19].

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