Sleeping Disturbances/Disorders in Medical Students of King Saud bin Abdulaziz University for Health Sciences, Riyadh

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Conflict of Interest: None declared

This article has been peer reviewed.

Article Submitted on: 1st March 2017

Article Accepted on: 18th September 2017

Funding Sources: None Declared

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Cite this article: Qaiser DH, Albanyan OA. Sleeping disturbances/disorders in medical students of King Saud bin Abdulaziz University for health sciences, Riyadh. J Pioneer Med Sci. 2018; 8(1):9-12

ABSTRACT

BACKGROUND: College students are at risk of many sleep disorders that may affect their performance. We conducted this study to identify the sleeping patterns, poor sleep quality factors among medical students, and to observe if there is any relationship between the student's grades and their level of distress.

METHODS: This study was a cross-sectional study that was conducted in King Saud bin Abdulaziz University for Health Sciences, College of Medicine (male campus), Riyadh. We included 101 (2nd, 3rd, and 4th year) male medical students who completed a self-administered questionnaire. The students sleeping disturbances were evaluated by using Epworth Sleeping Scale (ESS), Pittsburgh Sleep Quality Index (PSQI) and their distress was evaluated by the Subjective Units of Distress Scale (SUD). A relationship between student's distress and their grade was determined by using one-way ANOVA. The data was analyzed using SPSS version 21.

RESULTS: The mean ±SD of the number of hours medical students slept was 5.6±2.6 hours. The most common cause of disturbed sleep was not being able to fall asleep within 30 minutes after going to bed. The mean score for ESS was 8.2 ±5.4. Most students had an ESS score <10 indicating that they had a normal amount of daytime sleepiness and good sleep. There was a relationship between the academic year and ESS; a higher percentage of the students in 3rd and 4th year were sleepy (ESS ≥ 10) than 2nd year (P = 0.04). There was no relation between the student's grades and their level of distress (P = 0.37).

CONCLUSION: Medical students got less actual sleep hours than the optimal sleep duration. However, most had normal day time sleepiness. There was no relation between the student's grades and their level of distress.

Keywords: Distress; Academic; Performance; Sleep; Cross-sectional Study

INTRODUCTION

A sleep disorder exists whenever a lower quality of sleep results in impaired functioning or excessive sleepiness [1]. Studies suggest that sleep disorders affect 50 to 70 million Americans, representing approximately 20 percent of the population [2].

Sleep disorders and disturbed sleep play a major role in the life of college students. College students are at risk of many sleep disorders that affect their performance or lead to inefficient performance [3]. In addition, sleep deficiency can interfere with a student's daily academic performance [4]. Furthermore, college students have a special lifestyle and unique sleep patterns of their own which might increase the incidence of sleep disorders [5]. Some sleeping disorders or patterns are late bedtime, difficulty in falling asleep, waking more than once from sleep, and being tired during daytime [4].

Several studies have examined sleep disorders among college students due to its obvious importance. In 2012, a study at King Saud University in Riyadh found a high prevalence of sleep disorders, especially among females, and showed that there is a relation between sleep hours, Epworth Sleepiness Scale (ESS), and the

academic performance of the students [6].This study aims to determine the sleep patterns and factors of poor sleep quality in university students as well as to measure the effect of sleep disturbances and disorders on the academic performance of King Saud bin Abdulaziz University for Health Sciences medical students.

METHODS

This was a cross-sectional study conducted in the King Saud bin Abdulaziz University for Health Sciences Riyadh campus during the period of 2011 to 2013. Medical students of the second, third, and, fourth academic years were enrolled after informed consent using convenient sampling techniques. The approximate number of the student population from which study participants were enrolled was 600.We included only male medical students and excluded students with a history of psychiatric disorders or substance dependence such as alcohol or recreational drug use.

Students sleeping disturbances were evaluated by using Epworth Sleeping Scale (ESS), Pittsburgh Sleep Quality Index (PAQI), and their distress was evaluated by the Subjective Units of Distress Scale (SUD) based on a self-administered questionnaire.

ESS measures how likely a person will doze off or fall asleep in eight situations through a number of questions. Scoring of answers is based on a 0 to 3 scale, whereby 3 reflects the negative extreme on the scale.

PSQI differentiates "poor" from "good" sleep by measuring seven areas: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction over the last month.

SUD is a convenient way for a person to communicate to other people and express how much distress he/she is experiencing at any given time. There are eleven points on the scale, ranging from zero (absolutely complete relaxation) up to ten (extreme distress).

The data were analyzed using SPSS (Statistical Package for Social Sciences) version 21. Descriptive statistics were presented as mean ± standard deviation for the numerical variables (e.g. total scores), the categorical variables (e.g. demographic data, patterns of sleep, quality of sleep, and effect on students performance) were presented as frequencies and percentages. The continuous variables (total scores) were compared with the demographic variables using statistic t-test or ANOVA as appropriate. The categorical variables (sleep patterns, sleep quality, and effect on student's performance) were compared using Chi-square test. A relationship between the student's distress and their grade was determined by using one-way ANOVA. A p-value of < 0.05 was considered as statistically significant. We also determined the Pearson's correlation between the Pittsburgh Sleep Quality Index (PSQI) and Epworth sleeping scale (ESS).

RESULTS

The mean ±SD age of participants was 24.5±3.03 years and most were living with their family or roommate(s) (93%). Most students had gone to bed between 11 p.m. to 2 a.m.; 12 a.m. was the most frequent bedtime. The mean ±SD time to fall asleep was 32.4±34.7 minutes. The majority of the students wake up in the morning between 6 a.m. and 8 a.m. The mean ±SD of actual hours of sleep was 5.6±2.6 hours [Table 1(a)]. The most common factors affecting students to get optimal sleep were: not being able to sleep within 30 minutes, waking up in the middle of the night or early morning, having to get up to use the bathroom, having a bad dream, and feeling too cold [Table 1(b)]. The mean ±SD PSQI score was 9.93±4.8 points. When students were asked about their sleep quality during the last month, the majority answered that they had a good sleep (54%).

The mean score for ESS was 8.2±5.4. Most students (74%) had a score below 10 indicating that they had normal daytime sleepiness and good night sleep. The most frequent cause to doze off or fall asleep was lying down to rest in the afternoon, sitting quietly after a lunch, sitting and reading, and watching TV, respectively [Table-2]. There was a relationship between the academic year and ESS; a higher percentage of the students in 3rd and 4th year were sleepy (ESS $\geq$ 10) than a 2nd year ($P = 0.04$). Although the smokers were sleepier than nonsmokers (41% vs. 21% respectively), it was not statistically significant ($P = 0.07$). There was no relationship between having a medical illness and feeling sleepy ($P = 0.75$) (Table-3). There was a positive moderate correlation between PSQI and ESS with a correlation coefficient of 0.41.There was no relation between the student's grades and their level of distress ($P = 0.37$) (Table-4).

DISCUSSION

Table 1 (a): The Pittsburgh Sleep Quality Index (PSQI) scoring

The Pittsburgh Sleep Quality Index (PSQI)	Time categories	n (%)
When have you usually gone to bed?	< 11 p.m.	8 (7)
	11 p.m. - 12 a.m.	47 (46.5)
	> 12 a.m.	44 (43.6)
How long (in minutes) has it taken you to fall asleep each night?	1 – 10 min	21 (20.8)
	11 – 30 min	49 (48.5)
	31 – 120 min	29 (28.7)
When have you usually gotten up in the morning?	< 4 a.m	2 (2)
	4 a.m. – 7 a.m	54 (53.5)
	> 7 a.m	41 (40.6)
How many hours of actual sleep do you get at night? (This may be different than the number of hours you spend in bed)	1 – 5.5 hours	49 (48.5)
	6 – 7.5 hours	36 (35.6)
	8 – 10 hours	14 (13.9)

Table 1 (b): The Pittsburgh Sleep Quality Index (PSQI) scoring

During the past month, how often have you had trouble sleeping because you	Not during the past month n (%)	< Once a week n(%)	Once or twice a week n (%)	3 or > times a week n (%)
Cannot get to sleep within 30 minutes	25 (25)	17 (17)	23 (23)	35 (35)
Wake up in the middle of the night or early morning	30 (30)	31(31)	25 (25)	15 (15)
Have to get up to use the bathroom	51 (51)	21 (21)	21 (21)	7 (7)
Cannot breathe comfortably	81 (80)	9 (9)	8 (8)	3 (3)
Cough or snore loudly	81 (81)	11 (11)	4 (4)	4 (4)
Feel too cold	54 (55)	24 (24)	16 (16)	5 (5)
Feel too hot	61 (61)	23 (23)	9 (9)	7 (7)
Have bad dreams	49 (49)	44 (44)	4 (4)	4 (4)
Have pain	84 (84)	9 (9)	4 (4)	3 (3)
Other reasons	87 (87)	7 (7)	5 (5)	1 (1)

Table 2: The Epworth Sleepiness Scale Scoring

How likely are you to doze off or fall asleep in the following situations:	No chance of dozing n (%)	Slight chance of dozing n (%)	Moderate chance of dozing n (%)	High chance of dozing n (%)
Sitting and reading	34 (34)	38 (38)	18 (18)	10 (10)
Watching TV	44 (44)	43 (43)	10 (10)	3 (3)
Sitting inactive in a public place	49 (50)	26 (27)	18 (18)	5 (5)
As a passenger in a car for an hour without a break	47 (48)	32 (33)	13 (13)	6 (6)
Lying down to rest in the afternoon	18 (18)	22 (22)	27 (27)	33 (33)
Sitting and talking to someone	83 (84)	12 (12)	2 (2)	2 (2)
Sitting quietly after a lunch	31 (31)	30 (30)	21 (21)	18 (18)
In a car, while stopped for a few minutes in traffic	76 (76)	16 (16)	6 (6)	2 (2)

Table 3: Relation between Demographic variables and Epworth sleeping scale (ESS) by using one way ANOVA and Chi-square test

Variables		(Normal ESS 0 – 9) n (%)	(Sleepy ESS ≥ 10) n (%)	P-value
Academic year	2nd	32 (87%)	5 (13%)	0.04
	3rd	8 (53%)	7 (47%)	
	4th	35 (71%)	14 (29%)	
Smoking	Yes	13 (59%)	9 (41%)	0.07
	No	62 (79%)	17 (21%)	
Medical Illnesses	Yes	7 (70%)	3 (30%)	0.75
	No	68 (75%)	23 (25%)	

Figure 1: Pearson's correlation between The Pittsburgh Sleep Quality Index (PSQI) and Epworth sleeping scale (ESS)

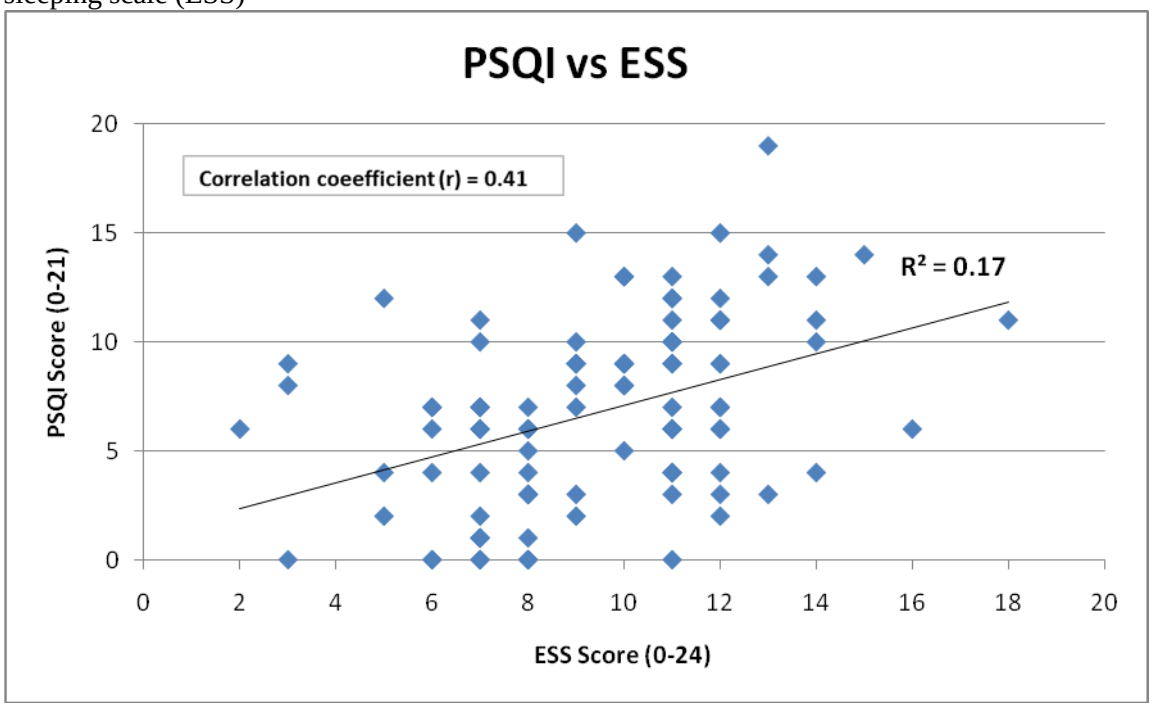

Table 4: A relation between Subjective unit of distress scale (SUD) and grades of the students using one way ANOVA

Grades	SUD score (Mean ± SD)	P-value
A+/A (N=24)	4 ± 2.1	0.37
B+/B (N=54)	4.7 ± 2.1	
C+/C (N=13)	4.8 ± 2.4	

In this study, we found that most students slept fewer hours than the optimal duration of sleep. We found several factors that might be responsible for poor sleep. These factors included student's inability to sleep within 30 minutes, waking up in the middle of their sleep or early in the morning, and the need to get up and go to the bathroom. However, students had normal day time sleepiness as measured by ESS, which indicates that most had sufficient sleep. Students often dozed while lying down to rest in the afternoon, sitting quietly after a lunch, and sitting and reading, respectively.

Interestingly, we found a discrepancy between the subjective reporting of students about their sleep and their PSQI scores. Although PSQI scores showed that most students had disturbed sleep, most stated that they are having a very good or fairly good sleep. There was a positive moderate correlation between PSQI and ESS. Moreover, most students had mild to moderate distress.

Two studies in 1976 and 2002 indicated that day time sleepiness was associated with poor academic performance [7, 8]. A study from the Kingdom of Saudi Arabia showed a relationship between day time sleepiness and academic

performance [6]. But our study didn't report any such relationship. There are many limitations of our study. One possible limitation of our study is a relatively small sample size. Second, this study was performed only among males and at one academic center, for that reason we could not generalize to the whole population.

CONCLUSION

We conclude that medical students get less actual sleep hours than the normally needed duration. However, most students had normal day time sleepiness. Future studies are needed to determine an association between sleep duration and disorders with academic performance.

REFERENCES

1. Roller L. Treating sleep disorders. *Austral J Pharm.* 2002; 83: 443–7
2. National Institute of Health. National Center on Sleep Disorder Research. 2003. http://www.nhlbi.nih.gov/health/prof/sleep/res_plan/sleep-rplan.pdf
3. Gaultney IF. The prevalence of sleep disorders in college students: impact on academic performance. *J Am Coll Health*. 2010; 59(2):91-7.
4. ForquerLM, Camden AE, Gabriau KM, et al. Sleep patterns of college students at a public university. *J Am Coll Health.* 2008; 56(5):563-5.
5. Kloss JD, Nash CO, Horsey SE, et al. The delivery of behavioral sleep medicine to college students. *J Adolesc Health*. 2011; 48(6):553-61.
6. Abdulghani HM, Alrowais NA, Bin-saad NS. et al. Sleep disorder among medical students: relationship to their academic performance. *Med Teach*. 2012. 2013;34 (Suppl 1):S37-41
7. Johns M, Hocking B. Daytime sleepiness and sleep habits of Australian workers. *Sleep.* 1997; 20(10): 844–849
8. Rodigues RND, Viega SCAA, Esilva AAA, Tavares P. Daytime sleepiness academic performance in medical students. *Avg Neuropsiquiatr*. 2002; 60(1): 6–11