

Sleep Quality and Academic Performance of Nursing Students

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Abstract: Quality of sleep is one of the important elements of the learning process and memory. However, sleep problems are prominent among college students, which could affect their academic performance. The aim of this study was to identify the association between quality of sleep and its impact towards academic performance among nursing students at the Faculty of Nursing in International Islamic University, Malaysia (IIUM). A quantitative, cross-sectional study was conducted in the Faculty of Nursing at Jalan Hospital Campus. There were 105 nursing students involved as participants and they were selected by using the convenience sampling method. The questionnaires consisted of three parts; Socio-demographic (age, gender, level of study and participation in extracurricular activities), Pittsburgh Sleep Quality Index (PSQI) and Academic performance (GPA). About 48.6% out of a total of 105 nursing students had a PSQI score of five and more which means 'good sleep quality' and 51.4% had a score of less than 5 which means 'poor sleep quality'. The result showed that there was a significant association between sleep quality and academic performance. The findings provide information regarding sleep quality of students in the Faculty of Nursing and its impact towards academic performance. Thus, it is recommended for responsible parties to design and implement appropriate interventions to improve sleep quality for academic performance enhancement.

Keywords: Sleep quality, nursing students, academic performance, socio-demographic

I. Introduction

Sleep is a critical part of maintaining the overall health, especially to college students as it not only gives body chance to rest, but it also plays an important role in learning process⁶. Cognitive performance was also significantly affected by sleep quality and was influenced by several factors such as stress¹. Besides, the majority of college students experienced sleep deprivation due to lack of sleep during the night and poor sleep quality². Most of the students tend to stay up late into the night to accomplish their tasks as they did their best to prepare for a competitive future and the result they forgo getting enough sleep²⁰. Changes in sleeping pattern may affect one's sleep quality later on. Then, it will impair the ability of the students to pay attention in classes and cause excessive daytime sleepiness^{7, 11}. This will affect the academic performance of the students since it impairs their abilities to focus and learn. However, other aspects such as achievement motivation and attendance could also be the underlying reasons for poor academic performance. Therefore, the purpose of this study was to explore the association of sleep deprivation and the academic performance of students. College students often shift to irregular sleep-wake cycle due to academic demands and schedules⁹. So, both sleep deprivation and poor sleep quality were particularly prominent in young adult and college student populations. Besides that, insufficient sleep during night lead to sleepiness during the daytime which associated with worse performance as sleep deprivation reduces necessary overnight brain activity that is needed for neurocognitive functioning¹¹.

An additional concern was the association between sleep quality and socio-demographic data which could be the contributing factors for this problem such as age, gender, level of study and participation in extracurricular activities. Moreover, there was a lack of research conducted in Malaysia concerning the quality of sleep among nursing students and the impacts towards their academic performance. Sleep loss is a remarkable problem among college students because they always need to meet up with deadlines. So, the aim of this study was to find out the association of sleep quality and students' academic performance of the Faculty of Nursing at IIUM Kuantan. Nursing students learn and have high knowledge about health also perceived sleep disturbance as an academic threat and health concern¹⁴. However, they often suffer from sleep loss in order to stay up to do their coursework⁶. Hence, nursing institutional education and responsible parties have to plan for specific interventions in order to improve students' health problem concerning sleep quality. For students, this study might help them more aware the importance of getting enough sleep for their academic performance. Nursing students are the future of nursing profession which their health and well-being will play important role in the quality of nursing service in the future.

II. Materials and Method

A quantitative cross-sectional study design, conducted at the Faculty of Nursing at International Islamic University Malaysia, Kuantan Campus involved 105 participants who were selected by using the convenience sampling method. Questionnaires involving three parts; socio-demographic data, Pittsburgh Sleep Quality Index (PQSI) and Academic performance (GPA) were used as research instruments. The reliability of this study was measured by adopting questionnaire developed by Buysse, Reynolds, Monk, Berman and Kupfer (1989) named Pittsburgh Sleep Quality Index (PQSI) and an overall reliability coefficient (Chronbach's Alpha) was 0.83. The Malay version was also adopted from Nursyuhada (2014) with Chronbach's Alpha, 0.721 in order to overcome language barriers in understanding the terms used in the instrument. Ethical clearance was obtained from the Faculty (Kulliyah) of Nursing Research Committee (KNRC), IIUM Research Ethics Committee (IREC) and the Deputy Dean of Student Affairs (DDSA) of the Faculty of Nursing. Data was analyzed into descriptive and analytical analysis by using IBM statistical Package Social Sciences (SPSS) version 20. The associations of the variables were evaluated by using Chi Square with *p* value that less than 0.05.

III. Results

A study was conducted among students Year 2, Year 3 and Year 4 Faculty (Kulliyah) of Nursing at IIUM Kuantan Campus. Out of 109, 105 students were responding, giving the response rate of 96.3%. Based on the data analysis, it showed the highest number of participants recorded as 62 (59%) was in the range of 22 to 23 years old, followed by 24 years old and above, 42 (40%) and only 1 (1%) recorded as age below than 22 years old. Then, the majority of the participants were female consist of 86 (81.9%) whereas the male consist of 19 (18.1%). Next, level of study that is involved in this study reported that 35 (33.3%) from Year 2, 32 (30.5%) from Year 3 and 38 (36.2%) from Year 4. In terms of participation in extracurricular activities which means involvement in Kulliyah's societies or organizations, participate in the activities of the college or involved in volunteer programs, 48 (45.7%) of participants were recorded as active and majority, 57 (54.3%) were not active. The details were shown in Table 1.

Table I: Socio-demographic data

Items	Frequency (n)	Percentage (%)
Age:		
<22	1	1
22-23	62	59
24+	42	40
Gender:		
Male	19	18.1
Female	86	81.9
Level of study:		
Year 2	35	33.3
Year 3	32	30.5
Year 4	38	36.2
Extracurricular activities:		
Active	48	45.7
Not active	57	54.3

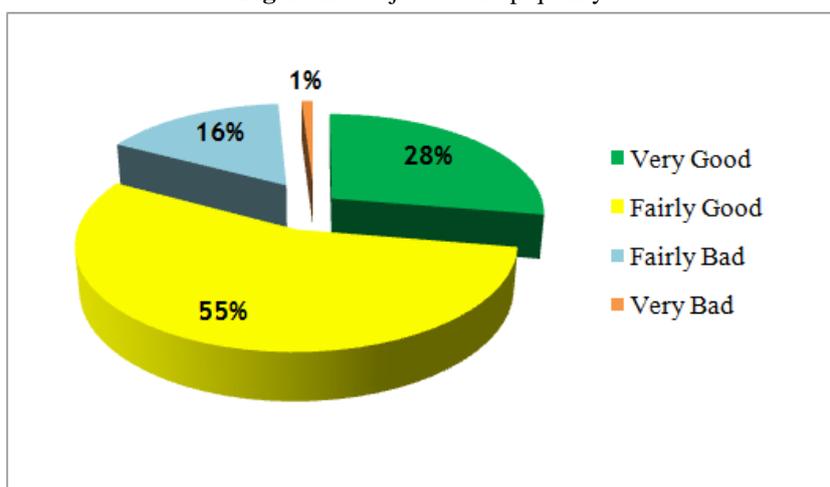
Sleep quality level was obtained from total Pittsburgh Sleep Quality Index (PSQI) global scores and was analyzed. Among 105 nursing students in IIUM Kuantan Campus, the results revealed that majority, 54 (51.4%) had poor sleep quality and the remaining, 51 (48.6%) belonged to those who had good sleep quality. This finding was shown in Table II.

Table II: Sleep quality of students

Items	Frequency (n)	Percentage (%)
Sleep quality:		
Good sleep	51	48.6
Poor sleep	54	51.4

Subjective Sleep Quality was participants' self-rated based on overall sleep quality during the past month. It is also one of the seven components included in the PSQI global score. Based on data analysis, the majority of the participants, 58 (55%) was rated their overall sleep quality as "Fairly Good". Meanwhile, the least percentage was 1% represented by one person rated had "Very Bad" sleep quality during the past month. The rest were rated their sleep quality as "Very Good" and "Fairly Bad" which recorded as 29 (28%) and 17 (16%) respectively. The percentage of this finding was presented in Pie Chart shown in Figure 1.

Figure 1: Subjective sleep quality



Academic performance of students was analyzed based on their Grade Point Average (GPA) of Semester 2, Session 2014/2015. GPA was divided into two categories, 3.0-4.0 (good performance) and <3.0 (poor performance). Based on the finding, most of the respondents performed well by getting GPA in the range of 3.0-4.0 which recorded as 66(62.9%), whereas the remaining, 39 (37.1%) got GPA <3.0 in examination for Semester 2, Session 2014/2015. The details were shown in Table III.

Table III: Academic performance of students

Items	Frequency (n)	Percentage (%)
GPA: 3.0-4.0	66	62.9
<3.0	39	37.1

Chi-Square was used to analyze the relationship of sleep quality and socio-demographic factors. The result showed that socio-demographic data did not affect the sleep quality excepted for level of study when association of both variables, sleep quality and level of study was significant, $X^2(2, N= 105) = 7.874, p<.05$. Regarding the relationship between sleep quality and academic performance of students, there was a significant association between these variables, $X^2(1, N=105) = 10.303, p<.05$. It was shown in Table IV.

Table IV: Association of sleep quality and academic performance

Items	Sleep quality		X^2	df	p value
	Good sleep (n=51)	Poor sleep (n=54)			
GPA: 3.0- 4.0	40	26	10.303 ^a	1	0.001
<3.0	11	28			

IV. Discussion

The results showed that percentage of poor sleep quality among the participants were higher than the good sleep quality similar to previous studies^{3,10} revealed that the majority of college students experienced poor sleep quality. This result may be influenced by environmental factors and the sleeping habits of college students such as late night study, excessive internet use and caffeine intake¹². In addition, intense academic demands among college students particularly nursing students cause they had the least amount of sleep^{6, 14}. Based on Subjective Sleep Quality which self-rated by participants, the results showed that during the past month majority of participants rated their overall sleep quality as “Fairly Good” This result was quite inconsistent with the result obtained from the PSQI global score which percentage of poor sleepers were higher than good sleepers. This is may be due to Subjective Sleep Quality was rated based on their own opinion.

According to results findings, the association between sleep quality and age showed no significant association similar with previous study done to Pharmacy students in India¹³. Other than that, age was also not a statistically significant correlate with sleep length or quality⁸. Second, the result of the association between sleep quality and gender in this study also showed no significant relationship between the variables. This finding was similar to one of the previous study which claimed that there was no correlation between genders and sleep

quality¹⁵. Although the majority of the participants of this study were female and most of them were good sleepers, the result showed no significant relationship in terms of gender. However, there was an association between sleep quality and gender since the results proved female students often had poor sleep quality¹⁶. Third, the association of sleep quality and level of study among nursing students of IIUM Kuantan Campus was analyzed and the results revealed that there was a significant relationship between these variables. This result was supported by previous studies which stated that majority of 11th or 12th grades sleep less than 6.5 hours during weekdays as compared to 9th grade and 10th grade¹⁷. In addition, due to an earlier rise time, freshman usually had shorter sleep times during the night differ from seniors who were found to have longer sleep latency and nap times⁶. This proved that level of study can also be the factors that influence the sleep quality. Next, the results of this present study of the association between sleep quality and participation in extracurricular activities was not significantly inconsistent with previous study which stated that students involved in extracurricular activities tend to tire upon awakening, sleepy during daytime and cutting on sleeping time¹⁹.

Last but not least, the main objective of this study was to analyze the correlation between sleep quality and academic performance of nursing students in IIUM Kuantan Campus. Thus, based on data analyzed, there was a significant association between these variables. Poor sleep quality was associated with lower academic performances, students in the lower GPA category reported having poor sleep quality⁵. College students in Ethiopia also showed similar finding and claimed that overall performance and concentration of poor sleepers will be affected since they have more difficulty of functioning during the day¹⁶. However, there were a few previous studies that contrary to this present result because there were several factors that can also affect the students' GPA more than sleep-related problems such as not studying or distractions from cell phones, games and television³. Besides, although excessive daytime sleepiness (EDS) can cause a tendency to fall asleep in class, there was no association between EDS and academic performance¹⁵.

V. Conclusion

These results highlight the importance of maintaining good sleep quality when promoting mental and physical health of adolescents as sleep problems can significantly impair students' academic performance. Thus, in order to increase awareness among students towards their sleep quality, sleep education is highly recommended. Lastly, students especially those who consistently face sleeping problems should get professional advices. Thus, students need to understand the role of sleep for better academic performance.

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