

Sleeping Disturbances among University Students, Qassim University, Saudi Arabia

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ABSTRACT

Background: Sleep quality is very important than depression for student's academic performance. Sleep problems may be four to six times more prevalent than depression in the college student population.

Objectives: To examine the relationship between sleep deprivation, sleep quality, and academic performance among college students in Qassim University, Saudi Arabia.

Subjects and Methods: This cross-sectional study was conducted among Qassim university students in Kingdom of Saudi Arabia (males and females) in the following colleges; medicine, pharmacy, computer science, preparatory year, and business managing. Data were collected through a questionnaire that contained questions regarding sleep deprivation, sleep quality, and academic performance among students.

Results: The study included 250 students, equally distributed between colleges and gender. It is obvious that 59.7% of those satisfied with sleep had >7 hours of sleeping and 35.1% of those dissatisfied with sleep had <4 hours duration of sleep, $p < 0.001$. There was a statistically significant association between attending all classes and duration of sleeping, $p = 0.009$. More than half of them (55.5%) sleep on the average

between 4 and 7 hours/day. Majority of them (86%) change their sleep pattern during holidays. Only 73.2% reported sleeping very early and almost half of them (50.4%) sleep very late. Insomnia as self-reported was mentioned by 30.4% of the students. There was no significant association between duration of sleeping and changing sleep pattern during exams from one side and academic performance from the other side.

Keywords: Insomnia, GPA, University Students, Sleep Disorders.

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INTRODUCTION

Sleep is essential to the body and its functions, promoting bodily rest and rejuvenation in the neurons and other cells that are replaced or repaired during times of sleep. Sleep has also been proposed to conserve energy, detoxify the brain, and control thermoregulation within the brain.¹ Since sleep is so essential to the human body, scientists recommend approximately eight hours of sleep a night to promote efficient performance and thinking.² On the other hand, few people receive the sleep that the body needs, and ultimately sleep deprivation affects a significant portion of the population, ranging from shift workers, military personnel, or college students.³

Sleep deprivation refers to a condition of lacking the necessary amount of sleep. It can negatively impact people's health not only physically, but also mentally and socially.⁴ Unfortunately, this issue is often neglected due to the high expectations and enormous demands of today's society.⁵ When students arrive at college their sleep habits are often one of their first daily routines

to change and not usually for the better.⁶ College students typically shift to an irregular sleep-wake cycle characterized by short sleep length on weekdays and phase delays on weekends, although this general pattern is influenced by an individual's study and work schedules.⁷ Not surprisingly then, both sleep deprivation and poor sleep quality are particularly prominent in young adult and college student populations.⁸ Sleep quality may even be more important than depression and psychopathy for academic performance.⁹ Taken together these research studies suggest that sleep problems may be four to six times more prevalent than depression in the college student population.¹⁰ To compound matters, many students are themselves unaware that their academic difficulties may be related to their sleep habits.¹¹ The current study was carried out to examine the relationship between sleep deprivation, sleep quality, and academic performance among college students in Qassim University, Saudi Arabia.

SUBJECTS AND METHODS

This cross-sectional study was conducted among Qassim university students in Kingdom of Saudi Arabia (males and females) in the following colleges; medicine, pharmacy, computer science, preparatory year, and business managing. Qassim University is located in Buraydah city, having about 40000 students and 3500 faculty and staff. The questionnaires were distributed among the participants (250 students), 50 students from each college as 25 males and 25 females.

Data were collected through a questionnaire that contained questions regarding sleep deprivation, sleep quality, and academic performance among students. Participation was completely voluntary and consents were received prior to data collection. Information on the participants' sleep quality was collected from the participants' self-evaluation on the amount of average sleep received per night. Participants were also asked if they were satisfied with the amount of sleep they received on average. Demographic questions included gender, grade, age, and smoking habits. In addition, information on academic performance was collected.

To avoid ambiguity, the directions on the questionnaires are phrased as clearly and directly as possible. However, when asked to give a specific number of hours of sleep per night, some students may provide a range of hours instead of a specific number. In such cases, the midpoint of the range is used in the analyses. All analyses were conducted using SPSS program, version 22.

RESULTS

The study included 250 students, equally distributed between colleges and gender.

Table 1 summarizes factors associated with average sleeping duration among the students. It is obvious that 59.7% of those satisfied with sleep had >7 hours of sleeping and 35.1% of those dissatisfied with sleep had <4 hours duration of sleep, $p<0.001$. There was a statistically significant association between attending all classes and duration of sleeping, $p=0.009$. Other studied factors (gender, college, using drugs to get sleep, main sleep time, having difficulties to concentrate in classes, living status, and working outside the university) were not significantly associated with sleeping duration.

Table 2 summarizes sleep characteristics among the participants. More than half of them (55.5%) sleep on the average between 4 and 7 hours/day. Majority of them (86%) change their sleep pattern during holidays. Only 73.2% reported sleeping very early and almost half of them (50.4%) sleep very late. Insomnia as self-reported was mentioned by 30.4% of the students. Almost one-third of them (34.4%, 34.8%), and 11.2% felt tired on walk up, having difficulty in walking up and having nightmares, respectively. Having continuous sleep was reported by only 22% of the students.

It is evident from table 3 that there was no significant association between duration of sleeping and changing sleep pattern during exams from one side and academic performance from the other side.

Table 1: Factors associated with sleeping duration among Qassim university students, Saudi Arabia.

Variables	Categories	Sleeping duration (hours)			p-value
		<4 N=36 N (%)	4-7 N=139 N (%)	>7 N=75 N (%)	
Gender	Male (n=125)	19 (15.2)	72 (57.6)	34 (27.2)	0.624
	Female (n=125)	17 (13.6)	67 (53.6)	41 (32.8)	
College	Computer science (n=50)	3 (6.0)	30 (60.0)	17 (34.0)	0.624
	Economics/administration (n=50)	8 (16.0)	24 (48.0)	18 (36.0)	
	Medicine (n=50)	7 (14.0)	28 (56.0)	15 (30.0)	
	Pharmacy (n=50)	10 (20.0)	28 (56.0)	12 (24.0)	
	Preparatory program (n=50)	8 (16.0)	29 (58.0)	13 (26.0)	
Using drugs to get sleep	No (n=185)	27 (14.6)	103 (55.7)	55 (29.7)	0.997
	Often (n=19)	3 (15.8)	10 (52.6)	6 (31.6)	
	Sometimes (n=44)	6 (13.6)	26 (54.5)	14 (31.9)	
Satisfaction with sleeping	Satisfied (n=62)	0 (0.0)	25 (40.3)	37 (59.7)	<0.001
	To some extent (n=131)	16 (12.2)	84 (64.1)	31 (23.7)	
	Dissatisfied (n=57)	20 (35.1)	30 (52.6)	7 (12.3)	
Main sleeping time	Day (n=90)	17 (18.9)	46 (11.1)	27 (30.0)	0.073
	Night (n=160)	45 (28.1)	85 (53.1)	30 (18.8)	
Having difficulties to concentrate during lectures	No (n=34)	6 (17.6)	17 (50.0)	11 (32.4)	0.725
	Often (n=50)	9 (18.0)	29 (58.0)	12 (24.0)	
	Sometimes (n=166)	21 (12.7)	93 (56.0)	52 (31.3)	
Attending all classes	Sometimes (n=107)	7 (6.5)	64 (59.8)	36 (33.6)	0.009
	Yes (n=143)	29 (20.3)	75 (52.4)	39 (27.3)	
Living status	Alone (n=12)	1 (8.3)	4 (33.3)	7 (58.4)	0.143
	With family (n=227)	33 (14.5)	131 (57.7)	63 (27.8)	
	With friends (n=11)	2 (18.2)	4 (36.4)	5 (45.4)	
Working outside the university	No (n=231)	34 (14.7)	130 (56.3)	67 (29.0)	0.480
	Yes (n=19)	2 (10.5)	9 (47.4)	8 (42.1)	

Table 2: Sleeping quality among Qassim university students, Saudi Arabia

Sleep characteristics		Frequency	Percentage
Sleeping duration (hours)	<4	36	15.5
	4-7	139	55.5
	>7	75	30.0
Changing sleep pattern during holidays	No	35	14.0
	Yes	215	86.0
Sleep very early	No	232	92.8
	Yes	18	7.2
Sleep very late	No	124	49.6
	Yes	126	50.4
Having insomnia	No	174	69.6
	Yes	76	30.4
Feeling tired on waking up	No	164	65.6
	Yes	86	34.4
Having nightmares	No	222	88.8
	Yes	28	11.2
Having continuous sleep	No	195	78.0
	Yes	55	22.0
Having difficulty in waking up in the morning	No	163	65.2
	Yes	87	34.8

Table 3: Association between Academic performance and some sleeping characteristic among Qassim university students, Saudi Arabia

		GPA				p-value
		<3 N=47 N (%)	3-<4 N=78 N (%)	4-4.5 N=55 N (%)	>4.5 N=70 N (%)	
Duration of sleeping (hours)	<4	3	14	8	11	0.243
	4-7	30	38	27	44	
	>7	14	26	20	15	
Changing sleeping pattern during exams	No	13	22	9	16	0.406
	Yes	34	56	46	54	

DISCUSSION

In the present study, academic performance as measured by course grades and semester GPA was not significantly associated with duration of sleep or changing sleep pattern during exams. Other studies reported that both inadequate and adequate sleep pattern were significantly related to academic performance.^{12,13} Medeiros et al observed that medical students who reported sleeping for longer durations obtained higher scores on examinations.¹⁴ Veldi et al reported that sleep behaviors were associated with academic progression.¹⁵

It has been reported that sleeping more than seven hours per day for adults is essential for optimum health and well-being.¹⁶ Inadequate sleep is a public health problem, and having adequate sleep was critical enough to be an objective by Healthy People 2020 to improve national health.¹⁷

In the present study, only 30% of university students reported sleeping for more than 7 hours/day. Zeek et al.¹⁸ reported that the majority of student of pharmacy slept less than the recommended duration for adequate sleep.

In the current study, majority of the students change their sleeping pattern during holidays. The same has been reported by Lund et al.¹⁹ in their study carried out among college students in USA.

The consequences of sleep inadequacies among participants in the present study included, tiredness upon waking, having interrupted sleep and excessive sleepiness during study time and

class time. Quite similar results have been reported among college students in Nigeria.¹²

Perez-Lloret et al. in their study on adolescents' performance in mathematics and literature coursework reported that shorter duration of sleep was associated with poor performance.²⁰ The causal relationship between sleep duration and academic performance cannot be established in the present study because of the nature of the cross-sectional study.

It is hypothesized that longer sleep duration would lead to better academic performance based on the scientific foundation related to the effect of sleep on cognitive performance. Sleep has an integral role in learning and memory consolidation. Sleep is necessary to form synapses between dendritic branches that allow for memory formation of learned information, thus enabling students to recall information more rapidly and for more prolonged time periods.^{21,22}

Among important limitations of the present study, we did not compare sleep problems according to gender and college. There was a potential for recall bias as we asked participants to recall grades received and sleep pattern over a last period. Generalizability of results over other universities in the Kingdom of Saudi Arabia is questionable.

Conclusively, this study demonstrates that insufficient sleep and irregular sleep-wake patterns and insomnia are common problems

among Qassim university students in Saudi Arabia. However, academic performance is not related to duration of sleeping or changing sleep pattern during exams. We recommended conduction of interventional programs for importance of sleep and avoiding sleep disturbance among this vulnerable group.

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