# SLEEP BELIEF FACTORS AMONG DIPLOMA STUDENTS IN UITM SABAH
(Suatu Kajian Pola Tidur Pelajar Diploma UiTM Sabah)

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*ABSTRACT*

University students are known to have different sleeping schedules. Students' sleep difficulties will affect their health and their performances in studies. Sleep hygiene is a collection of healthy sleep habits that can improve one's ability to fall asleep and stay asleep. It is considered to be imperative to treat sleep disturbance especially among university students. The aim of this study is to examine the sleep beliefs among the students of UiTM Sabah based on gender and academic performance. This study was conducted on Diploma students between March and July 2018. The respondents were randomly selected from Diploma students of all faculties in UiTM Sabah: Accounting, Business Management, Public Administration, Science, Planting Industry Management, Hotel Management, and Tourism Management. This paper is based on the Sleep Belief Scale questionnaire to assess the sleep hygiene awareness. Questionnaires were distributed using online survey. Findings of this study were analyzed using SPSS statistical software. The result of findings showed that the Sleep Incompatible Behaviours (drinking coffee, taking sleep medication, smoking before sleep) is the highest contributor of the students' sleep hygiene and therefore it affects the sleep quality. While the Sleep Wake Cycle Behaviours (going to bed & waking up always at the same hour, going to bed two hours earlier than the habitual hour) and Thoughts and Attitude to Sleep (over thinking before sleep, trying to fall asleep without having a sleep sensation) also contributed to the sleep hygiene of the students but not as high as the Sleep Incompatible Behaviours. Based on the results of the findings, the counseling department of UiTM Sabah may organise an education program to create awareness among students about the intervention and prevention strategies as well as the incorrect beliefs about sleep.

*Keywords*: sleep quality; gender; academic performance

*ABSTRAK*[2]

Para pelajar universiti biasanya mempunyai jadual tidur yang berbeza. Masalah susah untuk tidur akan mengganggu kesihatan dan juga prestasi dalam pelajaran mereka. Tujuan kajian ini dibuat adalah untuk mengetahui pola tidur para pelajar di UiTM Sabah berdasarkan jantina dan prestasi akademik mereka. Kajian ini dibuat untuk pelajar Diploma semester Mac sehingga Julai 2018. Responden dipilih secara rawak dari kalangan pelajar Diploma semua fakulti di UiTM Sabah: Perakaunan, Pengurusan Perniagaan, Pentadbiran Awam, Sains, Pengurusan Industri Ladang, Pengurusan Hotel dan Pengurusan Pelancongan. Kajian ini dibuat berdasarkan kajiselidik Skala Pola Tidur untuk menilai kesedaran tentang tidur yang sihat. Soal selidik telah diagihkan melalui soalan dalam talian. Analisis kajian ini dijalankan dengan menggunakan perisian SPSS. Berdasarkan kajian yang telah dijalankan, keputusan menunjukkan Kelakuan Tidur yang Tidak Sesuai (meminum kopi, mengambil ubat tidur, merokok sebelum tidur) adalah faktor penyumbang tertinggi kepada pola tidur dan seterusnya ia memberi kesan kepada kualiti tidur. Sementara itu Kelakuan Kitaran Tidur Bangun (tidur dan bangun pada waktu yang tetap, tidur dua jam sebelum jam biasa) dan Pemikiran dan Sikap Tidur (terlebih fikir sebelum tidur, cuba untuk tidur tanpa ada sensasi tidur) juga adalah penyumbang kepada pola tidur para pelajar tetapi tidak setinggi Kelakuan Tidur yang Tidak Sesuai. Berdasarkan keputusan ini, bahagian kaunseling UiTM Sabah boleh menganjurkan program

kesedaran tentang strategi tidur yang berkualiti dan juga kesedaran tentang kepercayaan yang salah tentang tidur.

*Kata kunci*: kualiti tidur; jantina; pencapaian akademik

## 6. Introduction

Sleep plays an important physiological role in our daily life. Healthy sleep pattern is as essential as food and water for human. Repeated disruption of the natural sleep cycle or failure to initiate sleep can lead to a sleep deficit, which consequently can cause physical, mental and emotional problems (Shittu et al. 2014). According to Al-Kandari, Al-Mutairi, Al-Lumai, Dawoud, and Moussa (2017), sleep quality represents a complex phenomenon which varies from one person to another. It is also different with regards to gender and age, making it a highly subjective matter. Some aspects of the sleep quality can be measured quantitatively based on sleep duration, sleep latency and number of awakenings (Buysse *et al*. 1989).

Apart from sleep quality, another aspect that is often discussed in the literatures is sleep hygiene. Sleep hygiene is defined as a set of rules that promote better sleep. Sleep quality is affected by sleep hygiene. The principles of sleep hygiene also vary from one source to another. The general rules of sleep hygiene include avoiding strenuous exercise within a short period of time before bedtime and not going to bed while hungry or thirsty. Avoiding caffeinated products within four hours of bedtime and regular use of sleep medication is also beneficial to sleep quality (Kandari *et al*. 2017). Besides, the environment has to be comfortable, calm and suitable for sleeping. Setting time to relax before sleeping and keeping a regular sleep schedule can also improve sleep quality (Perlis, Aloia, & Kunh, 2011).

University students have been often reported to have poor sleep quality due to changing social opportunities and increasing academic demands. James, Omoaregba, and Igberase (2011) discovered that poor sleep quality among university students has been observed to be prevalent. Based on Sutton (2014), sleep quality is mostly affected by stress and anxiety which are common among university students. Poor sleep quality among university students is due to increased academic stress, and increased amount of time spent on studying and extracurricular activities (Al-Kandari *et al*. 2017). The other factors include the excessive use of social media and unhealthy lifestyle (Champion & Kolawole, 2017). This resulted in deterioration in the students' sleep quality, which may cause their unfavourable academic performance, absenteeism as well as physical and psychological diseases (Kabrita, Hajjar & Duffy, 2014).

Abdullah, Sami, Ali, Emad and Meshal (2017) conducted a study on medical students, who tend to reduce their sleep in order to cope with their workload and stressful environment. The authors studied the relationship between poor sleep quality and stress among the medical students and discovered that there was a significant association between stress and poor sleep quality. Al-Kandari *et al*. (2017) conducted a study on students' sleep hygiene awareness and practices as well as evaluating their sleep quality in Kuwait University. The authors found that medical students showed poorer sleep hygiene awareness and sleep quality compared to other students from the university. Hence, they recommended the development of sleep hygiene education programs as an intervention and prevention strategy. Another study was conducted by Champion and Kolawole (2017), in which the authors accessed the sleep quality of undergraduate students in a Nigerian University. The authors concluded that there was a strong association between psychological distress and quality of sleep and the proportion of poor sleep quality among the university students was also quite high.

Meanwhile, Chiung-Yu, Hui-Yen, En-Ting & Hui-Ling (2018) investigated the nursing students' sleep quality, sleep knowledge, and attitudes towards sleep hygiene with the hygiene to patients with sleep disorders. The study compared nursing students' sleep quality, sleep knowledge, and attitudes towards sleep hygiene. They found that nursing students typically lacked sleep knowledge but many were interested to gain more knowledge in sleep

hygiene. The authors suggested that the nursing faculty develop sleep course materials, which strengthen students' performances. Recently, Ray and Simon (2019) evaluated sleep quality, daytime dozing, anxiety proneness, chronotype and preferred start time in two universities in South East England. Similar to other previous studies, the authors discovered that a large proportion of students are chronically sleep deprived and that poor sleep is associated with increased anxiety. The authors then concluded that a review of current university time-tabling and examination scheduling merits need to be immediately considered by policy makers and educators.

Based on the studies that have been conducted, it can be concluded that there is a need to access sleep quality and sleep hygiene of the students of UiTM Sabah, which has been rarely investigated in the previous literatures especially in UiTM context. Therefore, this research analysed the sleep quality as well as will evaluate sleep hygiene awareness and practices among the students in UiTM Sabah. It also identifies the factors that may be associated with poor sleep quality among the students. This research focused on students during the March until July 2018 Semester. This paper was divided into 6 sections; Section 1 provides the summary of literature reviews; Section 2 provides the problem identification based on the real situation; Section 3 and 4 both briefly describe the background of the proposed method and result, respectively. Finally, Section 5 and 6 provide discussions and conclusions throughout this study respectively.

## 7. Problem Statement

From the literature reviews, it can be seen that University students generally have poor sleep hygiene awareness and poor sleep quality. Hence, there is a need to access sleep quality and sleep hygiene of UiTM Sabah's students, which is rarely investigated in the previous literatures especially in UiTM context. This study focused on a smaller scope of group which is Diploma students from Semester March till July 2018. This study will significantly contribute towards a better understanding of students sleep beliefs. The objectives of this study are to identify the factors that affect the sleep beliefs among the Diploma students in UiTM Sabah.

## 8. Methodology

### 8.1. *Theoretical framework*

Based on the review of the literatures, a theoretical framework as shown in Fig.1 was derived. Three main factors were identified, namely Sleep Incompatible Behaviours, Sleep Wake Cycle Behaviours and Thoughts and Attitude to Sleep. Some of the example items for each of these factors are shown in the framework below.

A questionnaire was formulated based on the research framework derived in this study.

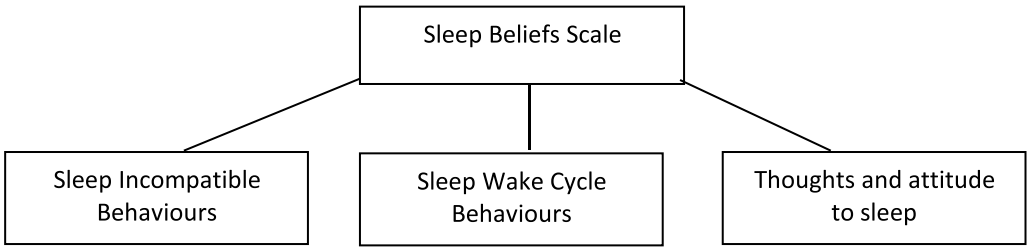


**Fig.1** : Sleep Belief Scale factors

A 28-item questionnaire assessing demographic information and factors was prepared in English. The questionnaire consisted of two major sections. Section A focused on demographic information which included gender, program, part, college, age and Cumulative Grade Point Accumulative (CGPA). On the other hand, Section B consisted of statements that required the respondents to state their agreement/or disagreement level based on a 3-point Likert scale (1: Positive effect, 2: neither effect and 3: negative effect). There were a total of 22 statements which were grouped into three factors as follows:
*Sleep Incompatible:* Drinking alcohol in the evening, Drinking coffee or other substances with caffeine after dinner, Using sleep medication regularly etc.
*Sleep Wake Cycle Behaviours:* Doing intense physical exercise before going to bed, Taking a long nap during the day, Going to bed and waking up always at the same hour etc.
*Thoughts and attitude to sleep:* Thinking about one's engagements for the next day before falling asleep, Diverting one's attention and relaxing before bedtime, Trying to fall asleep without having a sleep sensation etc.

### 8.2. *Study design*

This study utilised an online survey research design to investigate the sleep belief factors among diploma students in UiTM Sabah. The survey was adapted from Ana, Macro, Vincenzo and Gemma (2006). The questionnaires of sleep beliefs scale (SBS) explore the knowledge of the subject in relationship to:

(1) influence on sleep of drug consumption (alcohol, caffeine, nicotine, sleep medication)
(2) diurnal behaviours (physical exercise, naps)
(3) activities & thoughts that prevent sleeping (eating, studying, relaxing, worries)

Table 1 shows the factors derived from SBS.

Table 1: The factors derived from SBS

| Factor | Name of the Factor | Number of items in SBS | Question number in SBS |
|---|---|---|---|
| Factor 1 | Sleep Incompatible Behaviours | 8 | 1,2,7,8,11,17,14,12 |
| Factor 2 | Sleep Wake Cycle Behaviours | 7 | 5,10,16,20,4,3,19 |
| Factor 3 | Thoughts and attitude to sleep | 5 | 6,9,13, 15,18 |

### 8.3. *Data Collection*

The respondents of this study were the students in UiTM Sabah and the survey was conducted between March and July 2018. The respondents were randomly selected among Diploma students. They were required to complete the questionnaires by answering all the questions. All questionnaires were distributed through online form using the Google Doc. 123 respondents responded to the questionnaires.

### 8.4. *Measurement*

3.3.1. *Factor 1: Sleep incompatible behaviours*

The sleep beliefs scale, developed by Ana et al. (2006), was used to measure the sleep incompatible behaviours. There were a total of 8 items (1,2,7,8,11,12,14 and 17), which

included eating or drinking behaviours before sleeping. The items were based on a 3-point Likert scale (1: Positive effect, 2: neither effect and 3: negative effect).

3.3.2. *Factor 2: Sleep wake cycle behaviours*

The sleep beliefs scale, developed by Ana et al. (2006), was used to measure the sleep wake cycle behaviours. There were a total of 7 items (3,4,5,10,16,19 and 20), which included the time to go to bed and wake up. The items were based on a 3-point Likert scale (1: Positive effect, 2: neither effect and 3: negative effect).

3.3.3. *Factor 3: Thoughts and attitude to sleep*

The sleep beliefs scale, developed by Ana et al (2006), was used to measure the thoughts and attitude to sleep. There were a total of 5 items (6,9,13,15 and 18), which included the thinking of engagement. The items were based on a 3-point Likert scale (1: Positive effect, 2: neither effect and 3: negative effect).

### 8.5. *Data Analysis*

The collected data were analysed using SPSS 21 Statistical program. Descriptive statistics for all study variables as well as the reliability assessment of the study instruments were computed. To analyse the independent variables, t-test technique were used. Besides that, ANOVA were used to study the significant difference among variables.

To overcome the type error 1 in the simulation (Derrick,B. and White, P. (2017)), the level of significance data have been selected at 5%. It was supported by a study done by Beira and Vetro (2016) which used t-test which is valid for Likert scale measurement. Some other studies were conducted using the same analysis such as Haruna, Aisha, Yunusa and Hadiza (2016), Ishita, Santoshi, and Abhijit (2016) and David, Kevin and Jacques (2014).

## 9. Results

### 9.1. *Participant's characteristics*

The demographic information of the participants of the study are shown in Table 2. There were a total of 123 respondents (male = 23, female = 100) with a mean age of 20.04 (SD = 1.003) with CGPA achieved is 2.87 (SD 0.50542). Of these, 102 students were residents whilst 21 were non-residents. The highest number of students, 33 (26.8%) who participated in responding to the questionnaire were Diploma in Banking program students. Meanwhile, the highest number of participants who answered the questionnaire were part 2 students with a total of 39 (31.7%) students.

Table 2: The demographic information

| Variables | Categories | Mean ± Standard Deviation, n (%) |
|---|---|---|
| Age | | 20.04 ± 1.003 |
| CGPA | | 2.87 ± 0.50542 |
| Gender | Male | 23 (18.7%) |
| | Female | 100 (81.3%) |
| Program | Diploma in Accountancy | 9 (7.3%) |
| | Diploma in Banking | 33 (26.8%) |
| | Diploma in Business Studies | 14 (11.4%) |
| | Diploma in Hotel Management | 1 (0.8%) |
| | Diploma in Planting Industry Management | 5 (4.1%) |
| | Diploma in Public | 20 (16.3%) |

| | | |
|---|---|---|
| | Administration | |
| | Diploma in Science | 11 (8.9%) |
| | Diploma in Tourism Management | 30 (24.4%) |
| Part | Two | 39 (31.7%) |
| | Three | 37 (30.1%) |
| | Four | 27 (22.0%) |
| | Five | 12 (9.8%) |
| | Six | 3 (2.4%) |
| | Seven | 5 (4.1%) |
| Residency | Non Resident | 21 (17.1%) |
| | Resident | 102 (82.9%) |

### 9.2. *Comparison of sleep belief factors score based on demographic characteristics*

There were three hypotheses which were tested by using t-test and ANOVA techniques. Table 3 shows the list of hypotheses used and the corresponding methods applied for comparison of sleep belief factors score based on demographic variables. The following hypotheses are formulated to be tested statistically at: 0.05, level of significance:

Table 3: Research Hypotheses

| Factors | Null Hypothesis | Alternative Hypothesis | Analysis method |
|---|---|---|---|
| Factor 1 | There is no significant difference on the sleep incompatible behaviours among male and female UiTM Sabah students. | There is significant difference on the sleep incompatible behaviours among male and female UiTM Sabah students. | Independent t-test |
| Factor 2 | There is no significant difference on the sleep wake cycle behaviours on age among UiTM Sabah students. | There is significant difference on the sleep wake cycle behaviours on age among UiTM Sabah students. | ANOVA |
| Factor 3 | There is no significant difference on the thoughts and attitude to sleep on part (level) among UiTM Sabah students. | There is significant difference on the thoughts and attitude to sleep on part (level) among UiTM Sabah students. | ANOVA |

### 9.3. *Factor 1: Sleep Incompatible Behaviours*

The result analysis presented in Table 4 shows that most of the probability value is more than 0.05 at 5% level of significance. That indicates that the null hypothesis which states that there is no significant difference on the sleep incompatible behaviours among male and female UiTM Sabah students was accepted. But, the hypothesis was rejected for the statement ‘Smoking before falling asleep’ among male and female UiTM Sabah students.

Table 4: t-test for sleep incompatible behaviours factors based on gender

| Statements | t-value | p-value | Mean |
|---|---|---|---|
| Drinking alcohol in the evening | -0.697 | 0.487 | Female = 2.73, Male = 2.83 |
| Drinking coffee or other substances with caffeine after dinner | 1.620 | 0.116 | Female = 2.29. Male = 1.96 |
| Using sleep medication regularly | 1.180 | 0.240 | Female = 2.54, Male = 2.35 |
| Smoking before falling asleep | 2.289 | 0.030 | Female = 2.80, Male = 2.43 |
| Going to bed with an empty stomach | 0.113 | 0.910 | Female = 2.54, Male = 2.52 |
| Using the bed for eating, calling on the phone, studying and other non-sleeping activities | 1.179 | 0.241 | Female = 2.36, Male = 2.17 |
| Studying or working intensely until late night | 0.491 | 0.625 | Female = 2.34, Male = 2.26 |
| Going to bed immediately after eating | 1.325 | 0.187 | Female = 2.63, Male = 2.43 |

### 9.4. *Factor 2: Sleep Wake Cycle Behaviours*

Table 5 shows that the hypothesis was analysed using one way analysis of variance (ANOVA) test statistics at $P<0.05$. There is only one statement that is not significant which is going to bed 2 hours earlier than the habitual hour ($F = 4.49$ ,sig. value =0.014 ).

Table 5: ANOVA for sleep wake cycle behaviours factors based on age

| Statements | F-value | p-value | Mean Square |
|---|---|---|---|
| Doing intense physical exercise before going to bed | 1.695 | 0.188 | Between Groups = 1.005<br>Within Groups = 0.593 |
| Taking a long nap during the day | 2.259 | 0.109 | Between Groups = 1.123<br>Within Groups = 0.497 |
| Going to bed and waking up always at the same hour | 0.764 | 0.468 | Between Groups = 0.395<br>Within Groups = 0.516 |
| Going to bed 2 hours later than the habitual hour | 0.733 | 0.483 | Between Groups = 0.338<br>Within Groups = 0.461 |

| | | | |
|---|---|---|---|
| Going to bed 2 hours earlier than the habitual hour | 4.449 | 0.014 | Between Groups = 2.02<br>Within Groups = 0.456 |
| Sleeping in a quiet and dark room | 0.618 | 0.541 | Between Groups = 0.209<br>Within Groups = 0.339 |
| Recovering lost sleep by sleeping for a long time | 0.800 | 0.452 | Between Groups = 0.469<br>Within Groups = 0.585 |

### 9.5. *Factor 3: Thoughts and Attitude to Sleep*

Table 6 shows that the hypothesis was analysed using one way analysis of variance (ANOVA) test statistics at $P<0.05$. The results of one-way ANOVA indicates that there is a significant difference in the thoughts and attitude to sleep among students from various parts with respect to two questions: thinking about one's engagements for the next day before falling asleep (F = 3.018 , sig.value = 0.031) and trying to fall asleep without having a sleep sensation (F = 2.975 , sig.value = 0.015) statements.

Table 6: ANOVA for thoughts and attitude factors based on part (level)

| Statements | F-value | p-value | Mean Square |
|---|---|---|---|
| Thinking about one's engagements for the next day before falling asleep | 3.108 | 0.013 | Between Groups = 1.414<br>Within Groups = 0.468 |
| Diverting one's attention and relaxing before bedtime | 0.476 | 0.794 | Between Groups = 0.192<br>Within Groups = 0.403 |
| Trying to fall asleep without having a sleep sensation | 2.975 | 0.015 | Between Groups = 1.143<br>Within Groups = 0.384 |
| Getting up when it is difficult to fall asleep | 0.943 | 0.456 | Between Groups = 0.457<br>Within Groups = 0.485 |
| Being worried about the impossibility of getting enough sleep | 1.394 | 0.232 | Between Groups = 0.664<br>Within Groups = 0.477 |

## 10. Discussion

In this paper the sleep belief scale was employed to identify the factors that affect the sleep beliefs among Diploma students in UiTM Sabah. It can be shown that the first factor, Sleep Incompatible Behaviours (drinking coffee, taking sleep medication, smoking before sleep), is the highest contributor of the students' sleep hygiene and therefore this affects their sleep quality. As for the Sleep Wake Cycle Behaviours (going to bed & waking up always at the same hour, going to bed 2 hours earlier than the habitual hour) and Thoughts and Attitude to Sleep (over thinking before sleep, trying to fall asleep without having a sleep sensation) also contribute to sleeping hygiene of the students but not as high as the first factor.

## 11.Conclusion

Based on the results of the findings, the counseling department of UiTM Sabah may organise an education program to create awareness among the students about the intervention and prevention strategies as well as the incorrect beliefs about sleep.

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