

Sleep pattern and dozing chance among university students

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ABSTRACT

Background: Sleep is defined as a naturally occurring state of the body within a relatively inhibited sensory activity, reduced metabolic rate and decreased interaction with the surrounding. Impaired sleep affects students' productivity, this area is not fully covered in the literature. **Objectives:** To assess sleep patterns and dozing chance among university students. **Methods:** Institutional based cross-sectional study, a sample of 145 male university students from Almaarefa University aged between 19 and 27 years old, chosen randomly. A self-administered questionnaire developed specifically for this study after consulting literature and epidemiologist. It includes data about the Epworth Sleepiness scale and GPA. Data were analyzed using (SPSS, version 22.0) and (P values of ≤ 0.05) considered significant. The consent was obtained before data collection. **Results:** The majority of respondents (62, 1%) reported sleeping time of 5-8 hours per night. To fall asleep at night 13, 1% of participants indicated needing soporific. Overall, only 36, 6% of students showed good sleep behaviors. Among respondents (44, 1%) had moderate chances of dozing and 2, 8% had high chances of dozing. There was no significant statistical relationship between academic performance and bedtime (P -value = 0,231). **Conclusion:** The majority of respondents had poor sleep quality and moderate to high dosing chance, also, most of the participants go to bed after midnight. In addition, one fifth of participants reported sleeping less than 8 hour per day.

Keywords: Sleep quality, Sleep disturbance, Adolescence, Stress; Mood, College students

Introduction

Background

Poor sleep quality is associated with numerous mental health concerns and poorer overall physical health. Sleep disturbances are commonly reported by public safety personnel (PSP) and May contribute to the risk of developing mental disorders or exacerbate mental disorder symptoms.^[1] Based on available data,

it appears that sleep disorders are prevalent among Saudis, and the demand for sleep medicine service is expected to rise significantly in the near future. Awareness about sleep disorders and their serious consequences is low among health care workers, health care authorities, insurance companies and the general public. A major challenge for the future is penetrating the educational system at all levels to demonstrate the high prevalence and serious consequences of sleep disorders. To attain adequate numbers of staff and facilities, the education and training of health care professionals at the level of sleep medicine specialists and sleep technologists is another important challenge that faces the specialty.^[2] Primary sleep disorders include those not attributable to another medical or psychiatric condition: insomnia disorder,

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hyper somnolence disorder, narcolepsy, obstructive sleep apnea hypopnea syndrome, central sleep apnea syndrome.^[3] Sleep disorders are common and may result in significant morbidity. Examples of the major sleep disturbances in primary care practice include insomnia; sleep-disordered breathing, such as obstructive sleep apnea; central nervous system hypersomnia, including narcolepsy; circadian rhythm sleep disturbances; parasomnias, such as REM sleep behavior disorder; and sleep-related movement disorders, including restless legs syndrome. Diagnosis is based on meticulous inventory of the clinical history and careful physical examination. It is important to recognize these disorders and be comfortable treating them or to know when to refer to a sleep disorders center and sleep specialist.^[4] Excessive daytime sleepiness is a significant public health concern since it is associated with cognitive impairment, automobile accidents, injuries, medical errors, and lost productivity.^[5] This research aims to identify the sleeping patterns of medical students in Almaarefa University.

Methodology

Institutional based cross sectional study. Conducted among University students of Almaarefa University in Riyadh (KSA), Inclusion criteria were male students. 145 male students enrolled in the study and chosen randomly. Data collected using questionnaire which contains data about (Epworth Sleepiness Scale and GPA) it was a pretested, preceded and self-administered questionnaire developed for the purpose of this study after consulting literature and epidemiologist, it was subjected to a probe to test for reliability and validity. In data collection method the questionnaire was distributed in the classes. The data were analyzed using SPSS version 22 and *P* value of 0.05 was considered significant. Consent obtained before data collection.

Results

Demographics of the studied subjects

Table 1 shows the attributes of the study sample. Subjects were 145 Almaarefa male students. Most respondents 81 (55.9%) between 19 and 22 years old, while 58 (40%) were 22-24 years old and 6 (4.1%) were 25-27 years old. 25.4% of participants were in 7th level (23.4%), while 21.4%, 13.1%, 11%, 10.3%, 8.3%, 6.9%, 1.4% and 0.7% of students were in 9th, 5th, 6th, 11th, 4th, 3rd, 12th and 10th level respectively.

Epworth: Dozing chances

Table 2 shows the distribution of participants by dozing chances. 31% of respondents, showed no dozing chance and 22.1% showed slight dozing chance, while 44.1% of the study group had moderate chance of dozing off and 2.8% had high chances of falling asleep.

Table 3 shows the sleep patterns of the students overall sample. The daily sleep duration of the majority of

Table 1: Socio-demographic characteristics of the study

Group	Frequency	
	Frequency	Percentage
Age		
19-22	81	55.9
22-24	58	40.0
25-27	6	4.1
Total	145	100
Education Levels		
Levels 3	10	6.9
Levels 4	12	8.3
Levels 5	19	13.1
Levels 6	16	11.0
Levels 7	34	23.4
Levels 8	5	3.4
Levels 9	31	21.4
Levels 10	1	0.7
Levels 11	15	10.3
Levels 12	2	1.4
Total	145	100

Table 2: Distribution of study students by dozing chances

Chance of dosing	Frequency	Percentage
No chance (0-7)	45	31.0
Slight chance (8-9)	32	22.1
Moderate chance (10-15)	64	44.1
High chance (16-24)	4	2.8
Total	145	100.0

students (62, 1%) was between 5 and 8 hours, while 17.9% reported sleeping less than 5 hours daily and 20% more than 8 hours of sleep per night. Almost the half of participants (51.7%) mentioned sleeping after 12 pm, where 39.3% reported a daily sleep time between 8 pm and 12 pm and a minority with 9% reported going to bed before 10 pm. Among students, the majority (56.6%) do not sleep continuously. Also most of them (62.8%) said that it took them more than 20 minutes to fall asleep. A high proportion of students (60%) were unable to wake up quickly and easily in the morning compared to 40% of them who were active in the morning. Of respondents, close to half (49.7%) affirmed being bothered by external influences before and during their sleep period and also about the half (48.3%) reported finding difficulty going back to sleep when they wake at night. Also, 78.6% of students reported no frequent nightmares, 21.4% of them reported suffering from frequent ones. Furthermore, we also found that, to fall asleep, 13.1% of participants indicated needing soporific (pharmaceuticals, alcohol, or other drugs) compared to a proportion of 86.9% who did not need them.

Table 4 shows that overall, only 36.6% of students showed good sleep behaviors, while the majority (63.4%) adopted inadequate sleep behaviors [Table 4].

Table 3: Distribution of sample by sleep patterns

	Frequency	Percentage
<5 h	26	17,9
Between 5 and 8 h	90	62,1
more than 8 hours	29	20,0
Total	145	100,0
When do you sleep?		
Between 8-12 pm	57	48,3
After 12 pm	75	51,7
Total	145	100,0
Do you sleep continuously?		
YES	61	42,1
NO	82	56,6
3	2	1,4
Total	145	100,0
Would it take for you to fall asleep?		
From 10 to 20 min	52	35,9
More than 20 min	91	62,8
3	2	1,4
Total	145	100,0
Usually you wake up quickly and easily in the morning?		
Yes	58	40,0
No	87	60,0
Total	145	100,0
Are you bothered by outside light, noise, other individuals, or animals before and during your sleep period?		
Yes	72	49,7
No	73	50,3
Total	145	100,0
If you wake at night, do you have trouble going back to sleep?		
Yes	70	48,3
No	75	51,7
Total	145	100,0
Do you have frequent nightmares?		
Yes	31	21,4
No	114	78,6
Total	145	100,0
To fall asleep at night, do you need pharmaceuticals, alcohol, or other drugs?		
Yes	19	13,1
No	126	86,9
Total	145	100,0

Table 4: Distribution of sample by quality of sleep

Sleep hygiene	Frequency	Percentage
Poor sleep hygiene	92	63,4
Good sleep hygiene	53	36,6
Total	145	100,0

Table 5 shows the relation between dozing chance and GPA. High chance of dozing (75%) is likely to be observed in students with higher GPA (3-4). However no statistically significant relation was found since P value = 0.231.

Relation between dozing and academic performance

Table 6 shows that High and moderate chances of dozing are likely to be more frequent among students who sleep after 12 pm. Still, bed time was not found statistically related with dozing P value = 0.234.

Discussion

This study illustrates dozing chances using the Epworth Sleeping Scale. Based on an Epworth score ≥ 10 , the present study showed that almost half of students were considered to have excessive daytime sleepiness (EDS). In study in Libya, (2012),^[6] a smaller percent of students had a score >10 , considered as quite possibly underestimated after examining the actigraph records, while a study conducted in Riyadh (2005)^[7] showed that nearly the quarter of subjects were considered to have EDS. Students who had no chance to experience sleepiness presented very similar proportion to the results of Iranian study (2008).^[8]

Sleep habits

Herein, most participants in this study reported sleeping between 5 to 8 hours/night, which is comparable to the mean sleep duration in Lebanese university students ($6,67 \pm 1,6$ hours) and the total sleep time (6h and 40 min) reported.^[9]

In addition to reduced sleep-time, the majority of surveyed students have also reported late sleep-time at 12 pm. There were no significant association between sleep timing and daytime sleepiness. Counter to our results, Eliasson AH *et al.* have found that earlier sleep timing were significantly associated with higher performance while total sleep duration was not, USA (2010).^[10] More than half of students had woken up during the night suffering from sleep disturbance. Likewise, a near proportion was found by Yousef A. Taher *et al.*, Libya (2012).^[6] To fall asleep, a large proportion of studied participants took more than 20 min of going to bed. Similarly, Shafika Assaad *et al.* revealed that about the two fifth of students took 30 minutes trying to sleep, Lebanon (2014).^[9] the use of other substances could be underestimated due to consumption denial, Libya (2012).^[6] Among students that have night waking, about the half reported difficulty going back to sleep. Results revealed also that a number of students had frequent nightmares. Most surveyed students in our study complained about difficulty in waking up in the morning.

The exact origin of poor sleepiness in students seems difficult to determine because of the presence of several possibly incremented factors such as use of stimulants, psycho-stimulants, surfing in the internet, wide napping practice.... Findings of this study indicate that around half of students were bothered by outside light, noise, other individuals, or animals before and during the sleep period. Also as an explanation for poor sleeping quality, studied young men mentioned the consumed medications, having bothersome snoring during sleep or suffering

Table 5: Relation between dozing and academic performance

			GPA			Total
			4-Mar	2.5-3	Under 2.5	
Chance of dosing	No chance	Count	16	17	12	45
		% within Chance of dosing	35,6%	37,8%	26,7%	100,0%
	Slight chance	Count	14	13	5	32
		% within Chance of dosing	43,8%	40,6%	15,6%	100,0%
	Moderate chance	Count	23	33	8	64
		% within Chance of dosing	35,9%	51,6%	12,5%	100,0%
	High chance	Count	3	0	1	4
		% within Chance of dosing	75,0%	0,0%	25,0%	100,0%
Total	Count	56	63	26	145	
	% within Chance of dosing	38,6%	43,4%	17,9%	100,0%	

P=0,231

Table 6: Relation between dozing and bed time

			When do you sleep			Total
			Before 10 pm	Between 20-12 pm	After 12 pm	
Chance of dosing	No chance	Count	5	13	27	45
		% within Chance of dosing	11,1%	28,9%	60,0%	100,0%
	Slight chance	Count	3	16	13	32
		% within Chance of dosing	9,4%	50,0%	40,6%	100,0%
	Moderate chance	Count	5	28	31	64
		% within Chance of dosing	7,8%	43,8%	48,4%	100,0%
	High chance	Count	0	0	4	4
		% within Chance of dosing	0,0%	0,0%	100,0%	100,0%
Total	Count	13	57	75	145	
	% within Chance of dosing	9,0%	39,3%	51,7%	100,0%	

P=0,234

from a certain disease. Inadequate sleep hygiene could also lead to sleep deprivation, almost third of surveyed students reported consuming caffeinated beverages before sleeping. Shelley D Hershner and Ronald D Chervin insisted on the insomniac caffeine effect even if it was taken in the afternoon, present in coffee or in energy drinks it was reported as the principle responsible for over energy, Detroit (2004).^[11] In order to increase their vigilance, out of 305 Saudi medical students, a high proportion consumed daily caffeinated beverages and up to 4 cups per day in thirteen percent of cases, Switzerland (Basel, 2012).^[6] As it was mentioned, some students have used alcohol or other drugs as sleep aid, while occidental college students showed much higher consumption in both genders, Detroit (2004).^[11] However, later in the night alcohol could cause discontinuous sleep, Detroit (2004).^[11]

Most students have moderate academic grades (2,5-3), however in our study there was no significant relation with daytime sleepiness ($P > 0,05$). Lowry *et al.* have found that poor sleep quality was strongly associated with GPA and could lead to serious side effects, USA (Minnesota, 2010).^[12] Among pharmacy students, Marshall E. Cates *et al.* were able to highlight this association, they found that lower academic performance (2-2,99) was related to sleep deprivation, USA (2015).^[13]

Limitation of this study is that students' sleep problems may be underestimated due to social desirability bias that may have touched the reported responses. Furthermore, the survey was carried out on specific population from one City in the country and thus our results may not be consistent with general sleep patterns and dozing chance among students in universities in Saudi Arabia.

Conclusion

The majority of respondents had poor sleep quality and moderate to high dosing chance, also, most of the participants go to bed after midnight. In addition, one fifth of participants reported sleeping less than 8 hour per day.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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