Sleep Patterns and Other Sleep Related Factors Affecting the Students of Islamic Azad University, Rasht Branch, Iran

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Background: Adequate sleep is essential for general health. Several factors disrupt sleep patterns. The quality of sleep affects health and daily functions.

Objectives: The current study aimed to determine the students' sleep patterns and other sleep related factors.

Patients and Methods: The current cross-sectional study was conducted on 350 female students of the Islamic Azad University, Rasht branch (Rasht, Iran) who were selected by multistage random sampling method. Data collection tool was a self-reporting questionnaire. Data were analyzed using SPSS software, employing Chi-square, and Pearson product moment correlation coefficients.

Results: The mean age of the subjects was 22.16 ± 2.86 years. Results showed 35.7% disruption of sleep onset, 46.3% impairment of sleep continuity, and 32% awakening early in the morning. Also, 42.3% of the subjects expressed excellent sleep quality. There was a significant relationship among sleep quality with the time of going to bed, difficulty in sleeping, awakening by noise, repeated awakening at night, waking up early in the morning, fatigue, and sleepiness in classroom.

Conclusions: The results of the current study showed a high prevalence of sleep problems among the students. Identification and treatment of students' sleep disorders may improve academic performance and life quality.

Keywords: Sleep Disorders; Sleep Stages; Students

1. Background

Sleeping is a vital physiological process. Its quality is severely related to mental and physical health and other health related criteria. The sleeping and awakening patterns in people varies according to age, type of job, physiological and mental characteristics, existence of mental diseases and some physical diseases (1). Sleep disorder is often a symptom of psychosis, since some psychopathic factors are accompanied with distinct changes in sleep physiology. Since people have sleep disorders for one third of their life, and more than 30% of people have sleep disorders, it can be accounted as one of the biggest psychopathic problems (2). Insomnia may be considered as sleeping with difficulty, problem at sleep onset or lack of good sleep continuity, awakening at midnight or early in the morning and inability to sleep again, or even a combination of these abnormalities (3) inadequate rest impedes thinking ability and concentration power. It also reduces the ability to confront with stress and disorders in the immune system (4). Factors such as age, life style, smoking, lack of daily activity, dissatisfaction, and illness(physical and mental) are known as effective elements of insomnia (5). Stress affects the quality of sleep more than alcohol, caffeine, and using electrical devices until late at night (6).

Studies on one million men and women in 2002 showed that the risk of death among people who sleep more than 8.5 hours or less than 3.5 hours at night is 15% more than those who sleep an average of seven hours at night (7). Also studies showed that sleep disorder is the most important cause of fatal car and work accidents. Sleep disorder may disrupt regular physiological sleep, affect academic performance, , physical and mental abilities, concentration and precision, and cause fatigue, irritability and headache (8). That can have lots of negative effects on healthy, active and constructive living process of anyone especially students. As the result of Pagalconsideration on students showed, 69.7 percent of students had low average and were involved in sleep disorder. 72.7 percent of students who had low sleeping quality, confronted problems in the field of concentration and attention during the day (9). In Gaultney's study the result showed that 27 percent of students were exposed to at least one of sleeping disorders (10). Studies in our country show varied degrees of sleeping disorders of students (11-13). Low quality of sleep, sleeping disorder and minimum dissatisfaction of sleeping are often prevalent among many students of bachelor degree (14).

In the study on sleeping and awakening pattern of medical students by Nojomi et al. only 14% of students were satisfied with the quality of their night sleep (15). The studies showed higher prevalence of kinds of sleeping disorder in women and its higher importance in

this gender. Different reasons such as body's physiologic structure, low level of iron, premenstrual and pregnancy syndromes are involved in this action (11, 16).

2. Objectives

Regarding the fact that students consist relatively a large part of population of any society and the future of a society is made by these forces, paying attention to their physical and mental health is of high importance. Meanwhile studies in our country has more considered students of medicine so we aimed to study the pattern of sleeping and its related elements on female students of various majors at Islamic Azad University, Rasht Branch.

3. Patients and Methods

3.1. Study Design and Population

This study was done as cross-sectional in 2012. Statistical population is all girl students studying at different majors at Islamic Azad University, Rasht Branch. Sample volume was deemed 350 students regarding 57% prevalence of sleeping disorders in research (11) and error coefficient of 5% and 95% of certainty coefficient. Method of sampling was multistep random sampling. In this way, firstly each major of study was deemed as a cluster and was based on the number of people studying in each major. The size of the sample in that major was calculated, then, based on the list of students' name, the samples were chosen randomly and were participated in studying in case of satisfaction. It is necessary to ascertain students about secrecy of information and not mentioning their name in the questionnaire.

3.2. Measuring Tools

For data collection, the questionnaire of self-reporting and part of Pietersburg sleeping quality inventory were used. PSQI is self-reporting that considers the quality of sleeping during previous month and evaluates parameters related to sleeping habits such as time of sleeping disorder, hidden sleeping period, and disorder due to drowsiness during the day and generally the quality of sleeping (7).

The first part of questionnaire included 17 questions about demographic info age, marital status, having children, being native, field of study, academic term, residency, the amount of sleeping, doing physical exercise. physical health situation, being far from family, interest in major and educational satisfaction, use drugs, smoking and using caffeinated substance before sleeping. The second part of questionnaire were questionnaire consisted of questions that measure disorder and continuity of sleeping in students and evaluate them including problems at sleeping, repetitive awakening from sleep, the number of awakenings, duration sleep, snoring, duration of sleep, nightmare, teeth grinding, speaking at sleep, somnambulism, awakening early in the morning, awakening with noises, inadequate sleeping, the situation of bedroom, easiness of sleeping place and daily

drowsiness were evaluated. About duration of sleep, the group of the lowest quartile of sleep duration (6 hours ≥) was defined as having the short sleep (17).

Validity of this tool was tested through validity content method, in a way that the first version of the questionnaire was written considering the text and studied done in the country and outside of the country, then it was given to 5 faculties of different universities check for the validity and confirmation and finally it was given to 20 students after 10 days were completed by the same students again (r = 0.82).

3.3. Statistical Analysis

Finally, collected data were analyzed by SPSS/ver20 software in which descriptive statistics, relative and absolute frequency, average and analytic tests of chi-square, t-test and Pearson correlation were used. It is necessary to mention that significance is deemed P < 0.05.

4. Results

Age range of considered students in this study was 17-34 years old and their average age was 22.16 ± 2.86. 76% of them were single and 44.3% were local natives. The results showed that 2.3% of students were employed and 34% did physical exercises during the day. 95.7% of them were healthy physically and 81.4% lived far from their family. 12% of students mentioned smoking and 58% mentioned consuming caffeinated drinking like tea or coffee before sleeping. Also the results of the research in relation to the educational situation of considered people shows 80% of students were interested in their field of study and 43.4% weren't satisfied with their educational development.

Table 1. Percentage of Participants that Reported Sleep Latency [a]

Sleep Latency, min	Frequency
≤ 15	149 (42.6)
16-30	137 (39.1)
31-60	45 (12.9)
> 60	19 (5.4)

[a] Data are presented as No. (%).

Table 2. Prevalence of Sleep Disorders in University Students [a]

Sleep Disorders	Frequency
Awaken at night	
not at all	187 (53.4)
1-2 time	94 (26.9)
3-4 time	58 (16.6)
5-6 time	11 (3.2)
7 time ≤	0 (0)
Sleep quality	
Perfect	149 (42.6)
Good	128 (36.6)
Bad	51 (14.6)
Very bad	22 (6.2)

[a] Data are presented as No. (%).

Table 3. Percentage of Parasomnia Disorder in University Students

Types of Parasomnia	Never	Less Than Once a Week	Once or Twice a Week	3-5 Times a Week	Almost Every Night or Every Day
Nightmares	78	11.4	8.6	4.0	0
Teeth grinding	83.1	6.0	5.2	3.7	2
Sleep walking	96.2	0.8	0	0	0
Sleep talking	93	4.0	2.5	0.5	0

The results also denote that average sleeping hours of students at night was 7.17 ± 1.52. Most considering people (29.1%) slept 8 hours at night and 4% of them mentioned sleeping less than 5 hours. The sleeping latency of 54% of people was 1 hour (Table 1).

63.4% of students claimed that they didn't have enough sleep and 42.3% described their sleeping quality was excellent. In relation to the fragmented sleep 53.4% of students didn't awaken at night and 5.2% mentioned they had become awakened 3 times at night (Table 2). In evaluation of early awakening, 32% of people of the research mentioned this problem and 52% of them had difficulty in awakening. Information related to frequency of kinds of parasomnia is mentioned in Table 3.

As for the feeling of tired during the day 39% of students suffer from this problem. Regarding the situation of sleeping place, 35.7% of people mentioned that the situation of their bedroom is unsuitable. 75.1% mentioned the reason of their insomnia was the existence of noises at the location of sleeping. Also 62.3% of students described their sleeping location comfortable. The result of analytic test of the research in relation to the relationship of different factors with sleeping pattern at students was as bellow:

T-student statistical test showed significant statistical relationship between variable of age and variables of sleeping quality (P = 0.0004) having difficulty awakening in the morning (0.003), fragmented sleep (P = 0.01) and awakening early in the morning (P = 0.04).

The result of this study denotes that there is a significant statistical relationship between academic term with sleeping quality (P = 0.04). The result of chi-square analysis didn't show significant statistical relationship between residingin dormitory with adequacy of sleep. Although many people who suffer from inadequate sleeping (60.2%) were local and lived in dormitory. Also the quality of sleep didn't show significant statistical relationship with the variable of living at dormitory. Statistical tests didn't show significant statistical relationship between variable of marital status with any cases of sleeping disorder (P > 0.05). Doing severe activity during the day had significant statistical relationship with fragmented sleep (P = 0.02). However, variables of the amount of sleep and sleeping comfortably didn't show significant statistical relationship. Educational satisfaction of people had significant statistical relationship with variables of adequate sleep (P = 0.03) and sleeping comfortably (P = 0.001).

The results of the research in relationship with consumption of caffeinated drinks denotes that consuming these drinks before sleeping had significant statistical relationship with adequate sleep of students as 64.8% of people who suffered from inadequate sleep, consumed caffeinated drinks like tea before sleeping. However, no statistical relationship has been observed between sleeping quality and consuming these drinks. The other results of this study are statistical relationship between sleeping quality of people with variables of noise, awakening at night, awakening early in the morning and feeling tired during the day (P < 0.05). No significant correlation between sleeping quality of people with duration of sleep and the number of hours of sleeping at night has been observed.

5. Discussion

In current research the students' average hours of sleeping at night were 7.17 ± 1.52 and 29.1% of students mentioned 8 hours of sleeping at night. Based on the studies average required sleeping of each person at night is deemed 8 hours (18) in a study done in Ardabil the student's average sleep was 7.02 that was in accordance with the current study (13).

The result of this study shows that most of the people under investigation mentioned that the time of going to bed until sleeping was less than 30 minutes. In Mousavi et al. consideration, sleep latency in most people (32.3%) was reported at about 30 minutes (19) that is consistent with the result of current research.

In relation with fragmented sleep 53.7% of students didn't awaken at night and 5.2% awakened 3 times at night and none of them had 7 times of awakening at night. The research of Mousavi et al. consideration showed that 32.4% of students didn't awakened at night at all and 13.8% awakened 3 times and 0.5% more than 7 times at night (19). In Nojomi et al. study, 51% of students didn't awaken at night at all and only 1% mentioned awakening more than 7 times at night 9150 the result of above study is in accordance with the current study (15).

In the current study, 36.6% of students claimed that they didn't have enough sleep and 52% had difficulty awakening, which that it shows the inappropriate quality of their sleep. Besides, 6.2% of people mentioned their sleep quality was very bad and 14.6% mentioned it was bad.

The result of studies done on medicine students in Zan-

jan shows that 40.6% of them had inappropriate sleeping quality (7). This amount in studying of Ardabil has been reported 43.2% and in Shahed University, it was reported 23.5 % (12, 13). The result of Mousavi et al. consideration on medicine students of Tehran reveals that sleeping quality of 2% of considered people was very bad and 13.5% of them were bad (19) and very bad sleeping quality in current research shows higher degree, the reason of this difference may be related to sampling methods, of considered volume and also living condition of students. In consideration done by Gaultney 86% of considered students had difficulty awakening (10). In Friedman et al. study 70% of students reported their inadequate sleep (20).

In relation to the consideration of feeling tired during the day 39% of students suffered from this problem at least once a week and 5.1% always felt tired. In Mosavi's study, 38.6% of students reported tiredness during the day at least one day a week and 6.4% of them always felt tired during the day (19). That iscongruent with the result of current research.

The result of the current investigation of statistical tests between variable of marital status with each of sleeping disorders didn't show significant statistical relation (P > 0.05). In studies done at the University of Ardabil the result denotes that sleeping problems of married students is more than single ones (7). Ghoreishi et al. show statistical relationship between marital status and sleeping quality as 35.8% of single people and 64.9% of married ones had inappropriate sleeping quality (7) that is not in accordance with the result of the current study. Its reason may be related to the low number of married people in our consideration and different sample size.

In the current research, age had significant statistical relationship with variables of sleeping quality, difficulty in awakening in the morning, fragmented sleep and awakening early in the morning. The result of Mousavi et al. study showed significant statistical relationship between the variable of people's age and fragmented sleep (19). Different considerations show that with the increase of age the degree of disorder at sleeping and insomnia increase (9, 21). Based on national institute of sleep, 59% of people aged between 18-29, reported awakening at night and fragmented sleep that is in accordance to the result of current study.

The result of current study shows statistical relationship between academic term and sleeping quality. In consideration done by Pagel, it was distinguished that sleeping disorders have negative effects on students' performance based on the change in age and education basis. However, awakening at night showed significant relationship with educational basis (9). The existence of statistical relationship between sleeping quality of students and their comfort in sleep with educational improvement satisfaction in current consideration is in accordance with other studies.

Diagnosis and treatment of MA students with sleeping disorder have advantages such as improvement of educational performance and better quality of life. Regarding the result of studies that show high degree of sleeping disorders in students, it is suggested that a center for consulting this kind of students' problems at the university be established so that students can solve their problems. Because this research was done as self-reporting, there wasn't any control for students' answering and answers were merely considered by the students themselves. To control this shortcoming in this research, it was attempted to maximize the degree of samples' answering by presenting sufficient description of questionnaire and obtaining people's consent through exploiting social skills of effective relationship. Since this research was done on female students of Islamic Azad University, Rasht Branch, we can't generalize the result to other people in the society. It is suggested that sleeping disorder of girls and boys be considered in another research. Other researches in other classes of the societies (academic and non-academic) based on type of job and economic level should be conducted.

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Authors' Contributions

Asiyeh Namazi: Study conception and design, Analysis, Drafting the manuscript and interpretation of data; Shiva Alizadeh: acquisition of data.

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