
Sleep Hygiene and Academic Achievement among University Students in Palestine

Mu'taz Dreidi ¹, Imad Asmar ²

1,2 Department of Nursing, Faculty of Pharmacy, Nursing and Health Professions, Birzeit University, Palestine, P.O. Box 14, Birzeit, West Bank, Palestine; Tel: +970-597939954; Fax: +970-2-2982017; E-mail: iasmar@birzeit.edu

ABSTRACT

The aim of this research was to assess the level of sleep hygiene among the Palestinian universities' students. A cross-sectional design was used to approach a sample of 300 undergraduate students to participate in this study from three different Palestinian universities in Palestine. They were given the demographic and the sleep hygiene questionnaires to be self-administered. The results showed the mean for academic achievement was 75.7%. Regarding the sleep hygiene, the mean of total score was 79 ± 24 . The mean of the subscales was as follows: distress 57 ± 18 , sleep 11 ± 5.6 and the quality of sleep was 11.3 ± 4.5 . The results showed that there were significant differences in gender for distress and academic achievement ($p < 0.05$). The female students have more academic achievement and more distress compared with male students. There are also significant differences for the students who work compared with students who do not across academic achievement ($p = 0.002$) and sleep ($p = 0.047$). The current study showed a mild to moderate distress, and low sleep quality and hygiene. Despite that female student showed higher level of academic achievement than male students, they still have more distress. This study highlights the importance of this issue among university students especially that the undergraduate studies is the beginning of independence for those students from parenting supervision.

Keywords

Academic success, Quality of life, Sleep hygiene, Students

Introduction

Sleep is an important part of a healthy lifestyle since it is a part of the body cycle. Insufficient or poor sleep quality affects day-to-day well-being and increases the risk of developing health problems (Sleep Health Foundation n.d.). When people sleep enough; they get the energy to deal with demands of their daily lives. Sleep is a corner stone in biological source of resilience. The good quality of sleep at night helps faster physical, mental, and emotional resilience (Special Reports n.d.). Prolong sleep disturbance led to negative thinking, emotional vulnerability, depression, and anxiety (Germany 2004). Sleep duration and quality are both important for quality of life. They should be parallel with each other to get healthy sleeping. The quality of sleep has direct effect on waking behaviour, mood, and daytime activities (Singh et al. 2018). Daily, people are exposed to new information and activities. Sleep allows some down time and rest period to the brain to process all these activities to memorize, it is our memory storage. To make the memories available and accessible when it is needed, having enough sleep periods and patterns make efficient concentration, attention, creativity, academic achievement, and it

also assists to learn (Hudson, Van Dongen, and Honn 2020). Sleep disruptions or disorders have a variety of negative health implications, including fatigue, learning disabilities, memory loss, diminished awareness, productivity, and emotion control (King, Belenky, and Van Dongen 2009). Sleep deprivation not only affect physical aspects such as sleepiness, fatigue, and hypertension but also extends to cognitive impairment and mental health complications. Furthermore, it impacts negatively on one's ability to think, cope with stress, control impulses, and maintain a strong immune system (Germany 2004).

Literature Review

The technical meeting of WHO in Germany (2004) stated that the disturbed day could be described as a day after a night of abnormal sleep. People can fall asleep at work, in the streets, at school or when they are driving. They feel decreased of vigilance due to tiredness and this will affect their concentration, and this can lead to high probability of accidents or injury which could be harmful for the human being and for the society (Sleep and mental health - Harvard Health n.d.). Sleep hygiene is a habit of different

behaviours and practices that are believed to improve good night sleep quality and quantity. According to Cameron study (Brick, Seely, and Palermo 2010), there was association between sleep hygiene behaviours and sleep quality, despite student had appropriate sleep hygiene behaviours and similar sleep duration. However, 50.9% of student had poor sleep quality.

Sleep deprivation and depression are interconnected since poor sleep quality will affect the cognitive aspect of the person and will make him feel down which may lead to depression (Special Reports n.d.). In other words, having good sleep is associated with low depression. Poor sleep quality and period may increase the risk for developing mental illnesses and improving the sleep hygiene may help alleviate symptoms of the mental health problems. The treatment that is recommended for the most common sleep problems is related to lifestyle, physical activity, and sleep hygiene and others (Sleep and mental health - Harvard Health n.d.). One of the studies has conducted in 2017 in Malaysia among medical students showed that half of the students were found to be poor sleepers, and directly academic achievement is affected by poor sleep hygiene with male higher than female (Ngu et al. 2017). Another study was conducted among Nigerian undergraduate students in 2017 found that about one of two students had poor sleep quality. The academic performance of students with good sleep quality was significantly better than those with poor sleep quality and female students had better academic achievement than male students (Seun-Fadipe, Mosaku, and Mosaku 2017). Besides that, drowsiness and sleep loss are very common among universities students. Another research was performed in Saudi Arabia with 169 clinical stage medical students. According to the results, a higher proportion of students (83.4%) have low sleeping efficiency, which influences academic success. Female students were more likely to be affected (Juweed Alnomsi et al. 2018).

University education aims to enable and enhance the capabilities of university students to carry out their tasks independently to accomplish their tasks and this requires a high degree of vigilance, focus and this depends on adequate and comfortable sleep periods. Unfortunately, this scenario is not

always available, as it was noted in previous studies that sleep problems are widespread among university students and has a bad impact on concentration and achieving good rates and contradict one of the most important goals of higher education by producing productive and healthy adults in society (Schlarb, Friedrich, and Claßen 2017). Alnomsi and his colleagues (2017) mentioned in their study the causes and reasons of lack of ability to attain education, academic achievements and well performance are related to sleep disorder, poor quality and lack of sleep and their consequences on mental health, academic achievement, and well-being of college students (Juweed Alnomsi et al. 2018). Where Schlarb and her colleagues (2017), demonstrated that about two thirds of university students suffer from a low sleep quality, and 8% meet all criteria of an insomnia disorder. The authors stated that sleep problems have a great impact on the students' daily activity and their academic achievements (Ngu et al. 2017). Buboltz (2001) demonstrated that most of university students have roommates, 41% among them have an interrupted sleeping due to the noise of their roommates. The difference between roommates in waking up and sleeping make a challenge faced by university students and are associated with poor sleep quality (Buboltz, Brown, and Soper 2001). So far, there has been limited research and studies with limited evidence on the relationship between sleep characteristics and mental health among Palestinian universities students. It is important to estimate the prevalence of the problem and its impact to help to implement preventive measures to improve the academic achievement. The aim of this study was to assess the level of sleep hygiene among the Palestinian universities' students. The objectives of this study were to identify the differences between male and female students regarding sleep hygiene and assess the differences across the work status levels with sleep hygiene for Palestinian universities students.

Methods

Study Setting and Sample

This cross-sectional study was conducted in 3 universities in Palestine. The inclusion criteria

were all undergraduate university students. The study excluded any student who takes antidepressant drugs or sleeping pills. The total sample is 300 students. Self-administered questionnaires were used to gather data from participants. The survey was fully anonymous. The Institutional Review Boards of selected institutions gave their approvals to the procedures used in this report. The three universities in Palestine are situated in the north, east, and south of the West Bank.

Procedure

After taking the approval from ethical committee at the Faculty of Pharmacy, Nursing and Health professions at Birzeit University, data were collected during February and May /2020. After that, data collection begins by recruiting students to participate and fill out the questionnaire by explaining the purpose of the research and that their names will not be addressed, and their answers will be confidential. The participants were also informed that their participation is voluntary, and they can withdraw from the study at any time.

Methodology

There are 2 questionnaires that were used in this study. Demographic questionnaire includes variables such as gender, living place, marital status, work status, specialty, and academic achievement (GPA). The second questionnaire was taken from Pittsburgh Insomnia Rating Scale (PIRS) instrument. The PIRS was developed by the University of Pittsburgh, these questions assess sleep hygiene for students on the last week they passed before filling questionnaire, which contains 64 questions related to sleep hygiene (A Preliminary study of the test-retest reliability and concurrent validities of the Pittsburgh Insomnia Rating Scale (PIRS) | Request PDF n.d.). The PIRS is a summated rating scale divided into distress score, sleep parameters score, quality of life score and total score.

Data Analysis

SPSS software version 20 was used to analyse the data, and statistical significance were determined when $p < 0.05$. Mean, standard deviation, and

frequencies were used to display the descriptive statistics. Inferential statistics (i.e., t-test and ANOVA) were used to determine if there is significant difference between gender and work status levels with sleep hygiene. Correlation coefficients were also run to identify the relationship between sleep hygiene and academic achievement.

Results

Three hundred students participated in this study. The results showed that male students represent 41% (n = 123) and female 59% (n = 177). Most of students do not work (78.3%, n = 235) and live with their families (82.3%, n = 246). The results showed also that the mean of the GPA is 75.75 ± 7.70 . Most participants come from faculties of art, health, and commerce with 21%, 21.3% and 20% respectively.

Table 1: Summary distribution of the study sample by their demographic data results (N = 300).

Variables	Frequency (n)	Percentage %	Mean	SD
Gender	300	100	—	—
Male	123	41		
Female	177	59		
Living place	300	100	—	—
With family	246	82.0		
With others	54	18.0		
Marital status	300	100	—	—
Single	286	95.3		
Married	11	3.7		
Divorced	2	0.7		
Widow	1	0.3		
Work status	300	100	—	—
Do not work	235	78.3		
Part-time job	50	16.7		
Full-time job	15	5		
Specialty	300	100	—	—
Faculty of art	63	21		
Faculty of law	29	9.7		
Faculty of health	64	21.3		
Faculty of engineering	50	16.7		
Faculty of science	28	9.3		
Faculty of commerce	60	20		
Faculty of journalism	6	2		
Academic achievement	—	—	.758	7.7

It was found that 70% of the students had distress, 66% had poor quality of life and 50% experience poor sleep. Moreover, the results showed that distress mean was 57 ± 18 . This indicates that a significant proportion of participants experience distress especially that the lowest score was 15. The Sleep mean was 11 ± 5.6 and the range was from 0 to 30. This indicates a mild to moderate

sleep disorder is found among the participants. In relation to the quality-of-life score, the mean was 11.3 ± 4.5 reflexing also a mild to moderate quality of life. The total score was 79 ± 24 with a maximum score was 151 out of 195.

Table 2: Pittsburgh Insomnia Rating Scale (N = 300).

Variables	Mean	SD	Min	Max
Distress	57.00	18.80	15	113
Sleep	11.00	5.60	0.00	30
Quality	11.3	4.50	1.00	23
Total score	79.21	24.40	24	151

The independent sample t-test was run to assess the differences between male and female regarding sleep, distress, quality of life and academic achievement. The results showed that significant differences were found between male and female across academic achievement ($t = -3.6$, $p < 0.001$) and distress ($t = -2.59$, $p = 0.01$). It is also found a significant difference between participants who live with family and who live with others in academic achievement ($t = -2.18$, $p = 0.031$). There were no significant differences in the other variables.

Table 3: T-test to assess the differences between male and female regarding sleep, distress, academic achievement, and quality of life (N = 300).

Variable	T	p-value
Sleep	1.801	0.073
Quality	-0.792	0.429
Distress	-2.587	0.010
Academic achievement	-3.625	0.000

A one-way ANOVA test was run to assess the differences in work status across the academic achievement, sleep, distress, and quality of life. The results showed that there were significant differences in work status in sleep ($f = 3.08$, $p = 0.047$) and academic achievement ($f = 6.55$, $p = 0.002$).

Table 4: ANOVA test to assess differences of work status across academic achievement, sleep, distress, quality (N = 300).

Variable	F	p-value
Sleep	3.082	0.047
Quality	1.453	0.235
Distress	0.241	0.786
Academic achievement	6.548	0.002

Discussions

In the present study, 70% of the Palestinian student universities had distress, 66% had poor quality of life due to sleep impairment, and 50% had poor sleep quality. There were no significant differences between the academic achievements and sleep hygiene, quality, or distress depending on the last week of the student's sleep cycle. The female student had higher academic achievement and more distress than male. The low to moderate sleep quality observed in the current study is similar to a study conducted in Malaysia among 210 pre-clinical medical students in university Putra mala (UPM) and University Malaga (UM). The study showed 50.8% of the students were found to be poor sleepers, and directly proportional with academic achievement (Ngu et al. 2017). Another study conducted in China among 6044 medical students reported poor sleep quality in almost one quarter of the participants. In the present study, females had better sleep quality than males.

Conclusion

In summary, poor sleep quality was moderately prevalent among Palestinian universities students. The findings of this study support the use of educational factors and interventions to help university students reduce maladaptive behaviors related to sleep, increase their sleep hygiene knowledge, and improve their quality of sleep. The high prevalence of improper sleep behaviors that affect the quality of sleep among university students and living outside the family zone and monitoring affect the quality of the students' sleep and daytime arousal and functioning and eventually devastating their academic achievement.

Limitations and Future Studies

In this study there are some limitations. The first one was the unavoidable selection bias due to cross-sectional design. The second one is the nonprobability sampling that may distort the results of the study due to the non-equal chance of being selected to be part of the study. The recommendations include but not limited to assess the resilience and assess its association with the quality of sleep in the future studies. Follow-up study may add valuable data that may explore more information about the impact of poor sleep on the physical, mental, and social aspects of university students' lives.

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References

- [1] Anon. n.d. "(5) Preliminary Study of the Test-Retest Reliability and Concurrent Validities of the Pittsburgh Insomnia Rating Scale (PIRS) | Request PDF." Retrieved March 20, 2021a (https://www.researchgate.net/publication/285699052_Preliminary_study_of_the_test-retest_reliability_and_concurrent_validities_of_the_Pittsburgh_Insomnia_Rating_Scale_PIRS).
- [2] Anon. n.d. "Sleep and Mental Health - Harvard Health." Retrieved March 20, 2021b(https://www.health.harvard.edu/newletter_article/sleep-and-mental-health).
- [3] Anon. n.d. "Sleep Health Foundation." Retrieved March 20, 2021c (<https://www.sleephealthfoundation.org.au/component/content/category/79-sleep-health-foundation.html>).
- [4] Anon. n.d. "Special Reports." Retrieved March 20, 2021d (<https://www.sleephealthfoundation.org.au/news/special-reports.html>).
- [5] Brick, Cameron A., Darbi L. Seely, and Tonya M. Palermo. 2010. "Association between Sleep Hygiene and Sleep Quality in Medical Students." *Behavioral Sleep Medicine* 8(2):113–21. doi: 10.1080/15402001003622925.
- [6] Buboltz, Walter C., Franklin Brown, and Barlow Soper. 2001. "Sleep Habits and Patterns of College Students: A Preliminary Study." *Journal of the American College Health Association* 50(3):131–35. doi: 10.1080/07448480109596017.
- [7] Germany, Bonn. 2004. WHO Technical Meeting on Sleep and Health.
- [8] Hudson, Amanda N., Hans P. A. Van Dongen, and Kimberly A. Honn. 2020. "Sleep Deprivation, Vigilant Attention, and Brain Function: A Review." *Neuropsychopharmacology* 45(1):21–30.
- [9] Juweed Alnomsi, Shelian, Khalid Saleh Albalawi, Omar Yarub Alali, Waled Mohammed Albalawi, Khalid Mohammed Albalawi, Wedyan Saleh Albalawi, and Hyder Osman Mirghani. 2018. "The Chronotype (Eveningness-Morningness) Effects on Academic Achievement among Medical Students in Tabuk City, Saudi Arabia." *The Egyptian Journal of Hospital Medicine* 71(7). doi: 10.12816/0047667.
- [10] King, Andrew C., Gregory Belenky, and Hans PA Van Dongen. 2009. "Performance Impairment Consequent to Sleep Loss: Determinants of Resistance and Susceptibility." *Current Opinion in Pulmonary Medicine* 15(6):559–64. doi: 10.1097/MCP.0b013e3283319aad.
- [11] Ngu, S. T., K. Masalamany, Abd Abd Manan, and N. Khadijah Adam. 2017. "Sleep Quality among Pre-Clinical Medical Students in University Putra Malaysia and University Malaya." *Malaysia. Education in Medicine Journal* 9(3):23–31. doi: 10.21315/eimj2017.9.3.3.
- [12] Schlarb, Angelika, Anja Friedrich, and Merle Claßen. 2017. "Sleep Problems in University Students – an Intervention." *Neuropsychiatric Disease and Treatment* Volume 13:1989–2001. doi: 10.2147/NDT.S142067.

- [13] Seun-Fadipe, Tobi, Kolawole Mosaku, and Kolawole Samuel Mosaku. 2017. "Sleep Quality and Academic Performance among Nigerian Undergraduate Students Attention Deficit in Chidren View Project Sleep Quality and Academic Performance among Nigerian Undergraduate Students." *J Syst Integr Neurosci* 3(5):1-6. doi: 10.15761/JSIN.1000179.
- [14] Singh, Ruchi, Jagdish C. Suri, Renuka Sharma, Tejas Suri, and Tulsi Adhikari. 2018. "Sleep Pattern of Adolescents in a School in Delhi, India: Impact on Their Mood and Academic Performance." *Indian Journal of Pediatrics* 85(10):841-48. doi: 10.1007/s12098-018-2647-7.