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Sleep Disturbance Patterns among Medical Students, Saudi Arabia

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Abstract

Several studies suggested a closed relationship between sleep patterns with learning capacity especially in the medical students. This study aimed to investigate the impact of sleep disturbance on learning capabilities. This is a cross-sectional study conducted between November 2013 and January 2014. The sample was all male medical students at college of medicine in Imam Muhammed bin Saud University, Saudi Arabia. It is a questionnaire-based self-administrated study. Data was analyzed using IBM SPSS. The response rate is 91.4. Medical students suffered from high stress during examination periods. Stress associated with insufficient sleep and excessive daytime sleepiness that can lead to difficulties in interpersonal relationship, depression and anxiety. On average, our students went to bed lately and obtain sufficient sleep, they slept each night between 6-8 hours. In conclusion, further studies are still needed to link sleep disturbances, poor sleep quality and biological diseases among medical students at clinical years.

Keywords: Saudi Arabia; Medical students; Sleep; Disturbance

Introduction

Normal human sleep comprises two states rapid eye movement (REM) and non-REM (NREM) sleep that alternate cyclically across a sleep episode [1,2]. Data suggested that sleep is very important for memory consolidation and learning [3]. Several reviews showed an important relationship between sleep patterns with learning capacity and consequent academic performance [4]. Medical students are a unique group of young adults whose academic commitments and lifestyle can impact

their sleep habits and result in sleep deprivation [5]. The continuous academic demand on this group of students may result in irregular sleep patterns and poor sleep quality, which may in turn negatively impact school performance [6]. Some studies had been done in Saudi Arabia discussing sleeping disturbance patterns in Ramadan, showing a decreased rapid eye movement, with no impact on other sleep stages, the arousal index or daytime sleepiness [7]. There was no objective evidence for increased sleepiness during fasting during sleep cycle of the studied sample during Ramadan (fasting month) [8]. One of the habits of muslim medical students is praying of Alfajr (down). Bahammam's group showed no differences detected in sleep architecture or daytime sleepiness in the consolidated and split-sleep schedules when the total sleep duration was maintained [9]. This study aimed to find out the determinations, impacts of sleep disturbance patterns, and detect probability of falling asleep by using Epworth sleepiness scale [10].

Materials and Methods

Data collection

Cross-sectional observational study was conducted between November 2013 and January 2014. Sample frame included all male medical students at college of medicine in Imam Muhammed bin Saud University. It is a questionnaire based study. This questionnaire is previously validated and obtained with permission from Dr. Bahammam [5]. Then, it was modified and reviewed by Dr. Alrabea.

We added Epworth sleepiness scale as well as specific questions regarding to social network apps, and then was reviewed by 2 experts. The research yield is 650 students. We used stratified random sampling method. All the students were divided into 5 groups, according to their academic year, from

year 1 to year 5. End-up with 1st year group [No. 1], 2nd year group [No. 2], 3rd year group [No. 3], 4th year group [No. 4], and 5th year group [No. 5]. Preparatory year students are not included in the research. All questionnaires were distributed during regular classes. Instructors were available if there was any inquiry from the participants. Participation was voluntary, anonymous and unpaid. Written consent was obtained from each participant before being subjected to the questionnaire and after discussing the objective with the participants. No names were recorded on the questionnaires. Adequate training of data collection took place to ensure protection of confidentiality, and all questionnaires were kept safe.

Data analysis

Statistical analysis was carried out using Microsoft Excel spreadsheet and the StatView SE +graphics software. Graphs were plotted using Cricket graph graphics package. All software was run on a Macintosh computer [11].

Results

We distributed 140 questionnaires, the returned are 128. The response rate is 91.4. The demographics and general characteristics data of participants are shown below on Table 1.

Sleep disorders and treatment (Table 4)

Table 4: Majority of respondents suffered from a sleep disorder.

S. N	Sentence	Numbers	
		YES%	YES%
1	Previously suffered from a sleep disorder?	61	39
2	Did you use devices to assist breathing during sleep?	3.9	96.1
3	Previously had surgery for the treatment of sleep disorders?	0.8	99.2
4	Already saw doctor or used any medications for the treatment of sleep disturbance?	4.7	95.3
5	Had previously seek treatment of a disorder or sleep problems	2.3	96.9

Abnormal movement and behavior (Table 5)

Table 5: The majority of those suffered from abnormal movement and behavior such as walking or stretching.

S. N	Sentence	Numbers	
		YES%	NO%
1	Discomfort in the legs, which can be relieved movement such as walking or stretching	31	77
2	Discomfort that may worsen during bedtime	17	83
3	Contractions and cramps of legs	22	78
4	Tremble in your arms or legs during sleep	12	88
5	Grind (bite hard) teeth during sleep	12	88

Table 1: Demographics and general characteristics of the different groups.

Age	%	Marital Status	%	GPA	%
Less than 20	3.1	Married	7.0	5-4	43.8
20-25	85.1	Single	92.2	3.99-3	47.7
25-30	6.3	Total	99.2	2.99-2	3.1
Total	100				

Bad habits (Table 2 and 3)

Table 2: The distribution of the sample based on cigarettes smoking per day.

Values	Percent
Less than 5 cigarettes	1.6
5-10 cigarettes	7
More than 10 cigarettes	4.7

Table 3: The distribution of the sample based smoking melliferous (Moa'sel) per a year.

Values	Percent
Less than 1 year	7.8
From 1 to 5 years	0.8

6	Put a protective mouth prevents you from grinding or biting your teeth while you sleep	4	96
7	Walk while you are sleeping	7	93
8	Talk while you're sleeping	17	83
9	Dreams of terrifying nightmares or dreams during sleep	25	75
10	Had already noticed one you interact with your dreams	23	77

Average rate usually for sleep, during work-days and week-ends (Table 6)

Table 6: The distribution of average rate usually for sleep during work-days and week-ends.

Values	Work-days		Week-ends	
	Freq	%	Freq	%
Less than 6 hrs	59	46.1	21	16.4
6-8 hrs	63	49.2	51	39.8
More than 8 hrs	6	4.7	54	42.2

How much time do you spend in bed to sleep, during work-days and week-ends? (Table 7)

Table 7: The distribution of the sample based how much time they spend in bed to sleep.

Values	Work-days		Week-ends	
	Freq	%	Freq	%
Less than 30 min	61	47.7	72	56.3
30 – 90 min	62	48.4	51	39.8
More than 90 min	4	3.1	2	1.6

The number of times you wake up from sleep, during work-days and week-ends (Table 8)

Table 8: The distribution of the sample based the number of times they wake up from sleep.

Values	Work-days		Week-ends	
	Freq	%	Freq	%
Not wake up	52	40.6	70	54.7
One - two times	67	52.3	48	37.5
3 times or more	6	4.7	5	3.9

The average time usually takes to return to sleep after waking up, during work-days and week-ends (Table 9)

Table 9: The distribution of the sample based on average time usually takes to return to sleep after waking up.

Values	Work-days		Week-ends	
	Freq	%	Freq	%
Less than 30 min	86	67.2	75	58.6
From 30-90 min	26	20.3	33	25.8
More than 90 min	7	5.5	4	3.1

How much time do you need to get up of the bed during work-days and week-ends? (Table 10)

Table 10: The distribution of the sample based the average time usually takes to return to sleep after waking up.

Values	Work-days		Week-ends	
	Freq	%	Freq	%
Less than 10 min	34	26.6	34	26.6
10-20 min	81	63.3	70	54.7
More than 20 min	12	9.4	19	14.8

Discussion

Disorders related to sleep in medical students are major concern and has long-term social, medical and demographic consequences. Medical students suffer from high stress during examination periods. Stress associated with insufficient sleep and excessive daytime sleepiness that can lead to difficulties in interpersonal relationship, depression and anxiety. On average, our students went to bed lately and obtain sufficient sleep; they slept each night between 6-8 hours. A delay in weekend bedtime and weekend rise time was also found.

In the current study, our students with poor academic performance have more symptoms of insomnia. These findings are consistent with a recent study of Alsaggaff [12]. We also observed a significant relationship between stress, some previous diseases, smoking and insomnia.

In the present study, smoking, using mobile phones/laptop and excessive coffee intake, were habits that adversely affecting sleep in medical students. Similar to our findings, obtained by two studies [13,14]. Ahhaqwi et al. [13] showed a high prevalence of sleep disorder in the medical students, especially in female students and a significant relationship between abnormal ESS scores, total sleeping hours, and academic performance was found. An Indian study by Giri et al. [14] found there are that many disorders related to poor sleep quality among medical students including Caffeine and alcohol intake.

Bahammam et al. [5] showed the total sleep time at night on the samples was 5.9 ± 1.6 hours. Their results are similar to ours. Our results also showed that the majority of sleep duration are between 6-8 hrs or even less. Additionally, the average rate for sleep for our sample are between (6-8) hours by (50%), then by (46%) for less than 6 hours, and by (5%) for more than 8 hours. During week-ends the majority of our sample, sleep more than 8 hours, then by (39.8%) for (6-8) hours by and by (17%) for less than 6 hours. Regarding naps duration, in work-days, the majority of the sample is distributed less than 30 minutes by and then by (29%) for (30-90) minutes, then, by (18%) for more than 90 minutes.

The sleep continuity and architecture of adolescents and their mothers were strongly related. A significant relationship between objectively assessed sleep patterns, subjective sleep disturbances, depression scores and family climate held true for equally adolescents and mothers. Also, substantial links were found between adolescents' and parents' subjective sleep disturbances, depressive symptoms, and perceived family climate [15]. Most of the students are not sharing rooms by 66.4% while 30.5% are sharing rooms. According to marital status, only 7% are married while 92.2 are single (data not shown).

Conclusion

Most of medical students suffer of sleep disturbance with variant patterns. Sleep disturbance and/or unhealthy sleep habits is common among medical students and can be linked to restless leg syndrome, insomnia, hypersomnia, anxiety, caffeine and nicotine abuse. Further studies are still needed to link sleep disturbances, school performance and biological diseases among medical students at clinical years.

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