

Faculty of Medicine and Health Sciences

THE SLEEP QUALITY OF UNIMAS NURSING STUDENTS THROUGHOUT THE THEORY- AND PRACTICUM-BASED COURSES

CONNIE NGU KOR NEE

69411

Bachelor of Nursing with Honours

(Final Year Project)

2023

THE SLEEP QUALITY OF UNIMAS NURSING STUDENTS THROUGHOUT THE THEORY- AND PRACTICUM-BASED COURSES

This project is submitted in partial fulfillment of the requirements for the degree of

Bachelor of Nursing with Honours (Final Year Project)

Faculty of Medicine and Health Sciences

UNIVERSITY MALAYSIA

SARAWAK 2023

UNIVERSITI MALAYSIA SARAWAK

Grade: <u>A -</u>

Please tick (√) Final Year Project Report Masters PhD

DECLARATION OF ORIGINAL WORK

Student's Declaration:

Connie Ngu Kor Nee, 69411, Faculty of Medicine and Health Sciences

(PLEASE INDICATE NAME, MATRIC NO. AND FACULTY) hereby declare that the work entitled, THE SLEEP QUALITY OF UNIMAS NURSING STUDENTS THROUGHOUT THE THEORY-AND PRACTICUM-BASED COURSES not copied from any other students' work or from any other sources with the exception where due reference or acknowledgement is made explicitly in the text, nor has any part of the work been written for me by another person.

3/10/2023

Date submitted

Connie Ngu Kor Nee (69411) Name of the student (Matric No.)

Supervisor's Declaration:

SHALIN LEE WAN FEI

Department of Nursing Faculty of Medicine and Health Sciences Úniversiti Malaysia Sarawak

Received for examination by:

Date: 04.10.2023

<u>Universiti Malaysia Sarawak</u> (Name of the supervisor) I declare this Project/Thesis is classified as (Please tick $(\sqrt{})$):

CONFIDENTIAL (Contains confidential information under the Official Secret Act 1972)* RESTRICTED (Contains restricted information as specified by the organisation where research was done)*

OPEN ACCESS

I declare this Project/Thesis is to be submitted to the Centre for Academic Information Services and uploaded into UNIMAS Institutional Repository (UNIMAS IR) (Please tick $(\sqrt{})$):



Validation of Project/Thesis

I hereby duly affirmed with free consent and willingness declared that this said Project/Thesis shall be placed officially in the Centre for Academic Information Services with the abide interest and rights as follows:

- This Project/Thesis is the sole legal property of Universiti Malaysia Sarawak (UNIMAS).
- The Centre for Academic Information Services has the lawful right to make copies of the Project/Thesis for academic and research purposes only and not for other purposes.
- The Centre for Academic Information Services has the lawful right to digitize the content to be uploaded into Local Content Database.
- The Centre for Academic Information Services has the lawful right to make copies of the Project/Thesis if required for use by other parties for academic purposes or by other Higher Learning Institutes.
- No dispute or any claim shall arise from the student himself / herself neither a third party on this Project/Thesis once it becomes the sole property of UNIMAS.
- This Project/Thesis or any material, data and information related to it shall not be distributed, published or disclosed to any party by the student himself/herself without first obtaining approval from UNIMAS.

Student's signature (3rd October 2023)

Supervisor's signature: ____

(3rd October 2023)

Current Address: Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

Notes: * If the Project/Thesis is **CONFIDENTIAL** or **RESTRICTED**, please attach together as annexure a letter from the organisation with the date of restriction indicated, and the reasons for the confidentiality and restriction.

[The instrument was prepared by The Centre for Academic Information Services]

Declaration

I, Connie Ngu Kor Nee, hereby declare that this research study entitled "The Sleep Quality of UNIMAS Nursing Students throughout the Theory- and Practicum-Based Courses" is an original work done by me under the supervision and guidance of Mrs. Shalin Lee Wan Fei. This project was submitted to Faculty of Medicine and Health Sciences, UNIMAS in partial fulfilment of the requirement for the Bachelor of Nursing with Honours. I declare that this research study has not been submitted to any other university or institution.

Acknowledgment

First and foremost, I would like to thank my supervisor for her guidance and valuable insights throughout the process. Her expertise and willingness to share her knowledge have been instrumental in shaping this work.

Secondly, I am also grateful to the participants who generously shared their time and provided the data used in this analysis. Without their contribution, this study would not have been possible.

Furthermore, I would also like to express my appreciation to my colleagues and friends who offered their assistance, feedback, and encouragement throughout this project. Their input and discussions have been invaluable in refining the analysis and enhancing the quality of the final outcomes.

Lastly, I wish to thank my parents for their unwavering support, understanding, and motivation throughout my study. Their constant encouragement and belief in my abilities have been a driving force behind my endeavours.

Abstract

Sleep is a physiological need of human, is essential for the body to maintain good health, daily physical and mental performance and good quality of life (Correia et al., 2022). Mangekar et al. (2022) in India, Kesgin and Çağlar (2020) and Yilmaz et al. (2017) in Turkey, as well as Dharmarathna and Jayamaha (2021) in Sri Lanka get the similar research results that there are more nursing students have poor sleep quality. Hence, this study is carried out to assess the sleep quality among UNIMAS nursing students during theory- and practicum-based courses and to compare the difference in sleep quality among these two different periods. A descriptive quantitative cross-sectional study is carried out among 135 nursing students at Faculty Medicine and Science Health, UNIMAS Main Campus, Kota Samarahan, Sarawak. A selfadministered questionnaire was distributed to the randomly selected students to collect data. The collected data was analysed by utilizing IBM SPSS version 26. During the theory-based courses, 80% of students (n = 108) had PSQI scores >5, indicating poor sleep. While, 20% of students (n = 27) reported to have good sleep. The mean PSQI score of nursing students during theory-based courses is 8.25 (SD = 2.857). During the practicum-based courses, 80.7% of students (n = 109) had PSQI scores >5, indicating poor sleep. Only 19.2% of students (n = 26) had good sleep. The mean PSQI score of nursing students is 8.26 (SD = 3.174). The finding of this study shown that there was no significant difference (p = 0.942) in global PSQI scores of nursing students throughout both theory- and practicum-based courses. This highlights the importance of addressing sleep quality issues among UNIMAS nursing students to enhance the academic success, mental health, and future professional performance. Interventions and support systems are needed to improve sleep quality and ensure adequate rest and recovery for students throughout the academic journey.

Keywords: Sleep quality; Pittsburgh Sleep Quality Index (PSQI); nursing students

Table of Contents

Declarationi
Acknowledgmenti
Abstractii
Table of Contents iii
LIST OF TABLESv
LIST OF FIGURESv
CHAPTER 1 INTRODUCTION
1.0 Introduction1
1.1 Background of study1
1.2 Problem statement
1.3 Research questions
1.4 Research aim/objectives
1.4.1 Research aim4
1.4.2 Research objectives
1.5 Hypotheses
1.6 Significance of the study5
1.7 Definition of terms5
1.8 Summary7
CHAPTER 2 LITERATURE REVIEW
2.0 Introduction
2.1 Sleep quality throughout the theory-based courses
2.2 Sleep quality throughout the practicum-based courses
2.3 Comparison of sleep quality throughout the theory- and practicum-based courses10
2.4 Summary
CHAPTER 3 METHODOLOGY11
3.0 Introduction
3.1 Research design11
3.2 Research setting
3.3 Inclusion and exclusion criteria12
3.4 Sample size and sampling method13
3.5 Study instrument14
3.6 Ethical consideration
3.7 Data collection procedure17

3.7.1 Pilot study	17
3.7.2 Actual study	18
3.8 Data analysis	19
3.9 Summary	21
CHAPTER 4 RESULTS AND FINDINGS	22
4.0 Introduction	22
4.1 Response rate	22
4.2 Socio-demographic characteristics	22
4.3 Sleep Quality throughout the theory-based courses	25
4.4 Sleep Quality throughout the practicum-based courses	28
4.5 Comparison of sleep quality throughout the theory- and practicum-based courses	32
CHAPTER 5 DISCISSION AND CONCLUSION	34
5.0 Introduction	34
5.1 Sleep quality throughout the theory-based courses	34
5.2 Sleep quality throughout the practicum-based courses	35
5.3 Comparison of sleep quality throughout the theory- and practicum-based courses	36
5.4 Limitations of the study	37
5.5 Conclusion	37
REFERENCES	39
APPENDIX A: RESEARCH ETHICAL APPROVAL LETTER	42
APPENDIX B: INFORMED CONSENT	43
APPENDIX C: PERMISSION TO USE AND MODIFY PSQI QUESTIONNAIRE	46
APPENDIX D: DATA COLLECTION INSTRUMENT	47
APPENDIX E: SCORING OF MODIFIED PITTSBURGH SLEEP QUALITY INDEX	53
APPENDIX F: GANTT CHART	56
APPENDIX G: EXPENDITURE	57

LIST OF TABLES

Table 4.1:	Distribution of Respondents by Socio-demographic Characteristics
	(N = 135)23
Table 4.2:	Normality test for Age24
Table 4.3:	PSQI component scoring throughout the theory-based courses25
Table 4.4:	Global PSQI score throughout the theory-based courses
Table 4.5:	PSQI component scoring throughout the practicum-based courses
Table 4.6:	Global PSQI scores throughout the practicum-based courses
Table 4.7:	Central of tendency and dispersion of global PSQI score throughout the theory-
	and practicum-based courses
Table 4.8:	Normality test for the global PSQI scores throughout the theory- and practicum-
	based courses
Table 4.9:	Statistical test for global PSQI scores between theory- and practicum based
	courses

LIST OF FIGURES

Figure 3.1:	Flowchart of data collection	19
Figure 4.1:	Global PSQI score throughout the theory-based courses	28
Figure 4.2:	Global PSQI score throughout the practicum-based courses	31

LIST OF ABBREVIATION

- PSQI Pittsburgh Sleep Quality Index
- UNIMAS Universiti Malaysia Sarawak

CHAPTER 1

INTRODUCTION

1.0 Introduction

This chapter will present the introduction of this research study. It will discuss the background of the study, problem statement, research questions, research aim/objectives, hypothesis, significance of study, and definition of terms.

1.1 Background of study

Sleep is a physiological need of human, is essential for the body to maintain good health, daily physical and mental performance and good quality of life (Correia et al., 2022). According to Nunez and Lamoreux (2020), the body and brain are still remarkably active although an individual are unconscious when fall asleep. The brain eliminates of toxic waste while storing new information. Besides, in order to maintain proper brain function, the nerve cells communicate and reorganize. Whereas, the body repairs cells, replenishes energy, and release substances like proteins and hormones.

A healthy and good sleep is characterized by feeling restful and fresh after awaking (Mangekar at el., 2022). Other features of good sleep are short sleep latency, sufficient duration, appropriate timing and regularity, and the absence of sleep disturbances and disorders. According to Khin (2016), one of the important factors affecting memory and learning is sleep quality. Lack of good-quality sleep, one would have difficulty focusing and thinking clearly, feeling tired, irritable, or anxious during the day (Harvard T.H. Chan, 2015). Besides,

performance at work or school may be influenced. The reaction time may be delayed as well, increasing the risk of accidents.

Poor sleep is prevalent among nurses, and it has an impact on their physical and mental health as well as how well their organisations functions (Rahman et al., 2022). However, the solutions are yet well known. According to Caruso (2014), nursing staffs have long working hour and need to work according to shift in order to provide patient care around the clock. Scientific evidence provides strong support for the link between sleep problems and shift work (Caruso, 2014). They may easily develop into a disorder known as shift work disorder (SWD), which involves insomnia and/or excessive sleepiness associated with the work schedule.

1.2 Problem statement

The Universiti Malaysia Sarawak (UNIMAS) nursing students are always struggling with their packed study schedule because the students are not merely learning nursing theory and knowledge in a tutorial room, but practicums are also indispensable for every nursing student to succeed in a future career and are usually carried out in a clinical ward to polish the basic and specialized skills on real live patients (Xiong et al., 2021). Another reason of the nursing students to go for practicum is to adapt the student during transiting from a student to a staff nurse (Rabei et al., 2020). The busy academic life makes the students have no choice to sacrifice the sleeping time to accomplish their commitments. According to Zhang et al. (2018), two-thirds of 242 undergraduate nursing students at a public university in the northeast United States had PSQI score of more than 5, indicating poor sleep quality. While, there are of 508 out of 553 nurses students (91.86%) had poor sleep quality during the internship at Second Xiangya Hospital, China (Xiong et al., 2021). Rabei et al. (2020) also get the same result that 90.53% of 95 internship nurse students from 5 hospitals in Egypt (College of Nursing Helwan

University, Badr University Hospital, Ain-Shams University Hospital, Wadi El Nil Hospital, El Salam International Hospital, and Nile Badrawy Hospital) had poor sleep. Kesgin and Çağlar (2020) suggested that the students' perceptions of stress and its intensity alter as their academic performance does, and vice versa. The quality of students' sleep may eventually be ruined by stress. This causes the students to have behavioural and emotional problem, lower concentration, as well as negative emotional status during the conduct of practicum-based courses and theory-based courses. The poor performance during theory- and practicum-based courses also leads them to get poor academic results, make clinical mistakes when nursing the patients and so on. As a result, reputation of UNIMAS would be affected, the staffs and the patients lose the trust on UNIMAS nursing students. Therefore, the aim of this study is to investigate the sleep quality of UNIMAS nursing students throughout the theory- and practicum-based courses.

1.3 Research questions

a) What is the sleep quality of UNIMAS nursing students throughout the theory-based courses?b) What is the sleep quality of UNIMAS nursing students throughout the practicum-based courses?

c) Is there any difference in the sleep quality of UNIMAS nursing students throughout the theory- and practicum-based courses?

1.4 Research aim/objectives

1.4.1 Research aim

The aim of this research is to investigate the sleep quality of UNIMAS nursing students throughout the theory- and practicum-based courses.

1.4.2 Research objectives

a) To assess the sleep quality of UNIMAS nursing students throughout the theory-based courses.

b) To determine the sleep quality of UNIMAS nursing students throughout the practicum-based courses.

c) To compare the sleep quality of UNIMAS nursing students throughout the theoryand practicum-based courses.

1.5 Hypotheses

(i) Null hypothesis (H₀)

There is no significant difference in the sleep quality of UNIMAS nursing students throughout the theory- and practicum-based courses.

(ii) Alternative hypothesis (H_A)

There is a significant difference in the sleep quality of UNIMAS nursing students throughout the theory- and practicum-based courses.

1.6 Significance of the study

This study hopes to determine the prevalence of UNIMAS nursing students who have unsatisfied sleep quality during theory-based courses and practicum-based courses respectively. Besides, the findings of this study may be used as evidence for the necessary to tailor the educational components of nursing program to promote the UNIMAS nursing development. The research also wishes to prepare the UNIMAS nursing students early in planning for the strategies of improving sleep quality in order to outshine the academic performance during theory-based courses at the same time enhance the clinical performance during practicumbased course, thus providing the best quality of nursing care to the patients in the future.

1.7 Definition of terms

a) Sleep quality

Sleep quality refers to the evaluation of how effectively an individual's sleep promotes restfulness and restoration (The National Sleep Foundation, 2020). In this study, Pittsburgh Sleep Quality Index (PSQI) developed by Buysse et al. in 1989 was used as a tool to evaluate an individual's sleep quality throughout the theory-based courses and practicum-based courses respectively. The PSQI consists of 19 self-assessment questions. Each item is scored from 0 to 3, where 0 represents "not during the theory- or practicum-based courses", 1 represents "less than once a week", 2 represents "once or twice a week" and 3 represents "three or more times a week". The scoring obtained from the 19 items were used to generate the scoring of the 7 components of sleep quality: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, usage of sleep medication, and daytime dysfunction. Total scores of the 7 components derived from the scoring of 19 items are ranging from 0 to 21. The

global PSQI score of less than or equal to 5 indicated that the individual has a good sleep quality, while the global PSQI score of more than 5 indicated that the individual has a poor sleep quality.

b) Theory-based courses

In this study, theory-based courses operationally defined as the courses that centre around the systematic development of knowledge by others. It involves the utilization of established theories and frameworks to enhance understanding and acquire new knowledge (Smith & Johnson, 2018). For example, MDJ1832 Professional Nursing, MDJ1704 Fundamental of Nursing, MDJ2523 Health Education and MDJ3273 Paediatric Nursing.

c) Practicum-based courses

The conceptual definition of practicum-based courses is a course of study that is designed where teachers or clinicians are prepared and involves the supervised application of previously learnt theory (Merriam-Webster, 2014). While practicum-based courses in this study is operationally defined as the courses that involve the process of acquiring nursing knowledge through self-reflection on personal clinical experiences. It emphasizes learning from one's own practical encounters and drawing insights from them (Smith & Johnson, 2018). For instance, MDJ1672 Concept and Practice of Basic Nursing Practicum, MDJ3312 Obstetric and Gynaecological Nursing Practicum, MDJ3762 Mental Health and Psychiatric Nursing and others.

1.8 Summary

This chapter had presented the introduction of this research study. It discussed background of the study, problem statement, research questions, research aim/objectives, hypothesis, significance of study, and definition of terms.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

Literature review will be presented in this chapter. This literature review will discuss about the sleep quality of nursing students during theory-based courses as well as during practicum-based courses. The articles used in this literature review are from certain online databases such as Google Scholar, Research Gate, PubMed. The keywords used to search for the articles are "sleep", "sleep quality", "nursing students", "nurses" and "clinical practice". The articles were filtered from the year 2014 to 2022. The articles that were published for more than 10 years or with unknown publication date are excluded from this literature review.

2.1 Sleep quality throughout the theory-based courses

Khin (2016) stated that 48.6% of 105 Faculty of Nursing in International Islamic University, Malaysia (IIUM), nursing students at the had a PSQI score of 5 and higher, indicating that they get good sleep. Whereas, 51.4% of them had a PSQI score of less than 5, indicating that their sleep quality is poor. The result showed that there was a significant association between sleep quality and academic performance.

Apart from that, a study conducted by Yilmaz et al. (2017) among 223 nursing students who studied at Uludağ University Faculty of Health Sciences Department of Nursing in Turkey, the total PSQI average of the students was calculated as 6.52±3.17. The total PSQI score of above 5 occupied more than half of the total nursing students who considered as having low sleep quality (56.1%).

Not only this, according to Dharmarathna and Jayamaha (2021), 60.9% of 184 firstyear nursing students at the School of Nursing, Colombo, Sri Lanka, participants have a poor sleep quality. The mean value of the global PSQI score was 5.4 ± 2.3 . However, this study only involved first year students, the experience being engaged in clinical practice was unidentified or might not as much as second-, third-, fourth-year students and so forth.

Although most of the findings from the studies showed nursing students had poor sleep quality, but there was one study revealed that majority of the nursing students had good sleep quality. It was a study conducted by Mangekar et al. (2022) in India, reported that among 165 nursing students, 32 (18.20%) nursing students had poor quality of sleep and 133 (81.80%) of students had good quality of sleep (Mangekar et al, 2022).

2.2 Sleep quality throughout the practicum-based courses

A study conducted by Kesgin and Çağlar (2020) has highlighted that 431 nursing students who were engaged in clinical practice in Turkey had an average PSQI score of 7.71 ± 3.27 , revealing that the students' sleep quality was poor during practicum-based courses. But, according to Kesgin and Çağlar (2020), there was lack of strong relationship between poor sleep quality among the nursing students who were engaged in clinical practice with their stress perceived.

Besides, a study conducted by Rabei et al. (2020) on a total of 95 nursing internship students reported the findings of 90.53% of the students scored global PSQI of 8, indicating poor sleep quality. Rabei et al. (2020) related the sleep disturbance among internship nursing students with the work stress and concluded that nurses who have higher workload were more stressful, thus experiencing more sleep disturbances.

However, a study conducted by Silva et al. (2020) in Brazil reported that 68.18% of twenty-three eighth semester nursing students, who were experiencing the first time of attaching at the hospital without the professor's supervision, had a good sleep quality based on PSQI classification.

2.3 Comparison of sleep quality throughout the theory- and practicum-based courses

A study was conducted on 130 hospital nurses and 130 student nurses in Brunei to compare the prevalence of good sleep quality among them. According to Rahman et al. (2022), hospital nurses were 4.29 times more likely to experience poor sleep than student nurses. Rahman et al. (2022) also stated that although students had significantly good sleep latency, needing less time to fall asleep, they experienced significantly more sleep disturbances, shorter sleep duration and less sleep efficiency.

2.4 Summary

In conclusion, this literature review discussed the sleep quality of UNIMAS nursing students during theory- and practicum-based courses. Majority of the reviewed articles reported that most of the nurses were found to be poor sleepers. Most of the researchers related the poor sleep quality of nurses or students to the stress perceived, anxiety, smoking habit and so on. Despite this, the results of each study might not be able to generalise all the nursing students or staff nurses in the worldwide as the studies were carried out in distinct countries of different cultures, job scopes and workload in the workplaces.

CHAPTER 3

METHODOLOGY

3.0 Introduction

The methodology will be presented in this chapter. This chapter describes research design, research setting, inclusion and exclusion criteria, sample size and sample method, study instrument, ethical consideration, data collection procedure, and data analysis method.

3.1 Research design

A descriptive quantitative cross-sectional study design was chosen to be conducted in this research. According to the Institute for Work & Health (2015), a cross-sectional study design was advantageous in terms of comparing multiple variables simultaneously, enabling the researcher to analyse various factors and their relationships efficiently.

This study aimed to gather information about the sleep quality of UNIMAS nursing students throughout their theory- and practicum-based courses. Hence, by using a descriptive approach, it allowed the collection of data from a group of nursing students, providing a comprehensive understanding of the sleep quality factors that may influence nursing students.

Quantitative method was used to collect data through self-administered, which focused on assessing various aspects of sleep quality, such as duration, latency, disturbances, and overall satisfaction. The use of standardized measurement tools, which was the Pittsburgh Sleep Quality Index (PSQI), was employed to ensure the reliability and validity of the data. Through the cross-sectional nature of the study, data was collected from participants at a single point in time. This provided insights into the sleep quality of nursing students, allowing for comparisons across different courses and identifying potential associations between sleep quality and other variables, such as stress levels, anxiety level and the presence of roommate or bed partner.

3.2 Research setting

This research was conducted at the Faculty Medicine and Science Health, UNIMAS main Campus, which is located at Kota Samarahan, Sarawak.

3.3 Inclusion and exclusion criteria

a) Inclusion criteria

(i) Universiti Malaysia Sarawak second-, third- and fourth-year nursing students who are willing to participate in this study (as they have ever engaged in practicum-based courses for more than 2 months).

b) Exclusion criteria

(i) Universiti Malaysia Sarawak first year nursing students (as they never engage in practicum-based courses for more than 2 months).

(ii) Post-graduate students and post-registration students (due to their age difference and working experience which may confound the outcome of the study).

- (iii) Nursing students who have participated in the pilot study.
- (iv) Nursing students who are not willing to participate in the study.

3.4 Sample size and sampling method

This research study involved 176 UNIMAS nursing students, where 63 students from Year 2, 60 students from Year 3, and 53 students from Year 4. Probability simple random sampling method was used in this study. Name lists of UNIMAS Nursing Year 2, 3 and 4 students were obtained. The names on the name list were arranged alphabetically. And then, the students were randomly selected via the random number function (RAND) in Microsoft Excel. Taro Yamane Formula (Yamane, 1973) was used to calculate the sample size, where n represents sample size, N represents population size, e represents acceptable sampling error.

$$n = \frac{N}{1 + N(e)^2}$$

s = $\frac{175}{1 + 175 (0.05)^2}$
= 121.74
 \approx 122

To cover the missing data in the sample, another 10% of attrition rate was added.

$$\frac{110}{122 + \dots} = 134.2$$

$$\approx 135$$

Hence, the total sample size is 135 respondents.

3.5 Study instrument

This study used self-administered questionnaire to collect data from the respondents. English language was used in the questionnaire. The questionnaire consisted of 5 sections: Section A, B, C, D and E.

In Section A, participant's socio-demographic data was obtained, which includes age, gender, race, year of study, and duration of practicum the participants have gone so far (in weeks). The stress level and anxiety level of the participants were being questioned as a baseline data. This part contained multiple-choice or require respondents to fill in the blanks.

In Section B, the sleep quality of the participant throughout the theory-based courses was assessed by using modified Pittsburgh Sleep Quality Index (PSQI) which was developed by Buysse et al. in 1989. It was measured on 4-point Likert scale. The period "in the past month" in the questionnaire was altered to "throughout the theory-based courses so that it was tailored to the study objectives. This part consisted of 19 self-assessment questions which evaluated the following 7 components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, usage of sleep medication, and daytime dysfunction. Each item was scored from 0 to 3, where 0 represents "not during the theory-based courses", 1 represents "less than once a week", 2 represents "once or twice a week" and 3 represents "three or more times a week". There was no negative statement or reverse scoring.

Section C assessed the sleep quality of the participant throughout the practicum-based courses. It was assessed by using modified Pittsburgh Sleep Quality Index (PSQI) which was developed by Buysse et al. in 1989 as well. The period "in the past month" in the questionnaire was altered to "throughout the practicum-based courses so that it was tailored to the study objectives. This part consisted of 19 self-assessment questions which evaluated the following 7 components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency,

sleep disturbances, usage of sleep medication, and daytime dysfunction. Each item was scored from 0 to 3, where 0 represents "not during the practicum-based courses", 1 represents "less than once a week", 2 represents "once or twice a week" and 3 represents "three or more times a week". There was no negative statement or reverse scoring.

Section D only consisted of 1 question, which asking the participant whether having a bed partner or a roommate or not. The questionnaire would be ended here if the participant answered "No bed partner or roommate" in this section. However, if the participants were having a roommate or bed partner, the participants were required to ask their roommate or bed partner to answer the Section E.

Section E of this questionnaire was filled by the bed partner or the roommate of the participant. If the participants did not have a roommate or bed partner, this section only need to be left empty. This section asked the bed partner or roommate whether the participant has: loud snoring, long pause between breaths while asleep, leg twitching or jerking while sleeping, episodes of disorientation or confusion during sleep, or other restlessness while sleeping throughout the theory- and practicum-based theory courses. The scoring in this section was not contribute to the calculation of the index score.

Regarding the scoring in Section B and C, the total scores of the 7 components are derived, each scored from 0 (no difficulty) to 3 (severe difficulty).

- i. Scoring for component 1(subjective sleep quality) will be obtained from the response of Question 9.
- ii. Scoring for component 2 (sleep latency) is contributed by the sum of Question2 and 5a sub scores
- iii. Scoring for component 3 (sleep duration) refers to the response to Question 4.

- iv. For component 4 (sleep efficiency), the hours of the participant spend in bed will be identified by subtracting the response of Question 1 and 3. And, the hours of the participant slept will be obtained from the response of Question 4. After that, the hours of the participant slept will be divided by the hours the participant stay in bed and times 100% to get the sleep efficiency.
- v. Scoring of component 5 (sleep disturbance) will be derived from the total of the sub scores from Questions 5b to 5j which range from 0 to 3 respectively.
- vi. Scoring of component 6 (use of sleep medication) will be obtained from the response to Question 6.
- vii. Scoring for component 7 (daytime dysfunction) will depend on the sum of the sub score of Question 7 and 8.

Hence, the 7 component scores will be summed up to produce a global score, which ranges from 0 to 21. A global PSQI score equal or less than 5 indicates good sleep, over 5 indicates poor sleep, and higher score indicates poorer sleep quality.

3.6 Ethical consideration

An approval letter from Research Ethic Committee of Faculty Medicine and Health Science (FMHS), Universiti Malaysia Sarawak (UNIMAS) was obtained to conduct this study in FMHS (see Appendix A). Besides, an information sheet and informed consent (see Appendix B) was included in the questionnaire before the participants taking part in the study. In the information sheet, the participants were informed that all the information was obtained voluntarily dealt with high level of confidentiality and anonymity to protect their privacy as the information sheet claimed that the personal identification details provided by the

respondents will not be used to track back to the respondents. The respondents were required to fill in a given serial number only during answering the questionnaire. High level of confidentiality was also maintained by securing the data using password which was only known by the researchers to prevent unauthorized access, loss, or theft. The participants had the right to refuse or withdrawn from the study anytime they want without any penalty. The permission of adapting the questionnaire had been obtained from the authors through email (see Appendix C).

3.7 Data collection procedure

3.7.1 Pilot study

A pilot study was conducted to determine the feasibility, validity, and reliability of the study by identifying the problems before conducting the actual data collection. The preliminary data collected from the pilot study was used to identify the weakness of the questionnaire and estimate the time and cost needed for the study.

To perform the pilot study, 10% of the sample size was selected to be participated in the pilot study.

Sample size = 13510% of 135 = 13.5 ≈ 14

Hence, 14 students who met the inclusion criteria were invited to participate the pilot study using the same sampling method as the actual study. The participants in pilot study were excluded from the actual study. The data collected from the pilot study was excluded in the data analysis of the actual data collection as well.

The questionnaire was slightly modified to reflect the context of UNIMAS nursing students, with the aim of Cronbach's alpha above 0.7, which is acceptable for this research study. Face validity of this questionnaire was performed by asking someone who is expert, which is my supervisor to review the validity and suitability of the modified questionnaire in measuring the sleep quality of the participants.

3.7.2 Actual study

The study used probability simple random sampling method to select the sample from the population. Firstly, the inclusion criteria and exclusion criteria were determined to define the target population of the study. The name lists of target population, which was UNIMAS Nursing Year 2, 3 and 4 who met the inclusion criteria were obtained from the class representative of each academic year. The sample size of 135 was calculated by using the Taro Yamane Formula (1973). The names of the population were keyed into Microsoft Excel and each of them was given a serial number. Hence, in this study, the serial number assigned was from 1 to 135. Next, a list of randomly selected students was created via random number function (RAND) in Microsoft Excel. A questionnaire was created through Google Form and the link of the Google Form was sent to the randomly selected students. An informed consent which the explained that the data provided by the participant will remain confidential and anonymity and asked for the willingness of the selected participants to answer the questionnaire was appeared on the first page of the Google Form. The participants were allowed to start answering the questionnaire once they answered "Yes, I agree" in the informed consent. Two times of follow up were done if the participants did not respond to the sent Google Form link.

If the participants did not respond after 2 times of follow up, they were considered as withdrawn

from the study.

Figure 3.1

Flowchart of data collection



3.8 Data analysis

IBM Statistical Package for the Social Science (SPSS) Version 26 was used in this research study to analyse the collected data.

Descriptive statistics presented the characteristics of the sample via frequency, percentage, mean, and standard deviation of the variable. Kolmogorov-Smirnov test was used

to test the normality of the continuous data as the sample size of this research study was greater than 50.

Data collected in Section A of the questionnaire regarding the sociodemographic data of the respondents was presented in mean and standard deviation (SD) for normally distributed continuous data. While, not normally distributed continuous data were presented in median and interquartile range (IQR). Whereas, categorical data collected will be reported in frequency and percentage and presented in bar chart.

Section B and C of the questionnaire assessed the sleep quality of UNIMAS nursing students during theory- and practicum-based courses respectively with 4-point Likert scale as answer choices. The collected responses were computed into IBM SPSS. The total scores of the 7 components were derived, each scored from 0 (no difficulty) to 3 (severe difficulty) and binned by using visual binning in SPSS. The sum of 7 components scores less than or equal to 5 indicated good sleep, over 5 indicates poor sleep.

For continuous data, the normally distributed data was presented in mean and standard deviation, while the not normally distributed data was presented in median and interquartile range. For categorical data, the data was presented in frequency and percentage.

Normality test was performed for both sets of data. Both set of data gave a p-value of less than 0.05, indicating the data sets were not normally distributed and violates the assumptions. Hence, Wilcoxon Signed Rank test was used to test if there is any significance difference in the sleep quality for the UNIMAS nursing students during theory- and practicumbased courses.

3.9 Summary

This chapter had presented the methodology of this research study. It discussed the research design, research setting, inclusion and exclusion criteria, sample size and sample method, study instrument, data collection procedure, data analysis method, and limitation of the study.

CHAPTER 4

RESULTS AND FINDINGS

4.0 Introduction

In this chapter, result of data analysis will be presented. This chapter describes response rate, sociodemographic characteristics of participants, and study findings on the sleep quality of nursing students throughout the theory-based courses and practicum-based courses respectively.

4.1 Response rate

A total of 135 nursing students were randomly selected to participate in this study. Out of 135 nursing students, 135 students answered the questionnaire. The response rate for this study was 100%. All the respondents participated in the study willingly and completed the questionnaire without any missing data.

4.2 Socio-demographic characteristics

Table 4.1 describes socio-demographic characteristics of nursing students (N = 135) who participated in this study. In this study, there were 113 females (83.7%) and 22 males (16.3%). Forty-nine of them (36.3%) are second year students, 36.3% (n = 46) were third year students, and 34.1% (n = 40) were fourth year students.

Half of the respondents (n = 68, 50.4%) were under indigenous ethnic group, followed by 40.7% of Malay (n = 55), 8.1% of Chinese (n = 11) and 0.7% of Indian (n = 1). The indigenous ethnic group included Iban, Bidayuh, Bisaya, Kenyah, Dusun, Melanau, Rungus, Murut, Bugis, Bajau and so on. Out of 135 respondents, 7 students (5.2%) did not have stress at all, 20 students (14.8%) had mild stress, 59 students (43.7%) had moderate stress, 43 students (31.9%) had much stress, and 6 students (4.4%) had extreme stress.

Other than that, 18 students (13.3%) were not anxious at all, 67 students (49.6%) had mild anxiety, 40 students (29.6%) had moderate anxiety, and 10 students (7.4%) were experiencing severe anxiety.

Table 4.1

Distribution of	Res	pondents	by	Socio-de	mograp	ohic (Characteristics	s (1	N =	13.	5)
-----------------	-----	----------	----	----------	--------	--------	-----------------	------	-----	-----	----

Characteristics	Categories	Frequency	%
Gender	Male	22	16.3
	Female	113	83.7
Year of Study	Year 2	49	36.3
	Year 3	46	34.1
	Year 4	40	29.6
Age	21 years old	34	25.2
(Median=22, IQR=2)	22 years old	50	37.0
	23 years old	42	31.1
	24 years old	8	5.9
	25 years old	1	0.7
Race	Malay	55	40.7
	Chinese	11	8.1
	Indian	1	0.7
	Indigenous	68	50.4

Stress level	No stress at all	7	5.2
	Mild stress	20	14.8
	Moderate stress	59	43.7
	Much Stress	49	36.3
	Extreme stress	6	4.4
Anxiety level	Not anxious at all	18	13.3
	Mild anxiety	67	49.6
	Moderate anxiety	40	29.6
	Severe anxiety	10	7.4

The respondents' age ranged from 21 to 25 years old. Table 2 presents the normality test (Kolmogorov-Smirnov) for respondents' age. A value of p < .05 indicated that the data for respondents' age was not normally distributed. It was found that the median for the respondents' age was 22 with interquartile range of 2.

Table 4.2

Normality test for Age

	Kolmogorov-Smirnov ^a			S	Shapiro-Will	k
	Statistic	df	Sig.	Statistic	df	Sig.
Age	.209	135	.000	.873	135	.000

4.3 Sleep Quality throughout the theory-based courses

Table 4.3 shows the scoring of 7 components of PSQI of UNIMAS nursing students throughout the theory-based courses. More than half of the nursing students (n = 93, 68.9%) reported to have a fairly good subjective sleep quality. Forty-two students (35.6%) had sleep latency once or twice a week during the theory-based courses. Nearly one-third of the students (n = 46, 34.1%) slept only 5 to 6 hours daily, only 11.9% (n = 16) were able to achieve sleep duration of more than 7 hours. Ninety-seven students (71.9%) achieved sleep efficiency of higher than 85%. Majority of the students (n = 121, 89.6%) did not use sleep medication during the theorybased courses. Only 18 students (13.3%) did not have daytime dysfunction, while the rest experienced daytime dysfunction of different level severity.

Table 4.3

Component		Frequency	%
Subjective sleep quality	Very good	9	6.7
	Fairly good	93	68.9
	Fairly bad	30	22.2
	Very bed	3	2.2
Sleep latency	0	15	11.1
	1	30	22.2
	2	48	35.6
	3	42	31.1
Sleep duration	>7 hours	16	11.9
	6-7 hours	38	28.1

PSQI component scoring throughout the theory-based courses

	5-6 hours	46	34.1
	<5 hours	35	25.9
Sleep efficiency	>85%	97	71.9
	75-84%	30	22.2
	65-74%	4	3.0
	<65%	4	3.0
Sleep disturbance	0	6	4.4
	1	84	62.2
	2	38	28.1
	3	7	5.2
Use of sleep medication	Not during the theory-based courses	121	89.6
	Less than once a week	11	8.1
	Once or twice a week	3	2.2
	Three or more a week	0	0
Daytime dysfunction	0	18	13.3
	1-2	39	28.9
	3-4	56	41.5
	5-6	22	16.3

Table 4.4 shows the global PSQI score of UNIMAS nursing students throughout the theorybased courses. Most of the students (n = 21, 15.6%) had the global PSQI score of 8. Twentyseven students (20%) had a total PSQI score of equal to or less than 5, indicating they had good sleep throughout the theory-based courses. Whereas 108 students (80%) had a total PSQI score of higher than 5, indicating they had poor sleep throughout the theory-based courses.

Table 4.4

Global PSQI score	Frequency	%		Sleep quality	Frequency	%
1	2	1.5	≤5	Good	27	20%
2	0	0	-			
3	7	5.2	-			
4	5	3.7	-			
5	13	9.6	-			
6	10	7.4	>5	Poor	108	80%
7	12	8.9	-			
8	21	15.6	-			
9	15	11.1	-			
10	17	12.6	-			
11	15	11.1	-			
12	11	8.1	-			
13	6	4.4	-			
14	1	0.7	-			

Global PSQI score throughout the theory-based courses

Figure 4.1

Global PSQI score throughout the theory-based courses



4.4 Sleep Quality throughout the practicum-based courses

Table 4.5 shows the scoring of 7 components of PSQI of UNIMAS nursing students throughout the practicum-based courses. Half of the nursing students (n = 69, 51.1%) reported to have fairly good subjective sleep quality. One-third of the nursing students (34.8%) did not have sleep latency at all throughout the practicum-based courses. During the period of practicumbased courses, 58 students (43.0%) slept less than 5 hours per day, and only 4 out of 135 students were able to sleep more than 7 hours in a day. However, most of the nursing students (n = 107, 79.3%) were still managed to achieve sleep deficiency of 85% and above. More than half of the nursing students (n = 79, 58.5%) reported that the sleep was disturbed less than once a week when having practicum. Majority of the students (n = 117, 86.7%) did not use sleep medication during the practicum-based courses. Only 14 students (10.4%) did not have daytime dysfunction, while the rest experienced daytime dysfunction of different level severity.

Table 4.5

<i>PSQI</i> component scoring throughout the practicum-based co

Component		Frequency	%
Subjective sleep quality	Very good	9	6.7
	Fairly good	69	51.5
	Fairly bad	50	37.0
	Very bed	7	5.2
Sleep latency	0	47	34.8
	1	33	24.4
	2	36	26.7
	3	19	14.1
Sleep duration	>7 hours	4	3.0
	6-7 hours	31	23.0
	5-6 hours	42	31.1
	<5 hours	58	43.0
Sleep efficiency	>85%	107	79.3
	75-84%	17	12.6
	65-74%	8	5.9
	<65%	3	2.2
Sleep disturbance	0	14	10.4

	1	79	58.5
	2	27	20.0
	3	15	11.1
Use of sleep medication	Not during the practicum-based courses	117	86.7
	Less than once a week	14	10.4
	Once or twice a week	4	2.9
	Three or more a week	0	0
Daytime dysfunction	0	14	10.4
	1-2	37	27.4
	3-4	57	42.2
	5-6	27	20.0

Table 4.6 shows the total PSQI score of UNIMAS nursing students throughout the practicumbased courses. Most of the students (n = 26, 17.8%) had the global PSQI score of 9. Twentysix students (19.2%) had a total PSQI score of equal to or less than 5, indicating they had good sleep throughout the practicum-based courses. Whereas 109 students (80.7%) had a total PSQI score of higher than 5, indicating they had poor sleep throughout the practicum-based courses. **Table 4.6**

Global PSQI score	Frequency	%		Sleep quality	Frequency	%
0	1	0.7	≤5	Good	26	19.2%
1	2	1.5	_			
2	3	2.2	_			
3	2	1.5	_			

Global PSQI scores throughout the practicum-based courses

	0	7 0				
4	8	5.9				
5	10	7.4	-			
6	17	12.6	>5	Poor	109	80.7%
	7	5 0	-			
	1	5.2				
0	10	12.2	-			
8	18	13.3				
0	24	17.0	-			
9	24	17.8				
10	11	0.1	-			
10	11	8.1				
11	10	7 /	-			
11	10	/.4				
12	7	5.2	-			
12	1	5.2				
13	7	5.2	-			
10	1	0.2				
14	7	5.2	-			
	,	<i>v</i> - <u></u>				
15	1	0.7	-			

Figure 4.2

Global PSQI score throughout the practicum-based courses



4.5 Comparison of sleep quality throughout the theory- and practicum-based courses

Table 4.7 presents the central of tendency and dispersion of sleep quality of UNIMAS nursing students during theory- and practicum-based courses respectively. The distribution of global PSQI scores among UNIMAS nursing students was examined. During the theory-based courses, the mean PSQI score was 8.25 (SD = 2.857), indicating a poor sleep quality. The scores ranged from 1 to 14, with a median score of 8. The skewness value of -0.301, indicates a left-skewed distribution, where the tail is longer on the left side. The kurtosis value of -0.541, indicates it had fewer extreme values (platykurtic) and flatter peak than a normal distribution. During the practicum-based courses, the mean PSQI score was 8.26 (SD = 3.174), indicating a poor sleep quality. The scores ranged from 0 to 15, with a median score of 8. The skewness value of -0.315, indicates it had fewer extreme values (platykurtion, where the tail is longer on the left side score of 8. The skewness value of -0.315, indicates it had fewer extreme values (platykurtion, where the tail is longer on the left side score of 8. The skewness value of -0.315, indicates it had fewer extreme values (platykurtic) and flatter peak than a normal distribution.

Table 4.7

Central of tendency and dispersion of global PSQI score throughout the theory- and practicum-based courses

PQSI scores	Theory-based courses	Practicum-based courses
Mean	8.25	8.26
Mode	8	9
Median	8	8
Standard deviation	2.857	3.174
Interquartile range	4	4
Skewness	301	122
Kurtosis	-0.541	-0.315

Table 4.8 shows the normality test (Kolmogorov-Smirnov) for the global PSQI scores of UNIMAS nursing students throughout the theory- and practicum-based courses. Both sets of data showed a p-value of less than 0.05, indicating that the data were both not normally distributed and violates the assumptions. Therefore, Wilcoxon Signed Rank test was used to test if there is any significance difference in the mean of PSQI score for the UNIMAS nursing students during theory- and practicum-based courses.

Table 4.8

Normality test for the global PSQI scores throughout the theory- and practicum-based courses

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Theory-based courses	.102	135	.002	.972	135	.007
Practicum-based courses	.097	135	.003	.981	135	.053

Table 4.9 reports the result of Wilcoxon Signed Rank test. The p-value (0.942) was greater than the significance level (0.05), it suggested that there was insufficient evidence to reject the null hypothesis. Therefore, it was found that there is no significant difference in the mean of PSQI scores of UNIMAS nursing students during the theory-based courses and practicum-based courses.

Table 4.9

Statistical test for global PSQI scores throughout the theory- and practicum based courses

	PracticumPSQI-TheoryPSQI
Z	073
Asymp. Sig (2-tailed)	.942

CHAPTER 5

DISCISSION AND CONCLUSION

5.0 Introduction

The result of this study will discuss in this chapter. Sleep quality among UNIMAS nursing students throughout the theory- and practicum-based courses, limitation, and conclusion will be explained.

5.1 Sleep quality throughout the theory-based courses

The findings of this study showed that most of the nursing students (80%) had a total PSQI score of higher than 5, indicating they had poor sleep throughout the theory-based courses. And, it is worth noting that most of the students (n = 21, 15.6%) obtained a global PSQI score of 8, indicating a moderate level of sleep quality. This finding suggests that a considerable proportion of nursing students experience some degree of sleep problems during the theory-based courses. Only 27 students (20%) achieved a total PSQI score of equal to or less than 5, indicating they had good sleep throughout the theory-based courses. This finding suggested that a small portion of nursing students managed to maintain a satisfactory level of sleep during this phase of studies.

The findings of this study aligned with previous research indicating that nursing students often experience sleep problems and suboptimal sleep quality throughout theory-based courses. The study findings of Benavente et al. (2014) stated that there was a predominance of bad sleep quality (78.8%) as the students use part of the sleeping time for attending academic

(study and readings) and there was stress sourced from the competition in the acquisition of knowledge and personal differences among course mates.

However, according to a study conducted by Silva et al. (2020) in Brazil, 100% (n = 39) of fifth semester nursing students, who were attending the nursing classes with extensive course load, had good sleep quality based on PSQI classification. The difference between the results might be due to the students in Brazil had better time management for attending nursing classes, accomplishing coursework, and sleeping. The results could also be influenced the small study sample size of 39.

5.2 Sleep quality throughout the practicum-based courses

The findings of this study showed that most of the nursing students (80.7%) had a total PSQI score of higher than 5, indicating they had poor sleep throughout the practicum-based courses. And, it was observed that the majority of the students (n = 26, 17.8%) obtained a global PSQI score of 9. These individuals faced challenges related to sleep duration, disturbances, and daytime dysfunction, which may impact their overall well-being and academic performance during the practicum-based courses.

On the other hand, 26 nursing students (19.2%) achieved a total PSQI score of equal to or less than 5, indicating they had good sleep throughout the practicum-based courses. These individuals seemed to have better sleep duration, fewer disturbances, and less daytime dysfunction compared to other peers. This finding highlights the presence of a subset of students who managed to maintain healthy sleep patterns during the practicum-based courses, possibly through effective coping mechanisms or personal strategies such as good time management between studying and sleeping.

The findings of this study aligned with previous research indicating that nursing students often experience sleep problems and suboptimal sleep quality throughout practicum-based courses. A study conducted by Kesgin and Çağlar (2020) has highlighted that 431 nursing students who were engaged in clinical practice in Turkey had an average PSQI score of 7.71 ± 3.27 , revealing that the students' sleep quality was poor during practicum-based courses.

There finding was differed from the finding of a similar study by Rabei et al. (2020) where 90.53% of the internship nursing students scored global PSQI of 8. Rabei et al. (2020) related the sleep disturbance among internship nursing students with the work stress and concluded that nurses who have higher workload were more stressful, thus experiencing more sleep disturbances. Not only this, another study conducted by Silva et al. (2020) in Brazil reported that 68.18% of the eighth semester nursing students, who were experiencing the first time of attaching at the hospital without the professor's supervision, had a good sleep quality based on PSQI classification. The difference between the results might be due to the UNIMAS nursing students have poorer stress endurance than the nursing students at College of Nursing Helwan University and in Brazil. The results could also be influenced by the small sample size of 95 and 23 respectively of the studies.

5.3 Comparison of sleep quality throughout the theory- and practicum-based courses

A Wilcoxon Signed Rank Test revealed that there is no significant difference in the mean of PSQI scores between the theory-based courses and practicum-based courses, z = -.073, n = 135, p = 0.942 (> 0.05), with a large effect size (r = 0.626). The lack of significant differences in sleep quality between the theory-based and practicum-based courses might have several implications. Firstly, it suggested that the factors influencing sleep quality may be similar across both course types. Possible factors contributing to poor sleep quality in nursing

students could include academic stress, irregular schedules, increased workload, clinical responsibilities, and personal life commitments. These factors might have a similar impact on sleep regardless of the specific course format.

5.4 Limitations of the study

This study had several limitations where the use of a self-administered questionnaire relied on subjective measures of sleep quality. Hence, the variables had the possibility of recall bias that some people over or underreported. Besides, this was the first time the researcher conducted research individually. The scope of discussion may not be as broad as in studies conducted by experienced researchers. Other than that, the study was only conducted on UNIMAS nursing Year 2, 3 and 4 students, therefore the finding was not able to generalize nursing students in other institutions. Further research was needed to validate the results in larger and more diverse samples.

5.5 Conclusion

Overall, the results suggested that sleep quality remains a concern among UNIMAS nursing students during both the theory-based courses and the practicum-based courses. The study also showed that there is no significant difference in the sleep quality throughout the theory- and practicum-based courses. The finding of the study highlighted the necessary of addressing sleep quality issues among nursing students to promote their overall well-being and academic performance. Interventions and support systems were needed to improve sleep quality and ensure adequate rest and recovery for students throughout the academic journey. By recognizing the prevalence of poor sleep quality among UNIMAS nursing students and

acknowledging the lack of variation between different types of courses, UNIMAS were encouraged to implement strategies such as sleep education, stress management programs, and campus-wide initiatives to promote healthy sleep habits and overall well-being, thus enhancing the academic success, mental health, and future professional performance.

REFERENCES

Benavente, S. B. T., Silva, R. M. da, Higashi, A. B., Guido, L. de A., & Costa, A. L. S. (2014).

Influence of stress factors and socio-demographic characteristics on the sleep quality of nursing students. *Revista Da Escola de Enfermagem Da USP*, 48(3), 514–520. https://doi.org/10.1590/s0080-623420140000300018

- Buysse, D. J. (2014). Sleep Health: Can We Define It? Does It Matter? *Sleep*, *37*(1), 9–17. https://doi.org/10.5665/sleep.3298
- Caruso, C. C. (2014). Negative Impacts of Shiftwork and Long Work Hours. *Rehabilitation Nursing*, *39*(1), 16–25. https://doi.org/10.1002/rnj.107
- Correia, T., Santos, A., Cambulo, A., Almeida, A. M., Longo, J., & Valentim, O. (2022). Health Literacy and Sleep Quality in Nursing Students. *Medical Sciences Forum*, 17(1), 2. https://doi.org/10.3390/msf2022017002
- Dharmarathna, N. D. & Jayamaha, A. R. (2021). Sleep quality of first-year nursing students of the School of Nursing, Colombo, Sri Lanka. ResearchGate. https://www.researchgate.net/publication/353157421_Sleep_quality_of_firstyear_nurs ing_students_of_the_School_of_Nursing_Colombo_Sri_Lanka https://doi.org/10.3390/msf2022017002
- D. Yilmaz, F. Tanrikulu, & Y. Dikmen. (2017). Research on sleep quality and the factors affecting the sleep quality of the nursing students. PubMed Central (PMC). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6286721/

- Institute for Work & Health. (2015). Study designs for program evaluation. https://www.iwh.on.ca/what-researchers-mean-by/cross-sectional-vs-longitudinal-stud ies
- Kesgin, M. T., & Çağlar, S. (2020). Evaluation of sleep quality and perceived stress of nursing students who are engaged in clinical practice based on their sleeping habits.
 ResearchGate.https://www.researchgate.net/publication/339492261_Evaluation_of_sl eep_quality_and_perceived_stress_of_nursing_students_who_are_engaged_in_clinica l_practice_based_on_their_sleeping_habits
- Kézia Katiane Medeiros da Silva, Milva Maria Figueiredo de Martino, Clarissa Maria Bandeira Bezerra, Ângela Monic Lima de Souza, Danila Maria da Silva, & Jacqueline Targino Nunes. (2020). Stress and quality of sleep in undergraduate nursing students. SciELO -Brazil. https://www.scielo.br/j/reben/a/cVF7PnPfmzD4JRfSrtWvZkH/?lang=en
- Khin, T. A. (2016). Sleep Quality and Academic Performance of Nursing Students. ResearchGate. https://www.researchgate.net/publication/362700343_Sleep_Quality_ among_Nursing_students_in_Kathmandu_Valley_A_Cross-sectional_Study
- Mangekar, Rimzim. B., D. Meshram, Pradnya., Kharole, K., Kalambe, U., Nagelwar, A.,
 Pahade, P., Meshram, S., & Humane, S. (2022). A Descriptive Study to Assess the
 Quality of Sleep Among Nursing Students in Selected Nursing College. *Galore International Journal of Applied Sciences and Humanities*, 6(4), 5–8.

https://doi.org/10.52403/gijash.20221002

Merriam-Webster. (2014). *Practicum*. https://www.merriam-webster.com/ dictionary/ practicum

- Nunez, K., & Lamoreux, K. (2020). What Is the Purpose of Sleep? Healthline. https://www.healthline.com/health/why-do-we-sleep
- Rahman, H. A., Hatsanee, A., Menjeni, N. A., Salleh, Z. A., Hamid, R. A., & Ali, M. (2022). *Perceived sleep quality: a comparison between hospital nurses and student nurses.*British journal of nursing (Mark Allen Publishing), 31(11), 578–588.
 https://doi.org/10.12968/bjon.2022.31.11.578
- Rabei, S., Mourad, G., & Hamed, A. E. D. (2020). Work stress and sleep disturbances among internship nursing students. *Middle East Current Psychiatry*, 27(1). https://doi.org/10.1186/s43045-020-00032-1
- Smith, J. (2012). Combining practice-based learning and theory-based learning. Progress Focused. http://www.progressfocused.com/2012/06/combining-practice-basedlearning-and.html
- Wanhong Xiong, Jin Huang, & Aiqun Zhu. (2021). The relationship of sleep quality among internship nurses with clinical learning environment and mental stress: a crosssectional survey. ClinicalKey. https://www.clinicalkey.com/#!/content/playContent/1s2.0-S1389945721002586?returnurl=null&referrer=null
- Yamane, T. (1973). Statistics: An Introductory Analysis. 3rd Edition, Harper and Row, New York.
- Zhang, Y., Peters, A., & Bradstreet, J. (2018). Relationships among sleep quality, coping styles, and depressive symptoms among college nursing students: A multiple mediator model.
 Journal of Professional Nursing, 34(4), 320–325. https://doi.org/10.1016/j.profnurs.2017.12.004

APPENDIX A: RESEARCH ETHICAL APPROVAL LETTER

Connio Nga Kor Nee (69411) Year 4 Undergraduato Narsing Student Faculty of Medicine and Health Sciences					
Steep Quality of Theory - and siversiti Malaysia VAL for this Final to Department of triversiti Malaysia search details as					
43 Nursing 2017 - and 1					

Permission from all relevant heads of departments/units where the study will be carried out must be obtained prior to the study.

Please note that the approval is valid from March 2023 to March 2624 only. The reference number for this letter must be stated in all correspondence related to this study to facilitate the process.

Thank you with regards and well withen.

Yours sincerely,

Professor Dr. Aan hin Said Dean

Deputy Dean of Undergraduate
 Head of Nursing Department
 Bacheler of Nursing with Honours Programme Coordinator
 MD34652 Final Year Project 1 Course Coordinator
 MD34663 Final Year Project 2 Course Coordinator

APPENDIX B: INFORMED CONSENT



INFORMATION SHEET OF THIS STUDY

PROTOCOL TITLE	:	The Sleep Quality of UNIMAS Nursing Students
		throughout the Theory- and Practicum-Based Courses
PROTOCOL IDENTIFIE	R :	Connie Ngu Kor Nee
SPONSOR	:	None
INSTITUTION ADDRESS	S :	Faculty of Medicine and Health Science, Universiti
		Malaysia Sarawak, 94300 Kota Samarahan, Sarawak,
		Malaysia.

THE NATURE AND PURPOSE OF THE STUDY

This is a quantitative study and the objectives are to assess and to compare the sleep quality of UNIMAS nursing students throughout the theory-based courses and practicum-based courses.

STUDY DESCRIPTION

The data will be collected using self-administered questionnaire, which consist of five parts. Participants will be asked to answer questions on their socio-demographic, sleep quality throughout the theory-based courses, sleep quality throughout the practicum-based courses, the presence of bed partner/roommate, and the bed partner/roommate's assessment on participant (if any). The approximate time required to complete the questionnaire is 10 to 15 minutes.

RISKS OF STUDY PARTICIPATION

There is no risk of study participation identified.

POSSIBLE BENEFITS OF STUDY PARTICIPATION

Participation on this study will allow data regarding sleep quality among UNIMAS nursing students to be collected. Additionally, findings from this study can help to compare the sleep quality of UNIMAS nursing students during theory-based courses and practicum-based courses.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary.

CONFIDENTIALITY

Any given information will be dealt with high level of confidentiality and only be used for this study. Collected data will remain safe as the computer and file will be password protected.

WITHDRAWAL FROM STUDY

The participants are allowed to withdraw from this study at any time.

TO OBTAIN FURTHER INFORMATION

Any enquiries can be referred to Connie Ngu Kor Nee via WhatsApp at 013-8510075

or e-mail, 69411@siswa.unimas.my.

Thank you,

Connie

Connie Ngu Kor Nee (69411)



CONSENT TO PARTICIPATE IN THIS STUDY

I have read, or have been read to me, in language understandable to me, the above information. The content and meaning of this information have been fully explained to me. I have had time and opportunity to ask any questions that I have about the study and this form, and all my questions have been answered. I have read, or have been read to me, all pages of this consent form and the risks described. I voluntarily consent and offer to take part in this study. By signing this consent form, I certify that all information I have given, including my medical history, is true and correct to the best of my knowledge. I understand that I will receive a copy of this signed consent form.

Participant

Name of the participant

Signature of the participant

Researcher

Date

Connie Ngu Kor Nee

Name of the researcher

Connie

Signature of the researcher

Date

APPENDIX C: PERMISSION TO USE AND MODIFY PSQI QUESTIONNAIRE

And Ram Other a bar a bar a bar of the Carlos of the	
Delete Divertion (Categorian - Howard - Minead University - Howard - Minead University - Howard - Howard - Minead	ig - Le Assign policy - Gi Print
E Sleep Measures Request Form (PSQI, etc.)	0,
Gasiorowski, Mary «Gasiorowski/MJ@upmc.edu»	·····································
PSGI Noncommercial EULA L. 🗸 📮 PSGI antiole.pdf 🗸 📮 Exhibit A-PSGI scening.pdf 🗸 📮 Exhibit A-P	Glp#
The state of the s	
rt reply with: [2] Schedule a reeting SF Feedback	
at on behalf of Carolyn Weber	
earch use of the PSQI;	
rr Connie.	
nk you for your interest in our PSQI instrument. I can give you permission to use the PSQI only in non-commercially funded research or ed intercial product or is in development by a commercial entity. It cannot be used for patient care either. If your use does not fail under thos owing provisions:	ucation or the product or service you are testing is not a e conditions, you can use the survey according to the
copyright in this form is owned by the University of Pittsburgh and may be reprinted without charge only for non-commercial research and diffications of this form without prior written permission from the University of Pittsburgh. If you would like to use this instrument for comm are contact the Innovation Institute at the University of Pittsburgh at 412-381-7609 for Iccensing Information.	d educational purposes. You may not make changes or arcial purposes or for commercially sponsored research,
r university has instituted a new policy for foreign licensing entities. There are additional clauses that are added to these agreements ted through several departments at the university for review and approval first before final execution of the agreement. This will at	. Due to this added language, the agreement now need: feet the time line for completion here.
information is found on the Slaan Markina Institute of the University of Dirichurch as https://www.dawn.off.adu/fortrum.off./	
🖉 Type here to search 🛛 😹 O 🛱 🚺 🐂 🙆 🚮 🚇 🗐 Ď	a Rain_ ^ @ @ 10 @ 4 UND 1005PM
Seep Measures Request Form (PSQ), etc.) - COMME NGU KOR NEE - Outlook - Google Chrome	- σ
Steep Measures Request Form (PSQ), etc.] - CONNE NGU KOR NEE - Outlook - Google Chrome Inout-Diank	- σ
Diep Massure: Requert Form (PSQ), etc.) - CONNE NGU KOR NEE - Gudsok - Google Divorne out:blank Delete ☐ Archive ① Report - ← Reply ← Reply all Forward -	- 🗗
Deep Massures Request Form (PSQ), etc.) - CDANKE NGU KDR NEE - Outlook - Google Chrome out:blank Delete ☐ Archive ③ Report ← Reply ← Reply all ← Forward	- 🗗 ng v 🕞 Assign policy v 🕞 Print 🛛 Q
Ereep Measures Request Form (PSQ), etc.) - CONNE NGU KOR NEE - Outlook - Google Orrone rout/blank Delete ☐ Archive ③ Report ← Reply Reply all Proward	- 🗗 ng v 🕞 Assign policy v 🕞 Print 🛛 Q,
Seep Measures Request Form (FSQ), etc.) - CONNE NGU KDK NEE - Outlook - Google Chrome Iouriblank Delete	- 0 Ig v 🕞 Assign policy v 🕞 Print 🗠 Q Indicate what languages they have on file. You will need
Steep Measures Request Form (PSQ), etc.) - CONNE NGU KDK NEE - Outlook - Google Chrome coutblank Delete	- 0 ig v 🕞 Assign policy v 🕞 Print ···· Q indicate what languages they have on file. You will need instation on file. You will need to contact them for that
Evep Measures Request Form (PSQ), etc.) - CONNET NGU KOR NET - Outlook - Google Orronse outblank Delete	- 0
Deep Measures Request Form (PSQ), etc.) - CDMNEE NGU KDR NEE - Outlook - Google Chrome outblank Delete	- O - O - O - O - O - O - O -
Evep Measures Request Form (PSQ), etc.) - CONNE NGU KOR NEE - Outlook - Google Orione outblank Delete Archive Apply Apply Apply Apply Provide Constant Apply Apply	- O indicate what languages they have on file. You will need instantion on file. You will need to contact them for that ate yourself, there may be repercussions to your study in ts may not be wild. All translations are property of the eeds to be completed if you do the translation yourself. WAPI, however, does and you need to send it directly to
Deete Development Request Form (PSQ), etc.) - CONNEE NGU KDR NKE - Outsook - Google Chrome routblank Delete Acchive Request Form (PSQ), etc.) and then email the signed agreement back to the university. We will accept DocuSign signatures. Sideop Measures Request Form (PSQ), etc.) and then email the signed agreement back to the university. We will accept DocuSign signatures. Sideop Measures request Form (PSQ), etc.) and then email the signed agreement back to the university. We will accept DocuSign signatures. Sideop Measures request Form (PSQ), etc.) and then email the signed agreement that we have with MAPI Research Trust. The website (https://weo.onde.maelstonstamg) will with them to obtain any necessary transistions. They will collect the proper user agreement. I do not know if they have the required to method. e translations are unavailable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translations must be done in a validated linguistic manner which MAPI provides to us. If the translation is not done correctly, the result errity of Pittsburgh. They are considered derivative works of the original work. I have attached a template translation agreement which no research and/or educational purposes, Pitt does not require a signed license agreement as long as you comply with the above provisions. In as per their instructions. Sou have any questions, please feel free to email me for additional information. ht prov.	- 0 ag - C Ausign policy - O Print Indicate what languages they have on file. You will need indicate what languages they have on file. You will need insistion on file. You will need to contact them for that ate yourself, there may be repercussions to your study in is may not be wild. All translations are property of the seeds to be completed if you do the translation yourself. WAPP, however, does and you need to send it directly to
Eleep Measures Request Form (PSQ), etc.) - CONNE INGU KDR NEL - Outlook - Google Divorne outblank Delete Acchive Request Form (PSQ), etc.) and then email the signed agreement back to the university. We will accept DocuSign signatures. Salations are distributed through an agreement that we have with MAPI Research Trust. The website [https://wecoside.meelstrust.org/) will k with them to obtain any necessary translations. They will collect the proper user agreement. I do not know if they have the required tor mation. e translations are unawailable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translations are unawailable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translations are unawailable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translations are unawailable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translations are unawailable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translations are unawailable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translation is not done correctly, the recub research and/or educational purposes, Pitt does not require a signed license agreement as long as you comply with the above provisions. It is a per their instructions. u have any questions, please feel free to email me for additional information. It you, hyp	- 0 ag - Assign policy - O Print indicate what languages they have on file. You will need indicate what languages they have
Exep Messure: Request form (PSQ), #c] - CONNE NGU KOR NEL - Outlook - Google Divorse ioutiblank Delete Archive Reput → Reply Reply Power → Reply all → Forward → Read / Umread Categorize → Rag / Umfe S Sleep Measures Request Form (PSQ), etc.) and then email the signed agreement back to the university. We will accept DocuSign signatures. Subtrons are distributed through an agreement that we have with MAPI Research Trust. The website (<u>Integriference</u>) will keep them to obtain any necessary translations. They will collect the proper user agreement. I do not know if they have the required to mation e translations are unavailable, MAPI will be able to provide them for a cost. You will need to contact them for the easer price. If you transler the translations must be done in a validated linguistic manner which MAPI provides to us. If the translation is not done correctly, the result errity of Pittsburgh. They are considered derivative works of the original work. I have attached a template translation agreement which nor na as per their instructions. Is unave any questions, please feel free to email me for additional information. It you, Mark States and for educational purposes, Pitt does not require a signed license agreement as long as you comply with the above provisions. If have any questions, please feel free to email me for additional information. It you, Mark States States and the states are considered free to email me for additional information.	Indicate what languages they have on file. You will need indicate what languages they have on file. You will need instation on file. You will need to contact them for that ate yourself, there may be repercussions to your study in the wait. All translations are property of the reeds to be completed if you do the translation yourself. WAPI, however, does and you need to send it directly to
Every Measures Request Form (PSQ), etc.) - COMME NOU KDR NEE - Outlook - Google Drome routblank Delete Active Request Form (PSQ), etc.) and then email the signed agreement back to the university. We will accept DocuSign signatures. Siletons are distributed through an agreement that we have with MAPI Research Trust. The website (integrifeerowide meeti-front area) will be able to provide the proper user agreement. I do not know if they have the required to mation. e translations are unaveilable, MAPI will be able to provide them for a cost. You will need to contact them for the exact price. If you transl- the translations must be done in a validated linguistic manner which MAPI provides to us. If the translation is not done correctly, the result error and/on. e translations must be done in a validated linguistic manner which MAPI provides to us. If the translation is not done correctly, the result error of Pittsburgh. They are considered derivative works of the original work. I have attached a template translation agreement which no research and/or educational purposes, Pitt does not require a signed license agreement as long as you comply with the above provisions. In n as per their instructions. un have any questions, please feel free to email me for additional information. thypu, ign for 5 1945457 5687 wing Jacobian erstly of Pittsburgh (Office of innovation & Entrepreneurship loor Gardner Steel Contenence Center (650C) Taxbeery Aveeme	Indicate what languages they have on file. You will need to contact them for that any value will need to contact them for that ate yourself, there may be repercussions to your study in the wald. All translations are property of the reads to be completed if you do the translation yourself.
Even Measures Request form (PSQ), etc.) - CONNEL NGU KOR. NEL - Outlook - Google Droome outblank Delete A Archive A Report A Reply A Reply A Ponvard A Reply A Reply A Ponvard A Read / Unread Categorize A Reg / Unflu Sleep Measures Request Form (PSQ), etc.) and then email the signed agreement back to the university. We will accept DocuSign signatures. slations are distributed through an agreement that we have with MAPP Research Trust. The webbite (<u>introductional magneticational organity</u>) will be to utb them to obtain any necessary translations. They will collect the proper user agreement. I do not know if they have the required to mation. et translations are unaveilable, MAPP will be able to provide them for a cost. You will need to contact them for the exact price. If you transl the translations must be done in a validated linguistic manner which MAPI provides to us. If the translation is not done correctly, the result result of Pittsburgh. They are considered derivative works of the original work. I have attached a template translation agreement which no research and/or educational purposes. Pitt does not require a signed license agreement as long as you comply with the above provisions. In a sper their instructions. u have any questions, please feel free to email me for additional information. It you, Man Sing 1 Webs: 3481 Sing 1. Stoole of innovation & Entrepreneurship boor Gardner Steel Contenso Center (SECC) Thackeway Awenue bargh, PA 15200 (al.2.2.2.7070] Direct Dis: 412-382-7140	Indicate what languages they have on file. You will need indicate what languages they have on file. You will need indicate what languages they have on file. You will need involvion on file. You will need to contact them for that ate yourself, there may be repercussions to your study in its may not be willed. All translations are property of the eeds to be completed if you do the translation yourself. MAPI, however, does and you need to send it directly to

APPENDIX D: DATA COLLECTION INSTRUMENT

Modified PSQI

Section A: Socio-demographic and baseline information

Serial number	
Age	years old
Gender	Male / Female
Race	Chinese / Malay / India / Iban / Other:
Year of study	2/3/4
Duration of practicum that you	weeks
have gone through so far	
How do you rate your stress level	No stress at all /
	Mild stress /
	Moderate stress /
	Much stress /
	Extreme stress
How do you rate your anxiety level	Not anxious at all /
	Mild anxious /
	Moderate anxious /
	Severe anxiety

Section B: Sleep quality throughout Theory-based courses

* Instructions: The following questions relate to your usual sleep habits during attending the *theory-based courses only*. Your answers should indicate the most accurate reply for the <u>majority</u> of days and nights throughout the theory-based courses.

- 1. During the theory-based courses, what time have you usually gone to bed at night?
- 2. During the theory-based courses, how long (in minutes) has it usually taken you to fall asleep each night? ______
- 3. During the theory-based courses, what time have you usually gotten up in the morning?
- 4. During the theory-based courses, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)

5.	During the theory-based courses, how often have you had trouble because you	not during the theory-based courses	less than once a week	once or twice a week	three or more times a week
a.	Cannot get to sleep within 30 minutes				
b.	Wake up in the middle of the night or early morning				
c.	Have to get up to use the bathroom				
d.	Cannot breathe comfortably				
e.	Cough or snore loudly				
f.	Feel too cold				
g.	Feel too hot				
h.	Have bad dreams				
i.	Have pain				
j.	Other reason(s), please describe:				
6.	During the theory-based courses, how often have you taken medicine to help you sleep (prescribed or "over the counter")?				
7.	During the theory-based courses, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				

	No problem at all	Only a very slight problem	Somewhat of a problem	A very big problem
8. During the theory-based courses, how much of a problem has it been for you to keep up enough enthusiasmto get things done?				
	Very good	Fairly good	Fairly bad	Very bad
9. During the theory-based courses, how would you rate your sleep quality overall?				

Section C: Sleep quality throughout the practicum-based courses

* Instructions: The following questions relate to your usual sleep habits during attending the **practicum-based courses only**. Your answers should indicate the most accurate reply for the majority of days and nights throughout the practicum-based courses.

- 1. During the practicum-based courses, what time have you usually gone to bed at night?
- 2. During the practicum -based courses, how long (in minutes) has it usually taken you to fall asleep each night?
- 3. During the practicum-based courses, what time have you usually gotten up in the morning? ______
- 4. During the practicum-based courses, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.______

		1			
5.	During the practicum-based	not during	less	once or	three or
	courses, how often have you had	the	than	twice a	more
	trouble because you	practicum-	once a	week	times a
		based	week		week
		courses			
a.	Cannot get to sleep within 30				
	minutes				
b.	Wake up in the middle of the				
	night or early morning				
с.	Have to get up to use the				
	bathroom				
d.	Cannot breathe comfortably				
e.	Cough or snore loudly				
f.	Feel too cold				
g.	Feel too hot				
h.	Have bad dreams				
i.	Have pain				
j.	Other reason(s), please describe:				
6.	During the practicum-based				
	courses, how often have you				
	taken medicine to help you sleep				
	(prescribed or "over the				
	counter")?				
7.	During the practicum-based				
	courses, how often have you had				
	trouble staying awake while				
	driving, eating meals, or engaging				
	in social activity?				
	-				

	No problem at all	Only a very slight problem	Somewhat of a problem	A very big problem
 During the practicum-based courses, how much of a problem has it been for you to keep up enough enthusiasm to get things done? 				
	Very good	Fairly good	Fairly bad	Very bad
9. During the practicum-based courses, how would you rate your sleep quality overall?				

Section D:	The present	e of bed pa	rtner / roommate
beenon Di	Inc present	ce or bea pa	i mei / i commute

	No bed partner or roommate	Partner/roommate in other room	Partner in same room but not same bed	Partner in same bed
 Do you have a bed partner or bed partner? 				

Section E: Bed partner / roommate's assessment on Participant (if any)

If you have a bed partner or roommate, ask him/her how often throughout the theory-	Not during the theory-based courses	Less than once a week	Once or twice a week	Three or more times a
based courses you have had:				week
a. Loud snoring				
b. Long pauses between				
breaths while asleep				
c. Legs twitching or jerking while you sleep				
d. Episodes of disorientation				
or confusion during sleep				
e. Other restlessness while				
you sleep, please describe:				

If you have a bed partner or roommate, ask him/her how	Not during the practicum-based	Less than once a week	Once or twice a	Three or more
often throughout the	courses		week	times a
practicum-based courses you				week
have had:				
a. Loud snoring				
b. Long pauses between				
breaths while asleep				
c. Legs twitching or jerking				
while you sleep				
d. Episodes of disorientation				
or confusion during sleep				
e. Other restlessness while				
you sleep, please describe:				

APPENDIX E: SCORING OF MODIFIED PITTSBURGH SLEEP QUALITY INDEX

Scoring of the modified PSQI

The order of the PSQI item has been modified from the original order in order to fit the first 9 items (which are the only items that contribute to the total score).

Component 1: Subjective sleep quality—question 9				
Response to O9	Component 1 score			
Very good	0			
Fairly good	1			
Fairly bad	2			
Very bad	3			
	Component 1 score:			
Component 2: Sleep latency-	–questions 2 and 5a			
Response to Q2	Component 2/Q2 subscore			
< 15 minutes 0	0			
16-30 minutes	1			
31-60 minutes	2			
> 60 minutes	3			
Response to Q5a	Component 2/Q5a subscore			
Not during past month	0			
Less than once a week	1			
Once or twice a week	2			
Three or more times a week	3			
Sum of Q2 and Q5a subscores	Component 2 score			
0	0			
1-2	1			
3-4	2			
5-6	3			
Component 2 score:				
Component 3: Sleep duration	question 4			
Response to Q4	Component 3 score			
> 7 hours	0			
6-7 hours	1			
5-6 hours	2			

< 5 hours	3						
Component 3 score:							
Component 4: Sleep efficiency	y—questions 1, 3, and 4						
Sleep efficiency = ($\#$ hours slep	t/# hours in bed) X 100%						
# hours in bed—calculated from	m responses to questions 1 and	3					
Sleep efficiency	Component 4 score]					
> 85%	0]					
75-84%	1]					
65-74%	2]					
< 65%	3]					
	Component 4 score:						
Component 5: Sleep disturba	nce—questions 5b-5j						
Questions 5b to 5j should be see	ored as follows:	-					
Not during past month	0						
Less than once a week	1						
Once or twice a week							
Three or more times a week	3						
Come 6 51 to 51 googo	Comparent 5 agons	1					
Sum of 50 to 51 scores	Component 5 score	4					
		-					
1-7		-					
10-10	2	-					
17-21]					
	Component 5 score:						
Component 6: Use of sleep mo	edication—question 6						
Response to Q6	Component 6 score]					
Not during past month	0						
Less than once a week	1	1					
Once or twice a week	2	1					
Three or more times a week	3]					
	Component 6 score:						
Component 7: Davtime dysfu	nction—questions 7 and 8						

Component 7: Daytime dysfunction—questions 7 and 8

Response to Q7	Component 7/Q7 subscore				
Not during past month	0				
Less than once a week	1				
Once or twice a week	2				
Three or more times a week	3				
Response to Q8	Component 7/Q8 subscore				
No problem at all	0				
Only a very slight problem	1				
Somewhat of a problem	2				
A very big problem	3				
Sum of Q7 and Q8 subscores	Component 7 score				
0	0				
1-2	1				
3-4	2				
5-6	3				
Component 7 score:					
Global PSQI Score: Sum of seven component					
	scores:				

APPENDIX F: GANTT CHART

Activity	Date								
		2022		2023					
	OCT	NOV	DEC	JAN	FEB	MAC	APR	MAY	JUNE
Determination of research title									
Literature review									
Meeting supervisor									
Submit oral defence slides									
Submission of first draft									
FYP 1: Submission of research									
Data collection									
Data analysis									
Writing up report									
Submit final draft									
FYP 2: Submission of final report									

APPENDIX G: EXPENDITURE

Items	Cost
Internet data plan	RM 60
IBM Statistical Package for the Social Science (SPSS) Software installation	RM 5
Printing and binding FYP report	RM 60
TOTAL	RM 125