


**SLEEP QUALITY AMONG FINAL YEAR
STUDENTS OF HEALTH SCIENCES AT
UNIVERSITI SAINS MALAYSIA (USM)**

By

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LIST OF ABBREVIATIONS

CGPA	- Cumulative Grade Point Average
Hospital USM	- Hospital Universiti Sains Malaysia
PSQI	- Pittsburgh Sleep Quality Index
NREM	- Non Rapid Eye Movement
REM	- Rapid Eye Movement
HBM	- Health Believe Model
USM	- Universiti Sains Malaysia
WHO	- World Health Organization

Sleep Quality Among Final Year Students of Health Sciences At Universiti Sains Malaysia (USM)

ABSTRACT

Sleep has been found to be of the least priority of most individuals especially students; this includes final year students of health sciences. The purpose of this cross sectional was to determine the sleep quality among final year students of health sciences at School of Health Science, USM. Health Believe Model was used as theoretical framework in this study. The objective of this study was to determine the association between age, gender, health science program and academic performance with sleep quality. A set of questionnaire, Pittsburgh Sleep Quality Index (PSQI) by Buysee (1988) was used and 155 final years of health science students in School of Health Sciences, USM were recruited. A pilot study among 30 students were done to check reliability and validity of the questionnaire with the value was 0.72. Data was analyzed using the software package SPSS version 22. Statistical significance was considered at p value <0.05 . During the analysis, the score of sleep quality was evaluated. Among 155 respondents ($n=155$), 107 (69.0%) respondents showed that they had poor sleep quality and 48 (31.0%) showed good sleep quality. Using Chi Square test, there was no association between age and gender with sleep quality ($p= 0.175$) ($p=0.835$). However there was an association between different programs in health science with sleep quality ($p=0.024$). Using one way anova test, there is no association between academic performance and sleep quality ($p=0.396$). The study findings indicated that majority of the final year students of health sciences at School of Health Science, USM have poor sleep quality

**Kualiti Tidur dalam kalangan Pelajar Tahun Akhir Sains Kesihatan di Universiti
Sains Malaysia (USM)**

ABSTRAK

Tidur merupakan suatu perkara yang paling kurang diambil berat dalam kalangan pelajar dan ini termasuk pelajar tahun akhir sains kesihatan. Tujuan kajian rentangan tinjauan ini dijalankan adalah untuk mengetahui kualiti tidur dalam kalangan pelajar tahun akhir di Pusat Pengajian Sains Kesihatan, USM. Model Kepercayaan Kesihatan telah digunakan sebagai rangka teori bagi kajian ini. Objektif kajian ini adalah untuk mengetahui hubungan antara umur, jantina, program sains kesihatan dan pencapaian akademik dengan kualiti tidur. Satu set soalan kaji selidik, Indeks Kualiti Tidur Pittsburgh oleh Buysee, 1988 telah digunakan dan sebanyak 155 orang pelajar tahun akhir sains kesihatan di Pusat Pengajian Sains Kesihatan telah dipilih. Ujian Pra-Pasca telah dilakukan ke atas 30 orang pelajar untuk memeriksa kesahan dan kebolehpercayaan soalan kaji selidik dengan nilai 0.72. Data telah dianalisis menggunakan pakej perisian SPSS versi 22. Kepentingan Statistik dianggap pada nilai $p < 0.05$. Semasa analisis data, markah kualiti tidur telah dinilai. Antara 155 responden ($n=155$), 107 (69.0%) responden menunjukkan mereka mempunyai kualiti tidur yang rendah dan 48 (31.0%) menunjukkan kualiti tidur yang baik. Menggunakan ujian *Chi Square*, terdapat tiada hubungan antara umur dan jantina dengan kualiti tidur ($p=0.175$) ($p=0.835$). Manakala terdapat hubungan antara berbeza program sains kesihatan dengan kualiti tidur ($p=0.024$). Dengan menggunakan ujian *One Way Anova*, tidak terdapat hubungan antara pencapaian akademik dengan kualiti tidur ($p=0.396$). Hasil kajian menunjukkan majoriti daripada pelajar tahun akhir sains kesihatan di Pusat Pengajian Sains Kesihatan, USM mempunyai kualiti tidur yang rendah.

CHAPTER 1

INTRODUCTION

1.1 Background of The Study

Sleep is a basic human need and is essential for good health, good quality of life and performing well during the day. Sleep problem is common in student and elderly. Sleep is defined on the basis of both the behavior of the person while asleep and related physiological changes that occur to the waking brain's electrical rhythms in sleep (Chokroverty, 2010). According to World Health Organization (WHO), 2004, sleep is a heightened anabolic state - a period when our bodies are producing new bone, muscular and nervous tissue; a period when growth and repairs occur. People who have problem in sleep may not be able to produce new bone, muscle and tissue repair that will contribute to other health problem.

Individual quality of life can be disrupted due to many different reasons and one of the most important is sleep loss (Al Ghamdi, 2013). During sleep all the body system recover from the tiredness along the day. Most of the sleep specialists agree that adults require 8 hours of sleep per day but sleep pattern of young adults differ from those of their adult counterparts in several ways, including a need for increased sleep. Some students need more than 9 hours of sleep or known as long sleepers while others feel well with less than 6 hours of sleep or known as short sleepers (Ali, Majeed, Saba, Bodenarain, and Bukhari, 2013). According to Carskadon et al. (1980) as cited in (Williams, T. M. and Aderanti, R. A., 2014), a number of reports have indicated that adolescents and indeed everyone need at least eight hours of sleep per night.

Sleep makes people feel better and can boost their energy when they wake up from sleep. Adequate sleep is a key part of a healthy lifestyle and benefit the body.

There are many benefits from sleep which are helps in learning and memory, good for body metabolism and promote good mood along the day. Besides that, sleep also can prevent from any disease because enough sleep can maintain body immune function thus can prevent from any disease. However nowadays, sleep has been found to be of the least priority of most individuals especially students (Williams, T. M. and Aderanti, R. A., 2014). Most of the student does not care much about sleep and think that sleep is not an important issue. Some of the student having problem related to sleep and does not know how to solve that problem. When entering college life, students may face new challenges such as being responsible for him-self, new schedules, unfamiliar environment, social obligation, academic stress, as well as homesick. Due to this change, students are forced to change their sleeping time and alter their sleeping habits. Thus, college students are recognized as a population group particularly affected by sleep difficulties and defined as one of the most sleep deprived age group (Lai, P. P. and Say, Y. H., 2013).

Most of the adolescents and young adult have been found to obtain less sleep than their adult counterpart (Williams, T. M. and Aderanti, R. A., 2014). Generally, university students mostly young adult need to wake up early in the morning due to the morning class and need to be in school till about 5 pm or depending on their schedule. They need to be fully awake during that time in order for them to focus in the class. During the night, they have to focus on the class assignments and sleep late at night. Sleep late at night can produce sleep problem. Poor sleep quality may result in poor academic performance in student. Student with good sleep quality may have good academic performance.

Different sleep pattern may result in poor sleep quality for student. Thus, it will result in student poor performance in academic. Some of the student faces less

sleep problem and unable to get enough sleep. According Al Ghamdi, 2013, the phenomenon of sleep deprivation is common among students most especially when their examination is fast approaching. During examination a lot of students ignore their sleep and face sleep deprivation. Sleep deprived is when the students feel tired, irritable and confused even though they are able to do well motivated tasks with their usual strength and skill. A study found that over 70% of university students might have faces some problem related to the sleep problem. They tend to have a later bed time and rise time, longer sleep latency and shorter total sleep. University students also reported suffering from poor sleep quality and daytime sleepiness. The problem is how these students sleep quality affect the student academic performance in university (Lai, P. P. and Say, Y. H., 2013).

Poor sleep quality can lead to poor student performance. College students tend to report sleep quality that is similar to that of older adults (ages 30- 94), with 60% of college students reporting poor sleep quality, and 56% of older adults reporting poor sleep quality (Ellis, 2014). Based on this it is found that more than 50 percent of the students have poor sleep quality.

A large body of research demonstrates that poor sleep quality affects a multitude of cognitive abilities (Ellis, 2014). Poor sleep quality may disturbed the students cognitive and thinking that result in poor focus in study. The cognitive function is disturbed when someone does not have enough sleep and having poor sleep quality. Sleep deprivation affects cognitive and motor processes as well as emotional stability (Al Ghamdi, 2013). When the cognitive function of the students is disturbed, it may lead to poor focus in the study and lead to poor academic performance.

Final year is the most important year in a student life. During final year, students need to focus in many things including research, clinical and examination. Due to this, final year student might have sleep quality. By doing this study, the researcher will know the sleep quality among final students of health science. Furthermore, there is no study has been done related to sleep quality among final year of health science students at USM.

1.2 Problem Statements

Sleep plays important aspect in human being. Insufficient sleep and irregular sleep-wake schedules among adolescents has become a major international health concern (Chung, K.F. and Cheung, M.M., 2008). Nowadays, college students tend to report sleep quality that is similar to that of older adults (ages 30 – 94), with 60% of college students reporting poor sleep quality (Ellis, 2014). Many students do not obtain adequate sleep and they tend to stay up late at night and sleep more on weekends.

Due to the poor sleep quality among students, high chances of napping among students are high. Napping in the lecture hall is common things happen because of the poor night sleep quality. The few prevalence studies available showed highly variable rates among college or university students who napping during lecture, from as low as 4.1% in Japanese graduate students to as high as 39.5% and 42.4% in two different Brazilian medical schools (Zailinawati, 2009).

The result from the study of sleep wake patterns and sleep disturbance among Hong Kong Chinese adolescent shows that most of the adolescent especially Hong Kong students are tend to have sleep problem (Chung, K.F. and Cheung, M.M., 2008). According to the finding, many of the students have sleep problem and shows poor sleep quality and this issues keep increase. College students reported more difficulties

than the adults in such areas as having difficulty falling asleep, morning tiredness and waking to early.

In Malaysia, there are not many research have been undertaken in the context of sleep pattern, sleep quality and academic performance among students (Siraj, 2014). Some studies were done in Malaysia related to sleep quality in students but more focus on how sleep quality affect the academic performance. Nihayah, 2011 has done the studies related to sleep quality and its association with academic performance. The study was done towards biomedical students at Universiti Kebangsaan Malaysia. The result from the studies shows that there is no association between the sleep quality and academic performance. It is does not mean that poor sleep quality have poor academic performance. The second study that has been done in Malaysia is related to daytime sleepiness and sleep quality. The studies was done towards final year medical students in International Medical University (IMU), Malaysia. Based on the study, it is found that medical students in IMU sleep more than 7 hours per day and have good sleep quality (Zailinawati, 2009). Besides that, it is found that most of the students have high chance of dozing during the afternoon lecture.

A study done by Lai and Say, 2013, found that average adults need a range of 7 to 9 hours of sleep each night, teenagers need about 9.5 hours of sleep and infants generally require around 16 hours of sleep per day. Furthermore, enough hours of sleep can provide full of energy when wake up and help to restore body system in the body. So, it is important for a student to have enough sleep hours to achieve good academic performance. Since there is no study on sleep quality among final year of health sciences students at USM, the researcher is intended to conduct a study to determine the problem related to sleep quality among students.

Health Believe Model was used in this study as a framework to identify the sleep quality among final year of health sciences students. .

1.3 Research Objectives

1.3.1 General Objective

To identify the quality of sleep among final year students of health sciences at Universiti Sains Malaysia (USM)

1.3.2 Specific Objectives

- 1) To determine the score of sleep quality among final year of health sciences students at USM
- 2) To determine the association between selected socio-demographic characteristics (age, gender and program in health sciences) with sleep quality among different program of final year students of health science at USM
- 3) To determine the association between sleep quality and academic performance among final year of health sciences students in USM

1.4 Research Questions

- 1) What is the quality of sleep among the final year of health sciences students at School of Health Science?
- 2) Is there any association between selected socio demographic characteristics (age, gender and program in health sciences) with sleep quality among different program of final year students of health sciences
- 3) Is there any association between sleep quality and academic performance of final year of health sciences students is USM.

1.5 Research Hypotheses

Hypotheses 1: Ho: There is no association between selected socio-demographic characteristics (age, gender and programs in health sciences) and sleep quality among health sciences student in USM

HA: There is an association between selected socio-demographic characteristics (age, gender and programs in health sciences) and sleep quality among health sciences student in USM

Hypotheses 2: Ho: There is no association between different sleep quality and student academic performance among final year health sciences student in USM

HA: There is an association between different sleep quality and student academic performance among final year health sciences student in USM

1.6 Definitions of Terms

Sleep Quality - Sleep quality is mean by the construct that encompasses multiple aspects of sleep such as subjective sleep satisfaction, sleep disturbances, sleep disorders, excessive daytime sleepiness and sleep duration (Magee, 2008). In this study, the sleep quality will be identified based on the respondents view about sleep duration, sleep latency and sleep disturbance. This measurement is adopted by the Pittsburgh Sleep Quality Index (1988).

Final Year Health

Sciences Students - Final year of health science student refer to all final year students undergone a formal course of health sciences such as audiology, biomedicine, dietetic, forensic sciences, nursing, nutrition, speech pathology, sport sciences, occupational and environment health, and lastly medical radiation.

1.7 Significance of the Study

Sleep is one of the most important aspects in quality of life. Quality of life can be disrupted due to sleep problem. There are many negative effects of inadequate sleep such as fatigue, tiredness, cognitive and emotional disturbance (Ellis, 2014). Even though many researches were carried out regarding sleep quality among student, they are still many students did not aware of the important of good sleep quality and this include the final year health sciences students.

Good sleep quality has many benefits, including stable cognitive, stable emotion and increase focus on doing something (Al Ghamdi, 2013). The accurate assessment of sleep quality among final year students is very important to provide good academic performance. The assessment of student's knowledge about sleep quality may bring to light information that may assist in the development of best final year student. Student may have more knowledge regarding sleep and try to have good sleep quality in order to achieve good academic performance.

Final year of health sciences student should take time and effort to fully understand the sleep quality and sleep pattern that is suitable for a student. So, in order to avoid any other problem related to sleep and student academic performance, it is important for the student to grasp knowledge, sensitivity and appropriate practice toward sleep quality among final year students.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction to the Chapter

A literature review is defined as do the revision in critical and systematic condition on the documents that have information, ideas, data, and method to gain information that is related to the title of the research (Piaw, 2011). Literature review discusses published information in a particular subject area and sometimes information in a particular subject area within a certain period of time. Literature review is just a simple summary of the sources, but it usually has an organizational pattern and combined both summary and synthesis. In this chapter, it provides general information about sleep, good sleep quality, factors that promote good sleep quality, benefits or significance of having good sleep quality, barrier to have good sleep quality and the knowledge regarding poor sleep quality. It also provides an overview on sleep wake cycle among students and response of the students towards sleep quality. Finally, this chapter also details the conceptual framework, Theory of Planned Behavior in this study.

2.2 Review of Literature

2.2.1 Physiology of sleep

According to Curcio et al. (2006) as cited in (Nihayah, 2011), sleep is an active, repetitive and reversible behavior serving several different functions, such as repair and growth, learning or memory consolidation and restorative processes. All of these occur throughout the brain and the body. Sleep also is a multifaceted phenomenon involving organic functioning, psychological state, social interaction and behavioral components and even environmental factors and learning (Duarte, 2014). Without sleep, a human being may be not functioning well due to the tissue repair and

growth does not happen in the body. The function of sleep are boosts immune function, has a role in brain maturation, development of the body, increase in brain mass, memory consolidation, increase in performance, modulates metabolic processes at molecular level, maintains catecholamines in the brain (Zubia, V. and EjazHussain, M., 2012).

Sleep need to be managed properly to produce success in student's life. According to Lund et al. (2010) as cited in (Ahrberg, 2012), studies have indicated that over 60% of college students were poor quality sleepers, resulting in daytime sleepiness and an increase of physical and psychological health problems. Based on this, it is found that most of the students have poor sleep quality.

2.2.2 Stages of sleep among humans

Sleep wake cycle is one of the components in the circadian rhythm of the body. Circadian rhythm is a daily cycle of biological activity based on a 24-hour period. Sleep wake cycle is consists of roughly 8 hours of sleep and 16 hours of daytime wakefulness. The sleep of human beings has been broadly classified into two distinct types which are non-rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep (Walker, 2009).

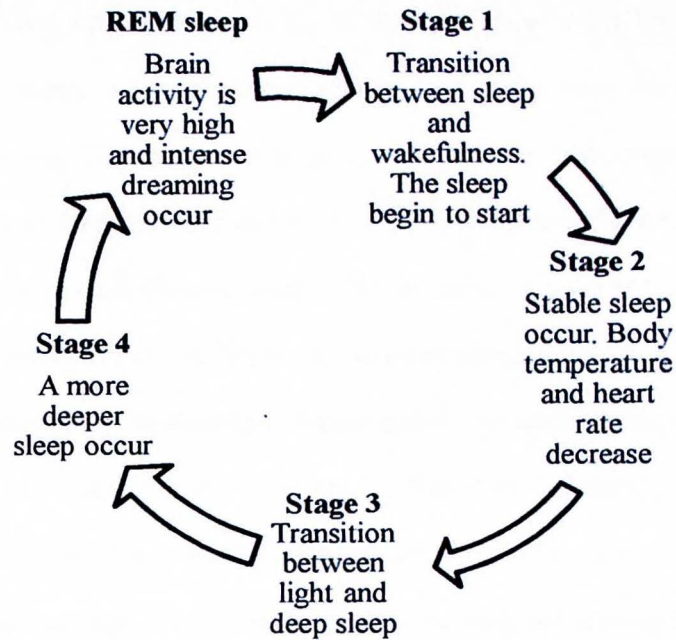


Figure 2.1: Stages of Sleep

2.2.2.1 NREM Sleep

NREM sleep is characterized by a reduction of physiological activity. NREM sleep also known as orthodox sleep. Orthodox sleep is a recurring sleep state during which rapid eye movements do not occur and dreaming does not occur and occur most of 70% of normal sleep time. NREM sleep is characterized by an electroencephalogram (EEG) in which the waves have greater amplitude and a lower frequency (BrainFacts, 2012). During NREM sleep, the sleep gets deeper, the brain waves get slower and have greater amplitude, breathing and heart rate slow down and blood pressure drops (Walker, 2009). NREM sleep can be divided into 4 stages which are stages which are stages 1, stages 2, stages 3 and stages 4.

Stage 1 is a stage where someone in transition states from being awake to falling asleep. It is start when someone first lie down and close the eyes. In other name it is known as the bridge between wakefulness and sleep (Comer, R. and Gould, E., 2013). Brain wave become slow down and the muscle is relax. Stage 1 of NREM