

Knowledge, Awareness, and Practice Regarding Sleep Quality and Sleep Hygiene Among UTHM Students

Izzhanani Huda Hilmi Iskandar¹, Iffah Irdina Saiful Hazmi¹, Adnin Afifi Nawi^{1*}, Siti Norziahidayu Amzee Zamri², Muhanizah Abdul Hamid³

¹ Department of Science and Mathematics, Centre for Diploma Studies, Universiti Tun Hussein Onn Malaysia, Pagoh Higher Education Hub, 84600 Pagoh, Johor, MALAYSIA

² UniSZA Science and Medicine Foundation Centre, Universiti Sultan Zainal Abidin, Kampus Gong Badak, 21300 Kuala Nerus, Terengganu, MALAYSIA

³ School of Mathematical Sciences, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, MALAYSIA

*Corresponding Author: adnin@uthm.edu.my

DOI: <https://doi.org/10.30880/mari.2024.00.00.000>

Article Info

Received: 01 September 2023

Accepted: 10 December 2023

Available online: 31 January 2024

Keywords

Sleep Quality, Sleep Hygiene, SPSS, University Student

Abstract

University students are mostly at risk for developing sleep disorders. Therefore, this study is conducted to assess and compare the knowledge, awareness, and practice levels of sleep quality and sleep hygiene between Year 1 and Year 2 diploma students in Universiti Tun Hussein Onn Malaysia, Campus Pagoh. This study also considers the relationship between knowledge, awareness, and practice levels of sleep quality and sleep hygiene. In this study, a cross-sectional survey was distributed to 130 diploma students using a Google Forms questionnaire. Data collected was analysed by using Statistical Package for Social Sciences (SPSS) version 27. The result shows that both Year 1 and Year 2 diploma students have a basic knowledge and awareness regarding to sleep quality and sleep hygiene but did not apply them in real life as a routine. Moreover, there is a weak positive correlation between practices of sleep quality and sleep hygiene, with a Pearson correlation of 0.188.

1. Introduction

Sleep is essential to the daily biological cycle that promotes health and optimal bodily function [1]. According to National Institute of Neurological Disorder and Stroke, sleep can be defined by both the individual's behavior while asleep and the physiological changes to the waking brain's electrical cycle that occur during sleep. Sleep is essential for a range of brain functions, including the connection between nerve cells that are known as neurons. Without sleep, the brain cannot develop or maintain neuronal pathways that enable learning and the formation of new memories, causing the individual to have a hard time focusing and reacting quickly [2].

Sleep is an indispensable component of daily life [2]. Sleep quality and sleep hygiene are two aspects that contribute to a good night's sleep. Sleep quality is described as a person's level of satisfaction with all aspects of their sleeping experience. Sleep efficiency, sleep latency, sleep length, and waking after sleep start are four attributes that can be used to assess sleep quality [3]. Meanwhile, sleep hygiene refers to healthy habits, behaviors, and environmental factors that can be modified to help a person sleep better. Some sleeping issues are frequently the result of improper sleep habits that have been perpetuated over years or even decades.

Changes will not result in better sleep right away. However, if proper sleeping habits are maintained, sleep will undoubtedly improve [4].

Sleep deprivation is a global health concern [5]. University students are one of the populations most at risk for developing sleep disorders, particularly those students who believe they get an appropriate amount of sleep, who are stressed out and concerned about their university responsibilities, and who have inconsistent work and sleep schedules [6].

With all that mentioned, this study came out with an initiative to investigate the knowledge, awareness, and practice levels of sleep hygiene and sleep quality among students in Universiti Tun Hussein Onn Malaysia (UTHM), Campus Pagoh. The objectives of this study are to assess and compare the knowledge, awareness and practice levels of sleep quality and sleep hygiene between Year 1 and Year 2 of diploma students, UTHM and to find the relation between knowledge, awareness and practice levels of sleep quality and sleep hygiene.

2. Materials and Methods

2.1 Study Design and Participants

A cross-sectional, web-based survey was carried out during the second part of the semester, when most students begin their hectic week. The survey questionnaires were distributed in UTHM Pagoh after the mid-semester break of semester 2, 2022/2023, during mid-May 2023. The survey questionnaires were filled out by a variety of students, regardless of their courses, but it was limited to Year 1 and Year 2 diploma students in UTHM Pagoh. The minimum target of participants was 100. However, the actual number of respondents for this study is 130 diploma students. This survey questionnaire was distributed informally promoting the survey on social media platforms consisting of WhatsApp, Telegram, and Instagram to various groups of students at UTHM Pagoh. The survey is made up of multiple-choice questions and "Yes or No" questions. The questionnaires are divided into five sections: demographic questions, knowledge and awareness of sleep quality, practices of sleep quality, knowledge and awareness of sleep hygiene, and practices of sleep hygiene. The questionnaires were created using Google Forms. The responses received were downloaded as an Excel file, which was then analysed with the Statistical Package for the Social Sciences (SPSS) program version 27.

2.2 Instruments

The questionnaire was developed to collect socio-demographic data (age, gender), the respondents' year of study, university courses studied, current GPA and CGPA, and current block at Pagoh Residential College. The knowledge and awareness of sleep quality, practices of sleep quality, knowledge and awareness of sleep hygiene, and practices of sleep hygiene were evaluated using Google Forms responses and analysed by percentage option in SPSS software.

2.2.1 Google Forms Questionnaire

This questionnaire is a self-report tool that assesses the level of awareness, knowledge and practice of sleep hygiene and sleep quality [7]. In order to assess the stated objectives, the questions regarding them were divided into four sections: knowledge and awareness of sleep quality, practices of sleep quality, knowledge and awareness of sleep hygiene, and practices of sleep hygiene respectively. The correct answers that indicate the level of awareness, knowledge and practice of sleep hygiene and sleep quality were set during the formation of the Google Forms questionnaire.

For questions regarding the knowledge and awareness of sleep quality and sleep hygiene, the students were asked to choose the answer based on their knowledge and opinion, and the correct answer that was set earlier indicates that the respondents have awareness and knowledge regarding sleep hygiene and sleep quality. The respondents were also asked to choose the answer based on their practices and daily routine for the past months to assess the level of practices of sleep quality and sleep hygiene.

2.3 Statistical Analysis

The data collected from the questionnaire were analysed statistically using SPSS software. By any measure, SPSS for Windows is a complex and powerful statistical program. IBM SPSS Windows version 27 has been used to analyse the data. Tables were constructed to produce the percentage for demographics, knowledge and awareness of sleep hygiene and sleep quality in order to achieve the first objectives of this case study. In addition, the correlation between knowledge and awareness of sleep quality and sleep hygiene and practices of sleep hygiene and sleep quality was assessed using Pearson's correlation to obtain the second objective.

3. Results and Discussion

The following are the results and discussion of knowledge, awareness, and practice regarding sleep hygiene and sleep quality among UTHM students.

3.1 Results

Table 1 shows the respondent's demographic data used to compare the level of knowledge, awareness, and practice levels of sleep hygiene and sleep quality between Year 1 and Year 2 of diploma students in UTHM.

Table 1 *Respondent Demographic*

		Count	Column N %
Age	17-19 years old	39	30.0
	20-22 years old	87	66.9
	22 years old and above	4	3.1
Gender	Male	35	26.9
	Female	95	73.1
Year of study	Year 1	43	33.1
	Year 2	87	66.9
Course	DAU	36	27.7
	DAK	9	6.9
	DAM	23	17.7
	DAE	12	9.2
	DAA	24	18.5
	DAG	1	0.8
	DAT	25	19.2
	Current GPA	3.67 and above	32
	2.67 - 3.66	92	70.8
	1.67 - 2.66	5	3.8
	1.66 and below	1	0.8
CGPA	3.67 and above	29	22.3
	2.67 - 3.66	95	73.1
	1.67 - 2.66	6	4.6
	1.66 and below	0	0.0

As shown in Table 1, the number of diploma students from Year 2 is greater than Year 1. A total of 87 students which is equivalent to 66.9% from Year 2, have answered the questionnaire compared to Year 1, with only 43 students, which corresponds to 33.1%. From Table 1, most of the respondents are from the course Applied Science, known as DAU, with 27.7%. Moreover, most of the students who answered this survey have GPA and CGPA values of 2.67 – 3.66, with 70.8% and 73.1%, respectively.

Table 2 *Knowledge and awareness level of sleep quality*

Statement		Year of Study			
		Year 1		Year 2	
		Count	Column N %	Count	Column N %
Enough sleep helps your body to optimise its function	Yes	41	97.7	86	98.9
	No	1	2.3	1	1.1
Seven or more hours of sleep is the optimum sleep duration	Yes	37	86.0	80	92.0
	No	6	14.0	7	8.0
Sleeping before 12 am gives	Yes	37	86.0	78	89.7

sufficient rest for the body	No	6	14.0	9	10.3
Often waking up while asleep	Yes	37	86.0	76	87.4
means you have poor sleep quality	No	6	14.0	11	12.6
Wanting to sleep more after awake	Yes	37	86.0	79	90.8
is a sign of poor sleep quality	No	6	14.0	8	9.2

Table 2 shows the differences in knowledge and awareness levels on sleep quality among diploma students of Year 1 and Year 2. Five statements were given in the questionnaire to assess the knowledge and awareness level of sleep quality. Each of the statements was required to choose either Yes or No. From Table 2, the majority of diploma students have agreed that enough sleep can help the body to optimise its function. This can be seen when both Year 1 and Year 2 have chosen the Yes answer with 97.75% from Year 1 and 98.9% from Year 2. This result indicates that both Year 1 and Year 2 have the basic knowledge and awareness regarding the benefits of sleep quality. On the other hand, the second statement stated that seven or more hours is the optimum sleep duration, which proves that Year 2 has better knowledge and awareness than Year 1 since the percentage of Year 2 who have answered Yes is 92% while Year 1 is 86%.

Table 3 Practices of sleep quality

Statement		Year of Study			
		Year 1		Year 2	
		Count	Column N %	Count	Column N %
During the past month, how many hours of actual sleep did you get at night?	7 hours and above	5	11.6	14	16.1
	5 - 6 hours	25	58.1	46	52.9
	3 - 4 hours	13	30.2	27	31.0
	2 hours and below	0	0.0	0	0.0
During the past month, how long does it take for you to fall asleep?	10 - 20 minutes	20	46.5	38	43.7
	21 - 31 minutes	8	18.6	17	19.5
	32 - 42 minutes	5	11.6	14	16.1
	more than 42 minutes	10	23.3	18	20.7
During the past month, how often have you had trouble falling asleep in 30 minutes?	0 times	4	9.3	14	16.1
	1 - 2 times	11	25.6	25	28.7
	2 - 3 times	4	9.3	23	26.4
	3 - 4 times	5	11.6	5	5.7
	more than 4 times	19	44.2	20	23.0
During the past month, what time do you usually asleep at night and what time do you wake up in the morning?	Sleep before 12am and wake up before 7am	8	18.6	15	17.2
	Sleep before 12am and wake up after 7am	1	2.3	2	2.3
	Sleep past 12am and wake up before 7am	26	60.5	32	36.8
	Sleep past 12am and wake up after 7am	7	16.3	35	40.2
	Other	1	2.3	3	3.4
During the past month, how often do you take medication to sleep?	0 times	35	81.4	76	87.4
	1 - 2 times	4	9.3	7	8.0
	3 - 4 times	3	7.0	1	1.1
	more than 4 times	1	2.3	3	3.4
During the past month, how often have you had trouble staying awake while	0 times	9	20.9	26	29.9
	1 - 2 times	14	32.6	38	43.7

attending class, eating, or engaging in social activity?	3 - 4 times	8	18.6	16	18.4
	more than 4 times	12	27.9	7	8.0

Table 3 shows the differences in practices of sleep quality of Year 1 and Year 2 diploma students. Based on the first question regarding the amount of sleep that the respondents slept for the past month, most of the students choose five to six hours, with 58.1% of Year 1 and 52.9% of Year 2. The result indicates that the majority of diploma students did not practice the proper way and have sleep hygiene since the amount of sleep required by an individual is seven hours and above. From Table 3, only 11.6% of Year 1 and 16.1% of Year 2 have been practising good sleep quality. The next question is to determine how long it takes for an individual to fall asleep. 46.5% of Year 1 and 43.75 of Year 2 only take 10 to 20 minutes to fall asleep. This result indicates good practices of sleep quality. However, some of the students did not practice sleep quality and had very poor sleep quality. This can be seen when 23.3% of Year 1 and 20.7% of Year 2 took more than 42 minutes to fall asleep.

Table 4 Knowledge and awareness level of sleep hygiene

Statement		Year of Study			
		Year 1		Year 2	
		Count	Column N %	Count	Column N %
Fixed bedtime can increase the quality of sleep hygiene	Yes	43	100.0	87	100.0
	No	0	0.0	0	0.0
Frequent napping during the day can cause poor sleep hygiene	Yes	38	88.4	70	80.5
	No	5	11.6	17	19.5
Sleeping in the dark can improve sleep hygiene	Yes	43	100.0	86	98.9
	No	0	0.0	1	1.1
Consume too much caffeine in the afternoon will affect sleep hygiene	Yes	37	86.0	62	71.3
	No	6	14.0	25	28.7
Worried too much about the next day can lead to poor sleep hygiene	Yes	43	100.0	81	93.1
	No	0	0.0	6	6.9

Table 4 shows the knowledge and awareness level of sleep hygiene of Year 1 and Year 2, and from that, 100% of the respondent, both Year 1 and Year 2 diploma students, have answered Yes to first statement about sleep hygiene, which is fixed bedtime can increase the quality of sleep hygiene. This result indicates that all respondents have a knowledge of sleep hygiene. Moreover, the third statement is to determine whether sleeping in the dark can improve sleep hygiene. Based on Table 4, the Year 1 percentage, which is 100%, is higher than Year 2 with 98.9%, indicating that Year 1 has more knowledge of sleep hygiene than Year 2.

Table 5 Practices of sleep hygiene

Statement		Year of Study			
		Year 1		Year 2	
		Count	Column N %	Count	Column N %
During the past month, how often did you take a nap during the day?	0 - 1 times	12	27.9	34	39.1
	2 - 3 times	14	32.6	28	32.2
	more than 4 times	17	39.5	25	28.7
During the past month, what was the last meal you had before going to sleep?	Bread	3	7.0	9	10.3
	Snack/ Biscuit	24	55.8	48	55.2
	Rice	13	30.2	27	31.0
	Fruit	3	7.0	3	3.4

During the past month, what time did you usually have your dinner before you went to bed?	6pm - 7pm	19	44.2	18	20.7
	8pm - 9pm	19	44.2	43	49.4
	9pm and above	5	11.6	26	29.9
During the past month, what are the activities you usually do before sleep?	Play with phone/computer	31	72.1	71	81.6
	Study	10	23.3	12	13.8
	Exercise	0	0.0	2	2.3
	Nothing	2	4.7	2	2.3
During the past month, what are the causes of your sleep disturbance?	Assignment	24	55.8	40	46.0
	Temperature too hot/too cold	8	18.6	27	31.0
	Noise/Light	7	16.3	11	12.6
	None above	4	9.3	9	10.3

Table 5 shows the practices of sleep hygiene among diploma students in UTHM. Based on Table 5, 81.65% of Year 2 and 72.1% of Year 1 chose to play with a phone or on a computer as the activities to do before going to sleep. However, only 2% of each Year 1 and Year 2 chose to do nothing before going to sleep. This result indicates that most students did not practice proper sleep hygiene and will be most likely to have poor sleep hygiene. Next, the majority of Year 2 and Year 1 with 46% and 55.8%, respectively, chose the causes of sleep disturbance as assignments while 31% and 18.6% chose temperature as too hot or too cold. Thus, assignments are the most significant cause of sleep disturbance that can lead to poor sleep hygiene among diploma students in UTHM.

Table 6 Correlations between sleep quality and sleep hygiene

		Knowledge and Awareness of Sleep Quality	Practices of Sleep Quality	Practices of Sleep Hygiene	Knowledge and Awareness of Sleep Hygiene
Knowledge and Awareness of Sleep Quality	Pearson Correlation	1	-.029	-.013	.041
	Sig. (2-tailed)		.739	.886	.643
	N	130	130	130	130
Practices of Sleep Quality	Pearson Correlation	-.029	1	.188*	-.028
	Sig. (2-tailed)	.739		.032	.751
	N	130	130	130	130
Practices of Sleep Hygiene	Pearson Correlation	-.013	.188*	1	-.027
	Sig. (2-tailed)	.886	.032		.759
	N	130	130	130	130
Knowledge and Awareness of Sleep Hygiene	Pearson Correlation	.041	-.028	-.027	1
	Sig. (2-tailed)	.643	.751	.759	
	N	130	130	130	130

*. Correlation is significant at the 0.05 level (2-tailed).

Table 6 shows a significant correlation between practices of sleep quality and practices of sleep hygiene with a p-value of 0.032 which is less than 0.05. However, the relationship between those practices has a very weak positive correlation because the value of Pearson correlation is 0.188, which lies between 0 and 0.29.

To sum up, there is a weak positive correlation between practices of sleep hygiene and sleep quality. Most of the Year 1 and Year 2 diploma students have a basic knowledge and awareness regarding sleep hygiene and

sleep quality but did not apply them in real life as a routine. Thus, they might have poor sleep hygiene and sleep quality since they do not practice the proper way to have good sleep hygiene and sleep quality.

4. Conclusion

The survey demonstrated that diploma students UTHM Pagoh students have a high awareness and knowledge of sleep hygiene and sleep quality. The finding also showed that the practices of sleep hygiene and sleep quality in UTHM students are poor. Furthermore, high knowledge and awareness do not reflect the practices of sleep hygiene and sleep quality. Even though the result gained varies from the expected result, it is believed that the distribution period of the survey significantly affected the result.

Acknowledgement

The authors would like to thank the Centre for Diploma Studies, Universiti Tun Hussein Onn Malaysia for its support.

Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Izzhanani Huda Hilmi Iskandar, Iffah Irdina Saiful Hazmi, Adnin Afifi Nawawi, Siti Norziahidayu Amzee Zamri, Muhanizah Abdul Hamid; **data collection:** Izzhanani Huda Hilmi Iskandar, Iffah Irdina Saiful Hazmi, Adnin Afifi Nawawi, Siti Norziahidayu Amzee Zamri, Muhanizah Abdul Hamid; **analysis and interpretation of results:** Izzhanani Huda Hilmi Iskandar, Iffah Irdina Saiful Hazmi, Adnin Afifi Nawawi, Siti Norziahidayu Amzee Zamri, Muhanizah Abdul Hamid; **draft manuscript preparation:** Izzhanani Huda Hilmi Iskandar, Iffah Irdina Saiful Hazmi, Adnin Afifi Nawawi, Siti Norziahidayu Amzee Zamri, Muhanizah Abdul Hamid. All authors reviewed the results and approved the final version of the manuscript.

References

- [1] National Heart, Lung, and Blood Institute. (2022, March 24). How sleep works - Why is sleep important? [www.nhlbi.nih.gov](https://www.nhlbi.nih.gov/health/sleep/why-sleep-important). <https://www.nhlbi.nih.gov/health/sleep/why-sleep-important>
- [2] U.S. Department of Health and Human Services. (n.d.). *Brain basics*. National Institute of Neurological Disorders and Stroke. <https://www.ninds.nih.gov/health-information/public-education/brain-basics>
- [3] Nelson, K. L., Davis, J. E., & Corbett, C. F. (2021b). Sleep quality: An evolutionary concept analysis. *Nursing Forum*, 57(1), 144–151. <https://doi.org/10.1111/nuf.12659>
- [4] Posner, D., & Gehrman, P. R. (2011). *Sleep Hygiene*. *Behavioral Treatments for Sleep Disorders*, 31–43. <https://doi.org/10.1016/b978-0-12-381522-4.00003-1>
- [5] Department of Health & Human Services. (2002, June 21). *Sleep hygiene*. Better Health Channel. <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/sleep-hygiene>
- [6] Chattu, V., Manzar, Md., Kumary, S., Burman, D., Spence, D., & Pandi-Perumal, S. (2018). The global problem of insufficient sleep and its serious public health implications. *Healthcare*, 7(1), 1. <https://doi.org/10.3390/healthcare7010001>
- [7] Yazdi, Z., Loukzadeh, Z., Moghaddam, P., & Jalilolghadr, S. (2016). Sleep hygiene practices and their relation to sleep quality in medical students of Qazvin University of Medical Sciences. *Journal of Caring Sciences*, 5(2), 153–160. <https://doi.org/10.15171/jcs.2016.016>