โครงงานวิจัยทางเภสัชศาสตร์ประจำปี 2562

เรื่อง

โรคซึมเศร้ากับคุณภาพการนอนของบุคลากรคณะเภสัชศาสตร์ มหาวิทยาลัยบูรพา พ.ศ. 2562

Depression and Sleep Quality of people at Faculty of Pharmaceutical Sciences, Burapha University, Thailand 2019

โดย

1.Miss	Thungphet	Paladchai	58210169
2. Mr.	Lippakorn	Chantarawichai	58210223
3. Miss	Thy	Vouchny	58210225

This thesis was part of a bachelor's degree program

Academic Year 2018

Faculty of Pharmaceutical sciences

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Preface

The Pittsburgh sleep quality index (PSQI) predicted sleep quality and Hamilton Depression Rating Scale (HAM-D) predicted depression in student, employee and lecturer at Faculty of Pharmaceutical Sciences in Burapha University 2018. It was designed to investigate relationship between insomnia and depression at Faculty of Pharmaceutical Sciences in Burapha University 2018. Finally, we successfully established relationship between insomnia and depression prediction model via Pearson Chi-square statistical procedure. We found that insomnia is significantly associated with depression.

We were proud to submitted and present this thesis because we did hard work to plan, search related literatures, gather scales, collect almost complete data and analyze them cautiously. We read it, reread it and perused it before we close the project on 14th November 2020. Any further questions please contact us directly via telephone or email.

Researcher

8 November 2019

Email: 58210225@go.buu.ac.th

Telephone: 0921490435

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Thesis Academic year 2019

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3. Miss	Thy	Vouchny	58210225

Advisor Associate Professor Titinun Auamnoy Ph.D.

Co-advisor Krittaphas Kangwanrattanakul Ph.D.

Abstract

Background: Evidence examining relationship between lack of sleep and depression is well-established. Only a few studies investigating the quality of sleep among students, employees and lecturers have been conducted. This study aimed to investigate the relationship between insomnia and depression among lecturers (n=52), students (n=52) and employees (n=52) at Faculty of Pharmaceutical Sciences. **Methods**: Socio-economic status and medicine use data were assessed using a single item, unidimensional questions. Insomnia was measured by validated Pittsburgh sleep quality index-Thai version. Depression was measured by the validated Hamilton Depression Rating Scale -Thai version. ANOVA was used to assess the significance of means different of age, BMI, caffeine intake, and amount of alcohol intake. Chi Square was used to find association and correlation of two non-metric variables. **Results**: The highest percentage of poor sleep is lecturer group and depression is fourth year student. Mean value of BMI, coffee and alcohol consumption of three groups were not statistically significant different. Pearson Chi-Square value is 22.88. Asymp. Sig. (2-sided) is 0.000134. **Conclusion** : Insomnia is significantly associated with depression.

Keyword: Depression, Sleep Quality, Burapha University

Major advisor .....

โครงงานวิจัยทางเภสัชศาสตร์ประจำปี 2562

เรื่อง โรคซึมเศร้ากับคุณภาพการนอนของบุคลากรคณะเภสัชศาสตร์ มหาวิทยาลัยบูรพา พ.ศ. 2562

ผู้จัดทำโครงงานวิจัยทางเภสัชศาสตร์

1. นสภ.ถุงเพชร ปลัดชัย รหัสนิสิต 58210169

2. นสภ.ลิปปกร จันทรวิชัย รหัสนิสิต 58210223

3. นสภ.Thy Vouchny รหัสนิสิต 58210225

อาจารย์ที่ปรึกษา

1.รศ. ดร. ฐิตินันท์ เอื้ออำนวย

อาจารย์ที่ปรึกษาร่วม

1.ภก.อ.ดร.กฤตภาส กังวานรัตนกุล

บทคัดย่อ

ที่มาและความสำคัญ:แม้ว่าการนอนหลับพักผ่อนที่ไม่เพียงพอมีความสัมพันธ์กับภาวะซึมเศร้าแต่การศึกษาเกี่ยวกับคุณภาพการนอนหลับในกลุ่มนิสิต เจ้าหน้าที่และ อาจารย์ในมหาวิทยาลัยยังมีอยู่อย่างจำกัด งานวิจัยนี้จึงมีวัตถุประสงค์เพื่อหาความสัมพันธ์ระหว่างคุณภาพการนอนหลับและภาวะซึมเศร้าในกลุ่ม อาจารย์(n=52) นักเรียน(n=52) และเจ้าหน้าที่(n=52) ในคณะเภสัชศาสตร์ **วิธีวิจัย**: ฐานะทางเศรษฐกิจและสังคมและข้อมูลการใช้ยาประเมินโดย unidimensional questions คุณภาพการนอนหลับถูกวัดโดย Pittsburgh sleep quality index ฉบับภาษาไทย ส่วนภาวะซึมเศร้าวัดโดยHamilton Depression Rating Scale แปลไทย ANOVA ใช้เปรียบเทียบค่าเฉลี่ยความแตกต่างกันของอายุ ดัชนีมวลกาย การบริโภคเครื่องดื่มกาแฟและแอลกอฮอล์ Chi Squareใช้ค้นหาความสัมพันธ์ของตัวแปรไม่ต่อเนื่องสองตัว **ผลการวิจัย**: ร้อยละคุณภาพการนอนหลับแย่ที่สุดคือกลุ่มอาจารย์ ร้อยละของภาวะซึมเศร้าสูงสุดเป็นกลุ่มนิสิตปีที่สี่ ค่าเฉลี่ยของค่าดัชนีมวลกาย การบริโภคกาแฟและเครื่องดื่มแอลกอฮอล์ของทั้งสามกลุ่มไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติ ค่า Pearson Chi-Square คือ 22.88 Asymp Sig (2 ด้าน) คือ 0.000134 ($< \alpha = .05$) **สรุป**: คุณภาพการนอนหลับมีความสัมพันธ์กับภาวะซึมเศร้าอย่างมีนัยสำคัญทางสถิติ **คำสำคัญ**: ภาวะซึมเศร้า, คุณภาพการนอนหลับ,มหาวิทยาลัยบูรพา

อาจารย์ที่ปรึกษาหลัก.....

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Chapter 1
Rationale

Sleep difficulty is nearly a global problem in psychiatric disorders, for example, mood disorders. [1] According to National Sleep Foundation, Insomnia is difficulty in falling asleep or maintaining sleep, even though that person has the chance to sleep. People with sleep problems usually have one or more of these symptoms: low energy, difficulty in concentration, emotion disturbances, fatigue, and low performance in working. [2] Such sleep problems might lead to pathogenesis of depression. [1]

Students experience some critical problems when starting university. Those problems such as leaving home, increasing independence, facing new social situations, maintenance responsibilities of academic works at university, waking up at night due to annoying noise of roommates, and accessing to drugs abuse and alcohol. These challenges might be related with sleep disturbances. Sleep disorders and problems affects university students' performance in work or study. These are usually associated with mental health disorders. It is very common for students experiencing insomnia to suffer from metal health disorder such as depressive symptoms, chronic physical exhaustion, stress, anxiety, lower optimism, and reduced quality of life. [3]

Less sleep of employees is related to strongest stressor. Employees is also known as a stressful career, due to low salaries and workplace interpersonal conflict, they are often motivated to perform well and to demonstrate their ability to work with others, as these might increase their chances of attaining a new contract or even promotion. These factors can lead to low quality of sleep. Insomnia appears to lower work productivity. This may lead to missed day at work and low work performance.

Insomnia can also associated with some mental disorders that can affects work performance or attendance. Insomnia is one of risk factor for depression. [4]

Lecturers are the important people in developing Human Resources. Otherwise, Lecturers has been acknowledged to be a stressful occupation. There are many studies show that the stress of Lecturers at university caused by having lots of responsibility of works, low salaries, and other problems caused by students. These factors make them end up go to bed late. This inadequate sleep leads to low performance in teaching and working at university, decreased brain functions, mental and emotional health problems. Studies showed that lecturers spending more time on work related problems than general people. [5]

Insomnia is a risk factor of both first-onset and recurrent major depression disorder. Most people with depression usually experience sleep disturbances. Sleep disturbance is a vital symptom of depression. Both depression and chronic sleep disorders are major risks that could lead to suicide commitment and other health problems such as heart diseases and mental health disorders. People with depression have low performance of productivity at work or school. This can impair their occupations and social lifes. Anyone can become depression, especially women and middle age adults. People with sleep deprivation have more emotional reactions in general, so it is harder to balance the emotion related with depression. The cause-and-effect run both ways. Inadequate sleep can increase the risk of other mental health problems and depression. [6]

As we can see that lack of sleep can cause many physical and mental health problems for students, employees and lecturers such as depression. On the other hand, there have only been limited research studies thus far on the quality of sleep in students, employees, and lecturers at university. One more thing is that the actual risks for insomnia and depression among students, employees, and lecturers are still not clear. To fill the gaps in the existing literatures, the objective of this study is to investigate the

risks and influencing factors of insomnia that can lead to depressive symptoms of 3 groups people (students, employees and lecturers) at Faculty of Pharmaceutical Sciences in Burapha University, Chonburi Province in Thailand, using two global standard scales for insomnia (Pittsburgh Sleep Quality Index, PSQI) and depression (Hamilton Depression Rating Scale, HDRS or HAM-D). Our goal is to study two important concepts. Those are “sleep quality” and “Depression” of 3 groups of people at Faculty of Pharmaceutical Sciences.

1.1 Objectives

This study aimed to investigate insomnia (sleep quality) and depression of the three groups of people, instructors (university lecturers), students and employees at Faculty of Pharmaceutical Sciences, Burapha University, Chonburi, Thailand 2019 in the following aspects.

1. To identify socio-economic and demographic data including drug use behavior for depression and insomnia of people at Faculty of Pharmaceutical Sciences, Burapha University.
2. To measure the levels of insomnia and depression of the people at Faculty of Pharmaceutical Sciences, Burapha University.
3. To investigate the relationship between insomnia and depression of the people at Faculty of Pharmaceutical Sciences, Burapha University.
4. To compare means of age, BMI, caffeine intake, amount of alcohol intake of people at Faculty of Pharmaceutical Sciences, Burapha University.

1.2 Hypothesis

1. Analysis of variance was used to compare means of BMI, caffeine consumption, alcohol consumption of the three groups (student, employee, and lecturer).

$$\mu_{lecturer} = \mu_{student} = \mu_{employee}$$

2. Two ways ANOVA was used to identify moderating effect and compare means of BMI, caffeine consumption, alcohol consumption, of the three groups (student, employee, and lecturer) and two genders (male and female).

$$\mu_{lecturer} = \mu_{student} = \mu_{employee}$$

3. Chi square was used to evaluate the association between insomnia and depression

$$\mu_{lecturer} = \mu_{student} = \mu_{employee}$$

1.3 Benefits

This research results was published in international journal to share the relationship between depression and quality of sleep of people at Faculty of Pharmaceutical Sciences, Burapha University.

1.4 Conceptual framework

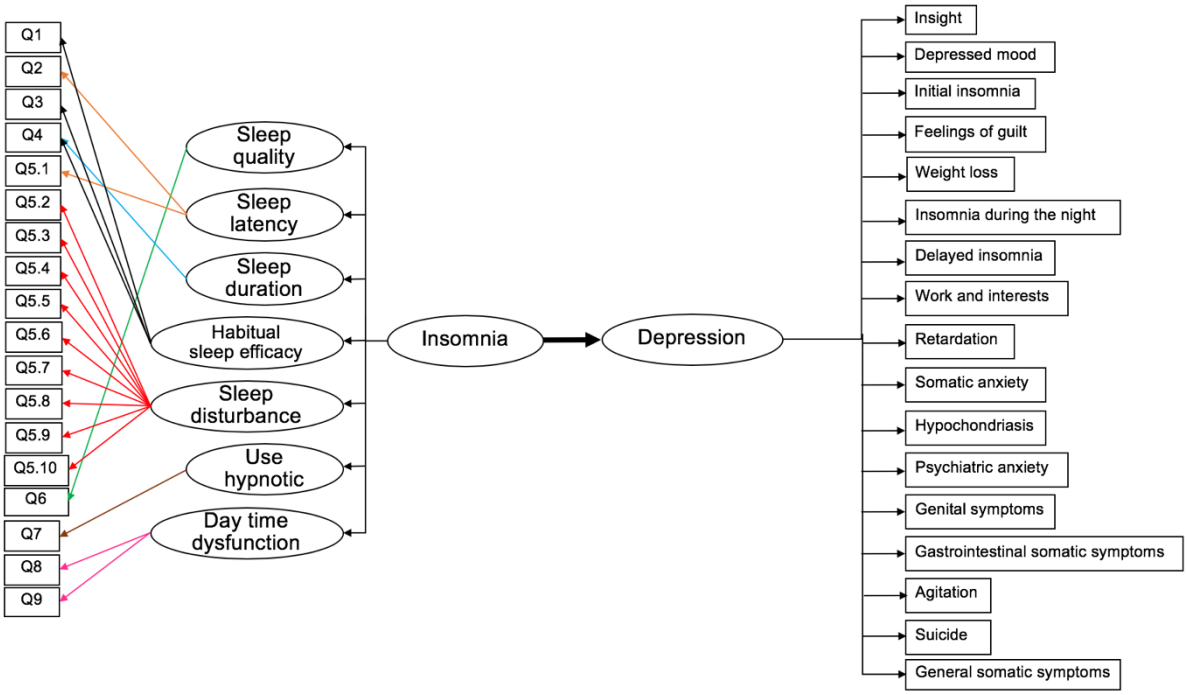


Figure 1 Conceptual framework (Full model)

1.5 Conceptualization and Operationalization

1.5.1 Definition of Insomnia

Insomnia is difficulty in initiating or maintaining sleep, or both, despite enough opportunity and time to sleep. [7] People with insomnia can feel dissatisfied with their sleep and usually have one or more of these symptoms: fatigue, low energy, difficulty in concentrating, mood disturbances, and low performance in work or at school. [8] Sleep difficulties are related to both physical and emotional problems. Sleep problems can both lead to exacerbate mental health conditions and symptoms of other mental health conditions. [9] The etiology and pathophysiology of insomnia associated with genetic, environmental, behavioral, and physiological factors culminating in hyperarousal. [10]

1.5.2 Definition of Depression

According to American Psychiatric Association, Depression is a disorder that affects person feelings, thinking and performance. Depression symptoms are feeling depressed, loss of pleasure in things, fatigue, feeling worthless, difficulty thinking, concentrating and sleeping, thoughts of suicide, and sleep problems. [11]

Chapter 2

Literature review

2.1 Insomnia

According to guidelines from National sleep foundations, Insomnia is a difficulty falling asleep or staying asleep, even when a person has the chance to do so. These make them feel bad about their sleep and have some symptoms such as fatigue, low energy, find it hard to concentrate, mood changes, sleep difficulties, and lower person function in work or study. [12]

According to American Psychiatric Association, Sleep disorders are problems with amount, time, and quality of sleep. Sleep disorder are related to both physical and emotional problems. These can lead to others mental health problems. [13]

2.2 Depression

According to American Psychiatric Association, Depression is an illness that affects person feelings, thinking and performance. Depression symptoms are feeling depressed, loss of pleasure in things, fatigue, feeling worthless, difficulty thinking, concentrating and sleeping, thoughts of suicide, and having problems with sleeping. [11]

2.3 The relationship between Insomnia and depression

Insomnia is a common symptom of depression. The association of insomnia and depression is quite complicated. Insomnia can be a risk factor for depression. The patients with insomnia tent to have more risk of depression than those without insomnia and those who had the insomnia therapy seem to have less risk of depression than those without insomnia therapy. (In a longitudinal mental health epidemiological study) The research evidences show that adding the insomnia therapy to the patients with both depression and insomnia can give a better result for them. (recent RCT published in 2011) [14]

A longitudinal cohort study show that insomnia caused an increase of risk for late-life depression in elderly. Persistent insomnia may lead to illness in some elderly patients receiving primary depression care. [15]

Sleep helps with brain function. Not getting enough sleep can lead to lots of concerns consequences such as fatigue, low energy, decisions difficulty, problems focusing, and mood changes.

2.4 Other related researches

In 1988, Daniel J. used the Pittsburgh Sleep Quality Index as a new instrument for psychiatric Practice and Research to measure the sleep quality of clinical populations. The subjects were divided into three groups: 52 healthy good sleepers (Group1), 34 poor sleepers with major depressions(Group2), and 62 poor sleepers with Disorder of initiating and Maintaining Sleep(DIMS, n =45) or Disorders of excessive somnolence(DOES, n=17). Results shows that Acceptable measures of internal homogeneity, consistency (test- retest reliability), and validity were obtained. A global PSQI score > 5 yielded a diagnostic sensitivity of 89.6% and specificity of 86.5% (kappa = 0.75, p < O.OOI) in distinguishing good and poor sleepers. The clinimetric and clinical properties of the PSQI suggest its utility both in psychiatric clinical practice and research activities. [10]

In 2007, **Manote Lotrakul et al** used Thai version of the PHQ-9, Thai version of Mini International Neuropsychiatric Interview (MINI), and Thai version of Hamilton Rating Scale for Depression (HAM-D) to investigate Reliability and validity of the Thai version of the PHQ-9 in 1,000 cases of outpatients from primary care clinic of the department of family medicine, Ramathibodi Hospital, Bangkok between October 2006 and February 2007. The PHQ-9 was then administered among 1,000 patients in family practice clinic. Of these 1,000 patients, 300 were further assessed by the Thai version of the Mini International Neuropsychiatric Interview (MINI) and the Thai version of the Hamilton Rating Scale for Depression (HAM-D).The results showed that Thai version of the PHQ-9

has acceptable psychometric properties for screening for major depression in general practice with a recommended cut-off score of nine or greater. But, the further clinical assessment is recommended on the grounds that the categorical algorithm of the PHQ-9 yielded low sensitivity. It is less suitable for a screening purpose. [16]

In 2011, **Fadia Isaac** at el Investigated the relationship between insomnia and depressive symptoms by using BDI-II and PSQI. The objectives of this study is to analyze the association of cognitive and somatic factors and to figure out whether the treatment of insomnia in the depression with insomnia would decrease the depression symptoms or somatic or cognitive of depressive symptoms. The results show that insomnia may be first leading step to depressive symptoms. Health experts say that the treatment of insomnia alone may also help with the depressive symptoms. [17]

In 2014, **Elizabeth C. Mason and Allison G. Harvey** studied insomnia symptoms before and after treatment of anxiety and depression in 266 patients. Insomnia Severity Index was used to present insomnia. 102 of them used the iCBT. The results show that over the treatment there is no change of their total sleep time. They prove that treatment of anxiety or depression may help with insomnia symptoms but may be ineffective in total sleep time. [18]

In 2017, **Shou Pan** at el used the Hamilton Depression Rating scale (24-items) to predict the diabetic microvascular complications in type 2 diabetics mellitus in 288 hospitalized patients. The results show that HAM-D_{24} score were significantly greater than the patients without diabetic microvascular complications. Shou Pan at el believe that applying the HAM-D_{24} when the patients with T2DM were admitted would be useful for them. [19]

In 2017, **Ping-Jen Chen at el** studied the long-term effects of relapsed insomnia in Taiwanese participants from a population-based 4-year cohort study on the following

progression of anxiety and depression during a 4-year follow-up. ICD-9-CM was used to present the database. He further classified insomnia into groups to figure out whether the risk of anxiety and depression varies by subtype. The findings emphasize the important part of insomnia in the future onset of anxiety and depression. [20]

In 2017, **Thaís de Rezende Bessa Guerra et al** researched a Cross-sectional study a consecutive sample about Methods of Screening for Depression in Outpatients with Heart Failure to study the prevalence of depression and the agreement among screening methods for depression in patients with heart failure in 76 outpatients patients from multidisciplinary program of a clinic specialized in Heart Fail, between March 2015 and January 2017, by using the Hamilton Depression Rating Scale (HAM-D), Beck Depression Inventory-II (BDI-II), and Patient Health Questionnaire-9 (PHQ-9) to screen the depression. The result found that the prevalence of depression associated with HF; 1) depression has a relevant prevalence in outpatients with HF; 2) the diagnosis and detection of depression are obtained through the use of questionnaires in outpatients with HF; 3) the three questionnaires evaluated have a superficial agreement and moderate consistency in the diagnosis of depression in the population with HF; 4) the HAM-D scale proved to be the best instrument in diagnosing depression, since it showed greater accuracy and sensitivity, and a lower percentage of false-negative results; 5) the PHQ-9 instrument was conservative in diagnosing depression, with a high percentage of false negative results and low sensitivity to identify patients who are in fact depressed. The further research is required. [21]

In 2018, **Melanie N. Schneider at el** studied the magnitude and the effects of genetic and environment and on mindfulness, symptoms of insomnia, depression, and anxiety in twin/sibling adults (22 to 32 years). Five Factor Mindfulness Questionnaire (FFMQ) was used to present Mindfulness. This finding found out that 'non-judging of inner experience' was the subscale of the mindfulness that mostly associated with

symptoms of insomnia, depression and anxiety. Further study on the subscales of mindfulness could help with mindfulness-based in the future. [22]

in 2018, **Petros Petrikis** et al studied the quality of life, fatigue, stress, and depression in 131 caregivers of patients with Multiple Sclerosis, and to identify further relationship between these factors and the characteristics of caregivers (age, gender, affinity with the patient, duration of caregiving, income, education, and hobbies and the severity of the patient disability from the Department of Neurology, University Hospital of Ioannina, Greece from October 2015 to March 2017. 36-item Short Form Health Survey (SF-36) was used to assess the quality of life of the caregivers. Krupp Fatigue Severity Scale (FSS) was used to evaluate the fatigue. Kingston caregiver stress Scale (KCSS) was used to measure Stress. Hamilton Scale for Depression (HAM-D) was used to assess depression of caregivers. This study used linear regression models to analyze the associations of KCSS with both the HAM-D and SF-36 and mental component summary. The linear regression analyses showed that fatigue was positively related with stress and negatively related with both physical health status and mental health status. Stress was positively related with depression and negatively related with both physical health status and mental health status. Depression was negatively associated with both caregiver physical health status and mental health status. In multivariable logistic regression analysis, fatigue was independently correlated with education status, history of chronic disease, other chronic diseases in the family, and the disability status of the patient. [23]

In 2018, **Muhammad Irfan** et al conducted a cross-sectional study to investigate psychological distress in terms of depression, anxiety, social dysfunction, depressive and somatic symptoms among 1334 (745 (55.8%) were males and 589 (44.2%) were females) students appearing for medical school entrance examination at Peshawar Medical College, Peshawar, Pakistan, from August 2015 to May 2016. General Health Questionnaire was used to assess the psychological distress. Those who scored 24 or

more on the GHQ and were called for the entrance interview were further assessed on Hamilton Rating Scale. Hamilton Rating Scale was used to evaluate depression. The mean age was 18.9±1.41 years and 182 (13.6%) subjects had psychological distress. On the four subscales of the questionnaire, 472 (35.4%) students had somatic symptoms, 560 (42%) had anxiety/insomnia, 819 (61.4%) had social dysfunction and 323 (24.2%) had depressive symptoms. Amongst the 322 (24%) students who were called for interviews, 73 (22.7%) had psychological distress based on the questionnaire and 9 (2.8%) had depression on the Hamilton scale. There was a significant correlation between female gender and psychological distress based on the questionnaire scores ($p<0.05$). Among those who had both the assessments, there was no significant gender-based correlation ($p>0.05$). No significant correlation was found between academic performance and either of the assessment tools. [24]

In 2018, **Oluremi A.** et al conducted a study of factor analysis to shorten the Pittsburgh Quality Sleep Index (PSQI) for young adults. 19-item PSQI was shortened to 13 items. Short PSQI data from 1246 collegeCollege freshmen across eight university were used. The findings revealed that short PSQI correlated and agreed with the original survey and could potentially be used to give the same result with reducing the time for participant to complete the surveys. The short PSQI is more attractive for younger adults with limit time. [25]

In 2019, **Caijun Dai** at al investigate cross-sectional study to compare the sleep quality and depressive symptoms in 865 Chinese nurses working night shifts only with day shifts only and to analyze the relationship between sleep quality and depressive symptoms. This study started from June to October 2017 in Jinhua Municipal Central Hospital in Zhejiang Province (Southern China). Pittsburgh Sleep Quality Index (PSQI) and Hospital Anxiety and Depressive Disorders Rating Scale (HADS) were used to assess the sleep quality and depressive symptoms. Nurses working night shifts had more PSQI and HADS scores ($p<0.05$) significantly higher than nurses working day

shifts only. There was a positive association between PSQI and HADS scores. Binary logistic regression showed that night shift and poor sleep quality were independent risk factors of depressive symptoms among nurses. Higher rates of depression among Chinese nurses working night shifts may be associated with poor sleep quality induced by night shift. [26]

According to the research of Manote Lotrakul et al in 2007, we can see that the Thai version of PHQ-9 is shorter than other diagnostic tools available in Thailand. It has been accepted as a psychometric tools for screening for major depression. However, categorical algorithm of the PHQ-9 yielded low sensitivity. On the other hand, as a research results of Thaís de Rezende Bessa Guerra et al in 2017 found that the HAM-D scale proved to be the best instrument in diagnosing depression, since it showed greater accuracy and sensitivity, and a lower percentage of false-negative results comparing to PHQ-9. One more thing, the PHQ-9 was conservative in diagnosing depression, with a high percentage of false negative results and low sensitivity. So those are the reason we chose HAM-D in our study.

Chapter 3
Research Methodology

A cross-sectional survey study was planned to conduct at Faculty of Pharmaceutical Sciences, Burapha University, a university on the Eastern sea board, in Chonburi Thailand in 2019.

3.1 Method

3.1.1 Literature review

3.1.2 Research ethics approval in human

3.1.3 Questionnaire development

3.1.4 Questionnaire validation by experts

3.1.5 Final version questionnaire

3.1.6 Pilot test and reliability test

3.1.7 Data collection

3.1.8 Data analysis

3.1.9 Discussion and conclusion

3.1.10 Report writing

3.1.11 Research publishing

3.2 Population frame

All people at Faculty of Pharmaceutical Sciences in Burapha University were categorized into three groups: student, employee and lecturer. All of them were the population frame of this study. The probability simple random sampling was used to select a certain number 52 participants from each group (each group n=52). Participant information were distributed and explained before informed consents are obtained from them.

Exclusion criteria were those who lack of cognitive capacity in understanding the study information or refuse to give their informed consent.

The ethics in human was approved by the Faculty of Pharmaceutical Sciences, Burapha University Ethics and Research Committees. The ethics approval was granted before the project commences. This study is supported by Faculty of Pharmaceutical sciences, Burapha University 2019.

3.3 Sample size

According to "Statistical Power Analysis for the Behavioral Sciences second edition 1977" [19] book written by Jacob Cohen, page 384 table 8.4.4 when α is set to 0.05, β 0.20, power 0.80, effect size 0.25 when k (group)= 3, it yields sample size (n)= 52 in each group. Since there are 3 groups, therefore 52*3= 156 samples was purposive randomly selected.

Sampling plan:

1. The first year pharmacy students	n_1= 13	students
2. The second year pharmacy students	n_2= 13	students
3. The third year pharmacy students	n_3= 13	students
4. The fourth year pharmacy students	n_4= 13	students
5. The employees	n_5= 52	employees
6. The lecturers	n_6= 52	lecturers
7. Total population	N = 156	people

3.4 Instruments

Socio-economic status and medical record were assessed using a single item, unidimensional questions to obtain information on age, gender, marital status, occupation, income, medical conditions, chronic disease(s), and usage of sleeping aids/sleeping pills or the other medicine(s), and amount of alcohol consumption and smoking.

Insomnia (sleeping quality) was measured by validated Pittsburgh sleep quality index (PSQI)-Thai version. A self-rated questionnaire which assesses sleep quality and

disturbances over a 1-month interval. This questionnaire consists of 7 constructs (19 observed variables) namely: 1) Subjective sleep quality; 2) Sleep latency; 3) Sleep duration; 4) Habitual sleep efficiency; 5) Sleep disturbances; 6) Use of hypnotic agent; and 7) Daytime dysfunction. Each component is assessed using four-point Likert scale to yield a ratio scale for a higher power statistics outcome.

Poor sleep quality is defined as scores greater than 5, and good sleep quality is defined as scores of 5 and below.

In scoring the PSQI, seven component scores are divided, each scored 0 (no difficulty) to 3 (severe difficulty). The component scores were summed to produce a global score (range 0 to 21). Higher scores indicate worse sleep quality.

Table 3.1: Subjective sleep quality (Component 1)

sleep quality (Component 1)	
Response to Q9	score
Very good	0
Fairly good	1
Fairly bad	2
Very bad	3

The score in this section came from the 9th question “During the past month, how would you rate your sleep quality overall? “. Subjective sleep quality can divided into 4 scores: 0 refers to very good, 1 refers to fairly good, 2 refers to fairly bad, 3 refers to very bad.

Table 3.2: Sleep latency (Component 2)

Sleep latency (Component 2)	
Sum of Q2 and Q5a	score
0	0
1-2	1
3-4	2
5-6	3

The question Q2 and Q5a were summed and total score in this component were used to assess the length of time that it takes from full wakefulness to sleep. Sleep latency can divided into 4 scores: 0 refers to Sum of Q2 and Q5a = 0, 1 refers to Sum of Q2 and Q5a = 1-2, 2 refers to Sum of Q2 and Q5a = 3-4, 3 refers to Sum of Q2 and Q5a = 5-6

Table 3.3: Sleep duration (Component 3)

Sleep latency (Component 2)	
Response to Q4	score
>7 hr	0
6-7 hr	1
5-6 hr	2
< 5 hr	3

The question Q4 in this component were used to assess the total amount of sleep obtained at night. Sleep duration can divided into 4 scores: 0 refers to > 7 hr, 1 refers to 6-7 hr, 2 refers to 5-6 hr, and 3 refers to < 5 hr.

Table 3.4: Sleep efficiency (Component 4)

Sleep efficiency (Component 4)	
Sleep efficiency	score
> 85%	0
75-84%	1
65-74%	2
< 65%	3

Sleep efficiency is the percentage of time in bed that sleep occurred; calculated as the ratio of total sleep time to time in bed. Sleep efficiency can divided into 4 scores: 0 refers to > 85%, 1 refers to 75-84%, 2 refers to 65-74%, 3 refers to < 65%

$$\text{Sleep efficiency} = \frac{\textbf{hours slept (Q4)}}{\textbf{hours in bed(responses to Q1 \& Q3)}} x\ 100\%$$

Table 3.5: Sleep disturbance (Component 5)

Sleep disturbance (Component 5)	
Sum of 5b to 5j	score
0	0
1-9	1
10-18	2
19-27	3

The question Q5b and Q5j were summed and total score in this component were used to assess all the factor that affected sleep.

Sleep disturbance can divide into 4 scores: 0 refers to Sum of 5b to 5j = 0, 1 refers to Sum of 5b to 5j = 1-9, 2 refers to Sum of 5b to 5j = 10-18, 3 refers to Sum of 5b to 5j = 19-27.

Table 3.6: Use of sleep medication (Component 6)

sleep drug uses (Component 6)	
Response to Q6	score
Not during past month	0
Less than once a week	1
Once or twice a week	2
Three or more times a week	3

The question Q6 in this component was used to assess how often medication is needed to help sleep. Use of sleep medication can divided into 4 scores: 0 refers to Not during past month, 1 refers to Less than once a week, 2 refers to Once or twice a week, 3 refers to Three or more times a week

Table 3.7: Daytime dysfunction (Component 7)

Daytime dysfunction (Component 7)	
Sum of Q7 and Q8	score
0	0
1-2	1
3-4	2
5-6	3

The question Q7 and Q8 were summed and total score in this component are used to assess a lack of enthusiasm to carry out daily functions and having trouble staying awake while driving or engaging in social activity due to insufficient sleep. Derived from summation of questions 7 and 8. The question 7 is categorized into 4 scores; Not during past month refers to score o, Not during past month refers to score 1, Not during past month refers to score 2, Not during past month refers to score 3. While the question 8 is categorized into 4 scores; No problem at all refers to score 0, No problem at all refers to score 1, No problem at all refers to score 2, No problem at all a week refers to score 3.

Daytime dysfunction can divided into 4 scores: 0 refers to sum of Q7 and Q8 = 0, 1 refers to sum of Q7 and Q8= 1-2, 2 refers to sum of Q7 and Q8= 3-4, 3 refers to sum of Q7 and Q8 = 5-6

The final step was the calculation of all 7 components together . If the total score is less than or equal to 5 refers to Good sleep quality and more than 5 refers to Poor sleep quality.

Depression symptoms were measured by the validated Hamilton Depression Rating Scale (HAM-D or HDRS)-Thai version. It was generally used to screen for the presence of symptoms of depression and anxiety (psychological depress) over a 1-month interval. This questionnaire consists of 17 observed variables namely: 1) Insight; 2) Depressed mood; 3) Initial insomnia; 4) Feelings of guilt; 5) Weight loss; 6) Insomnia during the night; 7) Delayed insomnia; 8) Work and interests; 9) Retardation; 10) Somatic anxiety; 11) Hypochondriasis; 12) Psychiatric anxiety; 13) Genital symptoms; 14) Gastrointestinal somatic symptoms; 15) Agitation; 16 Suicide and 17) General somatic symptoms. All data of this study was analyzed using statistical package for social sciences (SPSS) Version 17.

The total score were calculated by the summation of all 17 questions in part 3 of Questionnaire and was used to assess severity of depression. The severity of depression are

1. Scores below 7 generally represent the absence or remission of depression.
2. Scores between 7-17 represent mild depression.
3. Scores between 18-24 represent moderate depression.
4. Scores 25 and above represent severe depression.

3.5 Scale Validity and Reliability

3.5.1 Content validity was be approved by three experts from Faculty of Pharmaceutical Sciences, Chulalongkorn University. Experts evaluated items in the questionnaire using a four-point Likert scale, where 1= not relevant, 2= somewhat relevant, 3=quite relevant, 4=highly relevant. Then, a content validity index (CVI) was computed for each item. The CVI $\geq$ 0.8 was considered a good content validity. [27] In addition, experts were also allowed to comment on the wording of items and response options, and suggested other items to be added in the questionnaire.

3.5.2 Internal consistency was used to assess the reliability of the questionnaire. A Cronbach's alpha $\geq$ 0.7 is considered an acceptable level. [28]

3.6 Pilot test

A face to face interview with 30 participants (10 people of each group) was conducted to confirm the appropriateness of the items and the suitability of written language and response options. In this step, a face validity was also conducted to see how they interpret or understand the meaning of items and their response options, and whether or not these items can reflect the construct of interest based on their perceptions. Then, an adjustment of items was performed to achieve the final version of the questionnaire. [29]All measurement variables were clarified in table 8.

Table 8: Measurement variables

Variables	Definition of variables	Attributes
BMI	Body mass index	Ratio scale, Score 15-50
Gender	Gender of respondent	Nominal scale, 1 Male, 0 Female
Age	Age in years	Ratio scale, 15-70
Occupation	Occupation	Nominal scale 1-6
Income	Income	Ordinal scale 1-10
Insomnia	Sleeping quality measure by Pittsburgh sleep quality index (PSQI)-Thai version	7 constructs, 19 observed variables
Depression	The Hamilton Depression Rating Scale (HAM-D or HDRS)	Ratio scale, 17 observed variables

3.7 Data collection

The questionnaire was distributed to select first-fourth year students, employees, and lecturers of the Faculty of Pharmaceutical Sciences, Burapha University from September 1, 2019 to September 30, 2019.

3.8 Statistical analysis

2 statistical procedures were used in this study as follows:

1. Analysis of Variance (ANOVA) was used as a decision tool to assess the significance of means different of many aspects.
2. Chi Square was used to find association of two non-metric variables.

Depression was used as a dependent variable. Independent variable is insomnia (sleeping quality). Concurrently, PSQI score was be recoded to ordinal scale for Chi Square analysis purpose. In sum, we used 2 statistical procedure:

Chi Square was triangulated analysis to identify the association and correlation of these 2 major constructs.

Descriptive statistics was used to describe the demographic characteristics and the scores obtained from PSQI and HADS questionnaire of all recruited samples.

Frequencies and percentages were used to describe nonmetric variables, while mean and standard deviation (SD) will be reported for metric variables.

Analysis of variance was used to assess the difference between means of age, BMI and PSQI amongst study groups. Chi Square was also used to examine associations between sleep quality, psychological stress and socio-economic data of all recruited samples. Risk associations between dependent and independent variables were verified using odds ratio. Confidence interval of 95% and p-value of 0.05 were fixed. All analyses were carried out using statistical package for social sciences (SPSS) version 17.

Research period

The full progression of research was 1 year.

The starting date started from 02 February 2019 to 31 January 2020.

Research facility

Country	Province	Research area	Facility Name
Thailand	Chonburi	Faculty of Pharmacy, Burapha University	169 long had Bangsaen road, Sean Suk village, SeanSuk district, Chonburi province

Research plan (2019-2020)

Activities	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Literature review	X	X	X	X	X	X	X	X	X	X	X
2. Research ethics in human approval			X								
3. Questionnaire development				X	X						
4. Questionnaire Validation by experts (Validity test)						X					
5. Pilot test and reliability test							X				
6. Final version questionnaire							X				
7. Collection data								X			

8. Data analysis									X		
9. Discussion and conclusion										X	
10. Report writing										X	X
11. Research publishing											X

Budget

Budget list	Number	**Total (Bath)**
Questionnaire collection fee	10 people x 450 bath	4,500
Report printing fee	3 books x 150 bath	450
Paper sheets fee	3 packs x150 bath	450
Book binding fee	3 books x 100 bath	300
Poster fee	1 sheet x 700 bath	700
Photocopying fee	2000 sheet x 0.5 bath	1,000
Transportation fee	1600 bath	1600
Total cost		9,000

Chapter 4

Results

1. This chapter sets forth the results of the descriptive statistical analyses by which the study's response data were interpreted; and the resultant evaluative statistical analyses, on which its hypotheses were tested.
2. The first section summarizes descriptive analyses: content validity, scale reliability questionnaire response and demographic characteristics. The second presents results of the evaluative analyses, from the methods employed in this study: Pearson correlation, Chi Square test, and one-way ANOVA.
3. Data process (coding and computer entry) was done by the investigators. Test for entry error was done by double check, throughout the entire sample, of every response item against its initial keyboard entry.

The three experts from Faculty of Pharmaceutical Sciences, Chulalongkorn University were asked to rate each item based on relevance, clarity, simplicity and ambiguity on the four-point scale, where 1= not relevant or not clear, 2= item need some revision, 3= relevant but need minor revision, 4 = highly relevant.

Table 4.1: Content validity of sleep quality

Sleep Quality	Expert 1	Expert 2	Expert 3	I-CVI
When have you usually gone to bed?	/	/	/	1.00
How long (in minutes) has it taken you to fall asleep each night?	/	/	/	1.00
When have you usually gotten up in the morning?	/	/	/	1.00
How many hours of actual sleep do you get at night? (This may be different	/	/	/	1.00

than the number of hours you spend in bed)				
During the past month, how often have you had trouble sleeping because you cannot get to sleep within 30 minutes	/	/	/	1.00
During the past month, how often have you had trouble sleeping because you wake up in the middle of the night or early morning	/	/	/	1.00
During the past month, how often have you had trouble sleeping because you have to get up to use the bathroom	/	/	/	1.00
During the past month, how often have you had trouble sleeping because you cannot breathe comfortably	/	/	/	1.00
During the past month, how often have you had trouble sleeping because you cough or snore loudly	/	/	/	1.00
During the past month, how often have you had trouble sleeping because you feel too cold	/	/	/	1.00
During the past month, how often have you had trouble sleeping because you feel too hot	/	/	/	1.00
Have bad dreams	/	/	/	1.00
Have pain	/	/	/	1.00
Other reason(s), please describe, including how often you have had trouble sleeping because of this reason(s)	/	/	/	1.00
During the past month, how often have you taken medicine (prescribed or “over the counter”) to help you sleep?	/	/	/	1.00
During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?	/	/	/	1.00
During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?	/	/	/	1.00
During the past month, how would you rate your sleep quality overall?	/	/	/	1.00
Do you have a bed partner or roommate?	/	/	/	1.00
Loud snoring	/	/	/	1.00

Long pauses between breaths while asleep	/	/	/	1.00
Legs twitching or jerking while you sleep	/	/	/	1.00
Episodes of disorientation or confusion during sleep ?	/	/	/	1.00
Other restlessness while you sleep; please describe……..	/	/	/	1.00

Table 4.2: content validity of depression

Depression	Expert1	Expert2	Expert3	I-CVI
Depressed Mood (sadness, hopeless, helpless, worthless)	/	/	/	1.00
Feelings of guilt	/	/	/	1.00
Suicide	/	/	/	1.00
Initial insomnia(Difficulty falling asleep)	/	/	/	1.00
Insomnia during the night(Restless, disturbed, waking at night)	/	/	/	1.00
Delayed insomnia(Waking in early hours of the morning and unable to fall asleep again)	/	/	/	1.00
Work and interest	/	/	/	1.00
Retardation (Slowness of thought, speech, and activity; apathy; stupor)	/	/	/	1.00
Agitation(Restlessness)	/	/	/	1.00
Psychiatric anxiety	/	/	/	1.00
Somatic anxiety (Gastrointestinal, indigestion, cardiovascular, palpitations, headaches, respiratory, genitourinary, etc.)	/	/	/	1.00
Gastrointestinal somatic symptoms(Loss of appetite, heavy feeling in abdomen, constipation)	/	/	/	1.00
General somatic symptoms(Heaviness in limbs, back, or head; diffuse backache; loss of energy and fatigability)	/	/	/	1.00
Genital symptoms(Loss of libido, menstrual disturbances)	/	/	/	1.00

Hypochondriasis	/	/	/	1.00
Weight loss	/	/	/	1.00
Insight(Must be interpreted in terms of patient's understanding and background)	/	/	/	1.00

Content Validity Index Calculation

Sleep quality

From S-CVI = $\frac{\Sigma\, I{-}CVI}{total\ questions}$

All three experts rated a score = 3 to each item.

from I-CVI = $\frac{The\ number\ of\ experts\ rated\ 3\ or\ 4}{Total\ \ experts}$

$= \frac{3}{3} = 1$

The Sleep quality questionnaires consist of 19 items. : ΣI-CVI = 19*1 = 19

S-CVI = $\frac{19}{19} = 1$

S-CVI > 0.8: sleep quality questionnaire has CONTENT VALIDITY.

Depression

From S-CVI = $\frac{\Sigma\, I{-}CVI}{total\ questions}$

All three experts rated a score = 3 to each item.

From I-CVI = $\frac{The\ number\ of\ experts\ rated\ 3\ or\ 4}{Total\ \ experts}$

$= \frac{3}{3} = 1$

The depression assessment questionnaires consist of 17 items: ΣI-CVI = 17*1 = 17

S-CVI = $\frac{17}{17} = 1$

S-CVI > 0.8: depression questionnaire has CONTENT VALIDITY.

Scale Reliability

Consistency of these scales was assessed for internal reliability with Cronbach's Alpha coefficient. The reliability coefficients are assessed, respectively: For those established scales: PSQI, 0.718 and HAM-D, 0.804 were shown in Table 4.3.

Table 4.3: Scale Reliability

	Mean	SD	Min	Max	Cronbach alpha
PSQI	11.76147	5.395298	1	25	0.718
HAM-D	9.678899	5.898651	0	29	0.804

The internal consistency (Cronbach alpha r) of all three scales used in this study were >.7 which yield R2>.50. All scales were passed because they could measure > 50% of true score.

Questionnaire Response

Data were collected for a period of one months from September 1, 2019 to September 30, 2019. The questionnaire will be distributed to selected first-fourth year students, employees, and lecturers of the Faculty of Pharmaceutical Sciences, Burapha University from September 1, 2019 to September 30, 2019.

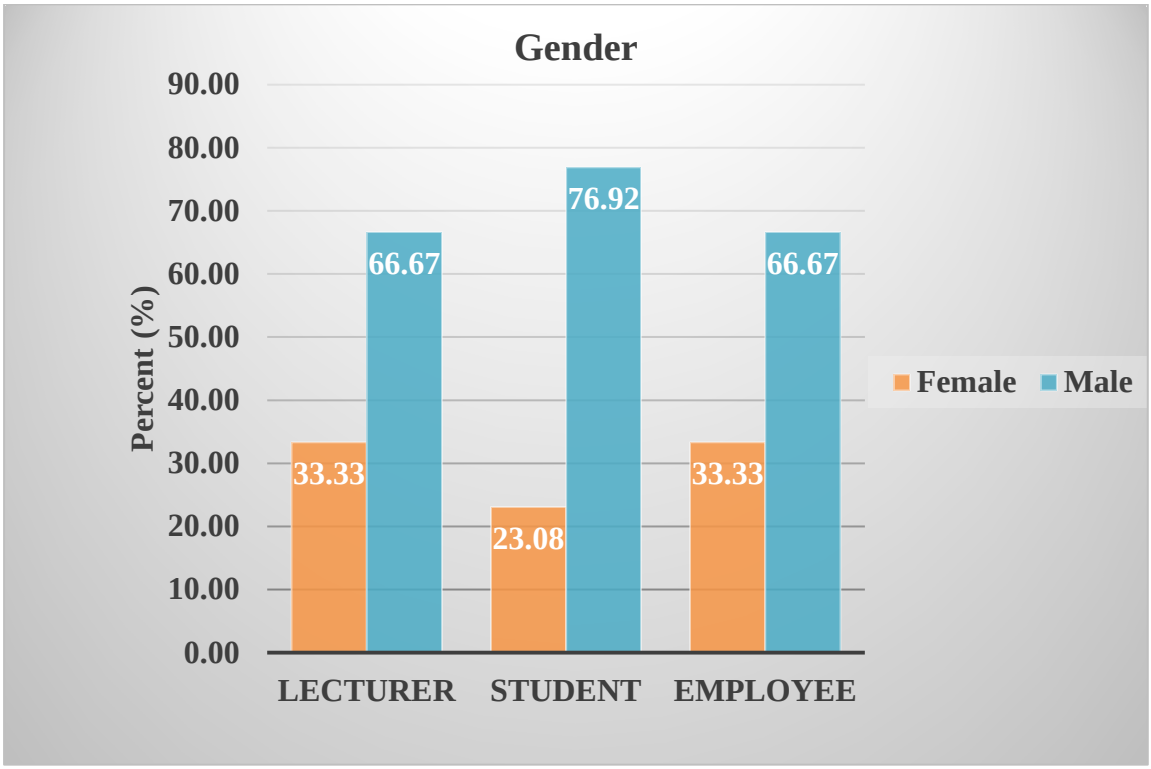
Descriptive statistics of study population

The population frame of this study included all people at Faculty of Pharmaceutical Sciences at Burapha University. Total sample of 156 people were divided into three groups namely: lecturers (n = 30), students n = 52 (first year pharmacy students (n = 13), second year pharmacy students (n =13), third year pharmacy students (n = 13), and fourth year pharmacy students (n = 13) and employees (n =30). The baseline characteristics and demographic characteristics of each groups are presented in Table 4.4 below.

Table 4.4: Demographic data in each group

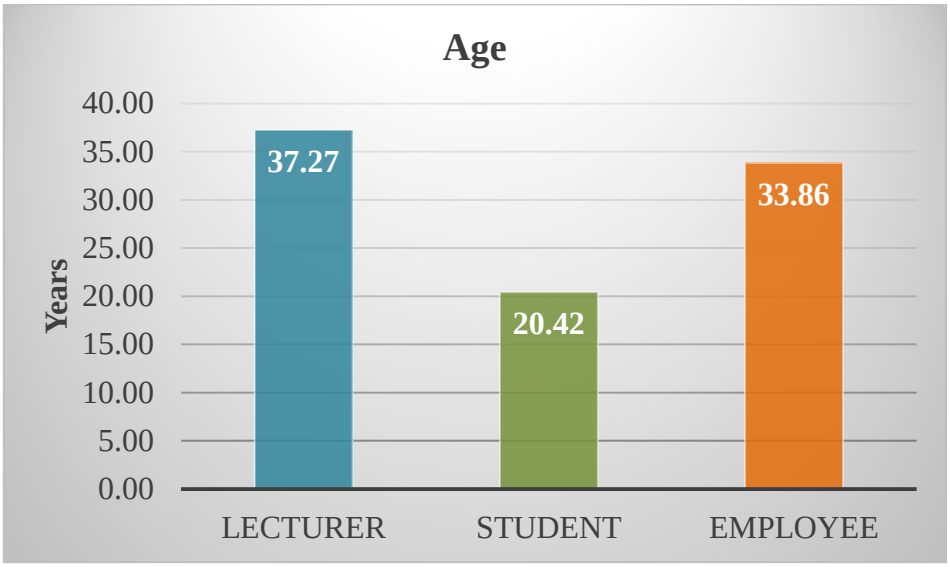
	lecturer		student		employee	
	Mean	SD	Mean	SD	Mean	SD
Age	37.27	7.68	20.42	1.53	33.86	7.99
Weight	59.74	11.49	57.85	12.23	60.7	12.06
Height	1.64	0.07	1.61	0.09	1.63	0.09
BMI	21.79	2.5	22.22	4.1	22.78	3.71
PSQI	6.07	2.74	6.96	2.98	5.86	2.63
HAM-D	8.48	4.89	10.87	6.3	8.71	5.85

Figure 4.1: The percentage of Gender in each group



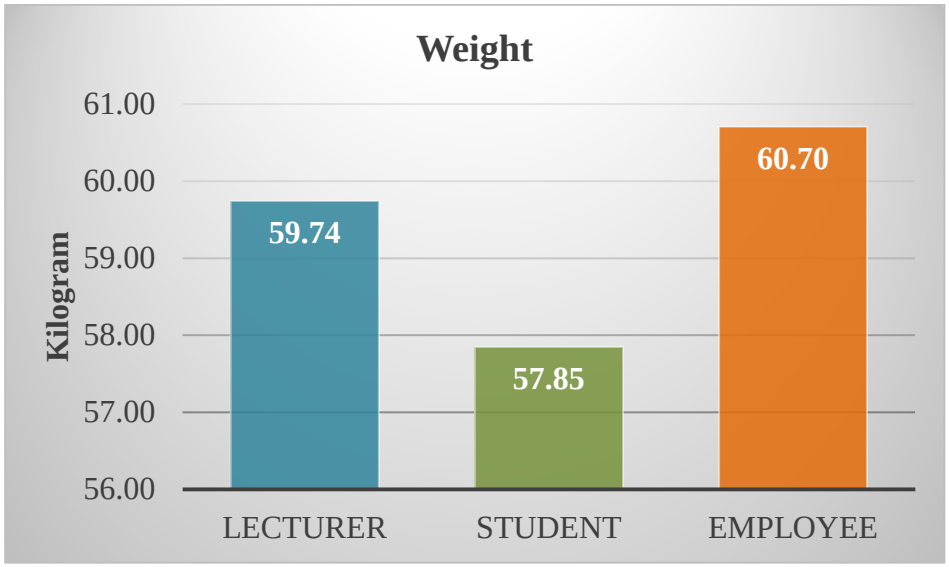
Among 30 people in the Lecturer group, there are male 33.33% and female 66.67%. Among 30 people in the student group, there are male 23.08% and female 76.92%. Among 52 people in the employee group, there are male 33.33% and female 66.67%.

Figure 4.2: The distribution of age in each group



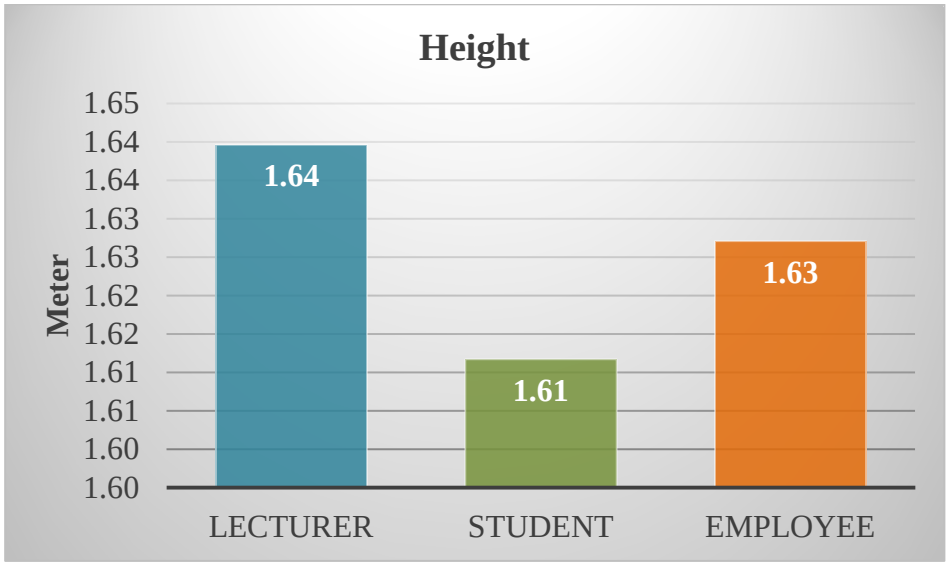
The average age of lecturers, students and employee were 37.27, 20.24 and 33,86 respectively.

Figure 4.3: The distribution of weight in each group



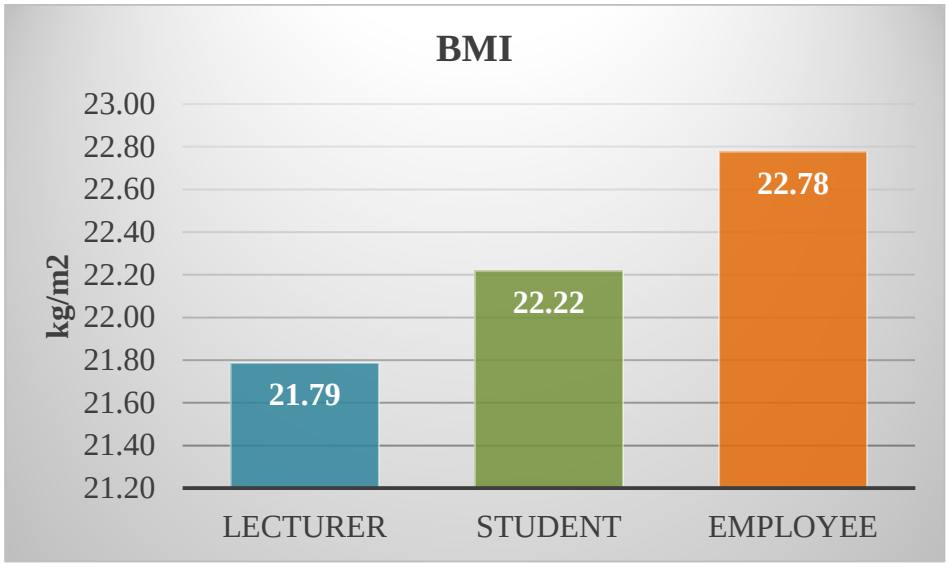
The average age of lecturers, students and employee were 59.74, 57.85 and 67.70 respectively.

Figure 4.4: The distribution of height in each group



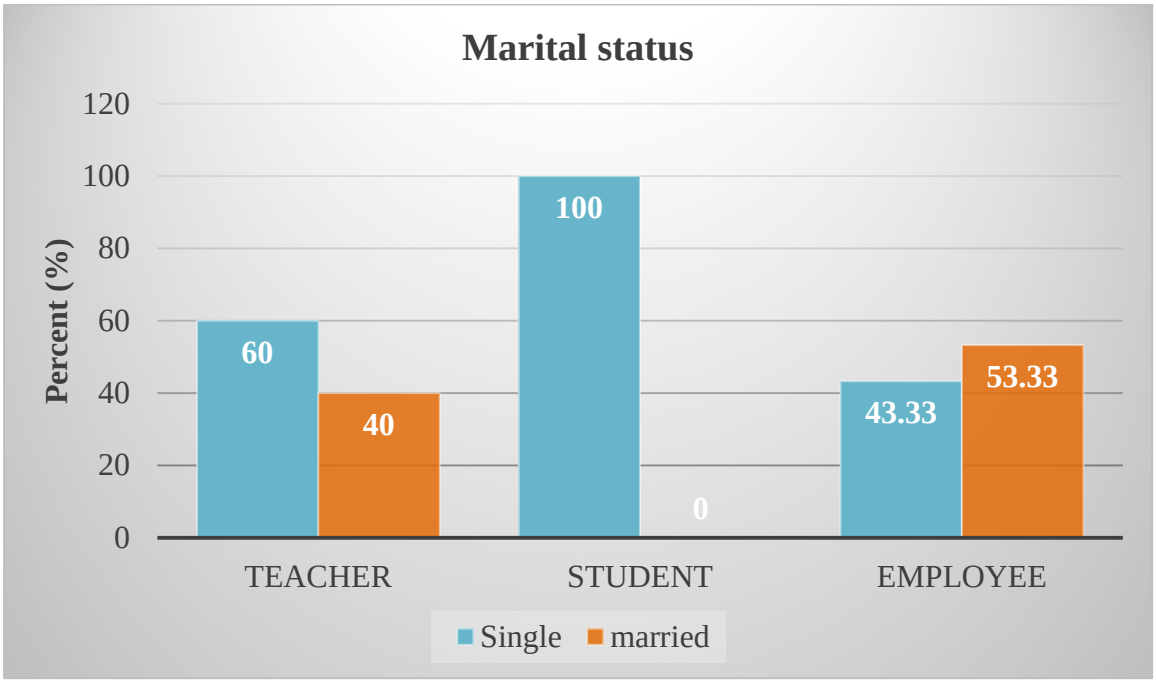
The average age of lecturers, students and employee were 1.64, 1.61 and 1.63 respectively.

Figure 4.5: The distribution of BMI in each group



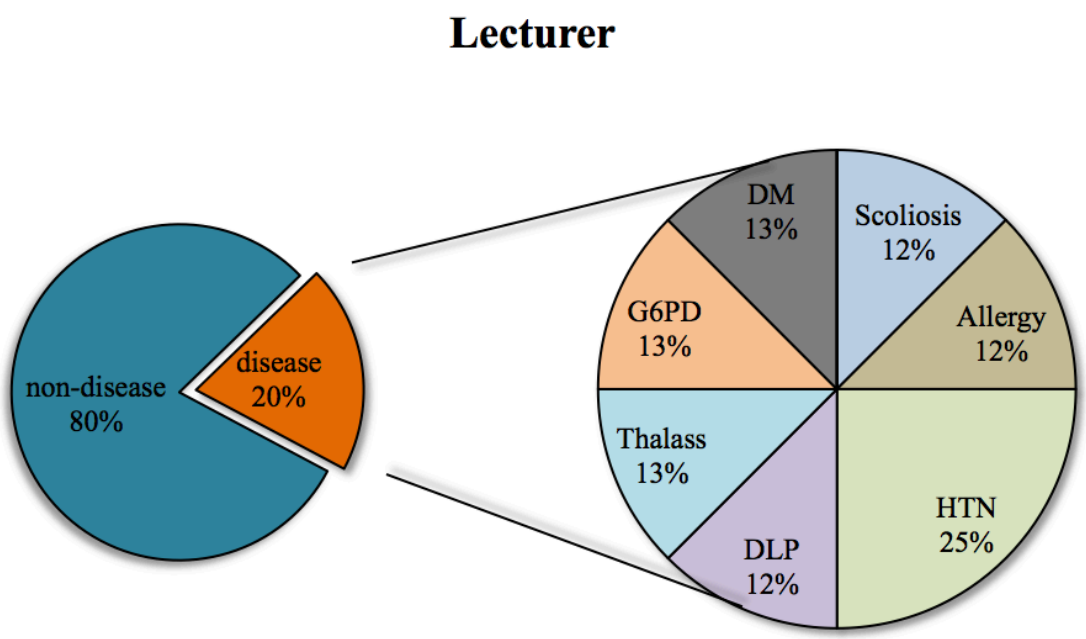
The employee group had the highest average BMI (22.78 kg/m^2). The average age in student group and lecturer group were 22.22 kg/m^2 and 21.79 kg/m^2 respectively.

Figure 4.6: The Percentage of Marital status in each group



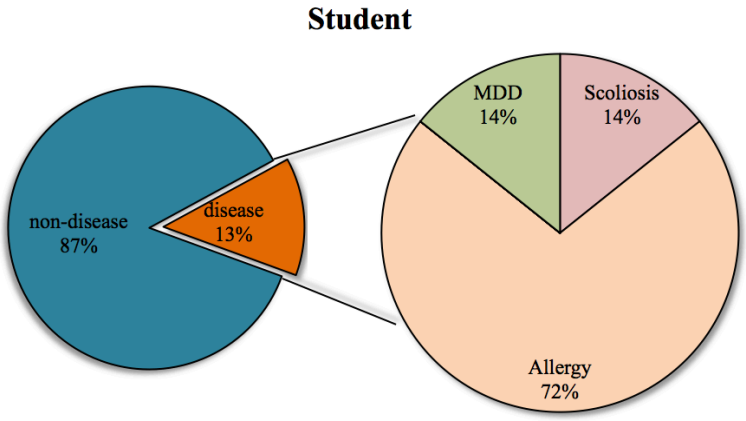
Among 30 people in the lecturer group, there were single 60% and married 40%. Among 30 people in the student group, there were all single 100%. Among 52 people in the employee group, there were single 43.33% and married 53.33%.

Figure 4.7: The distribution of Disease in lecturer group



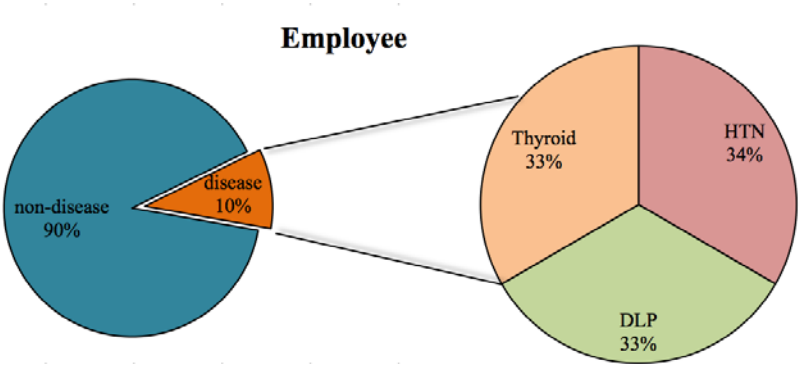
Among 30 people in lecturer group, there were non-disease 80% and disease 20%. The majority of 20% disease was hypertension (25%). The results show that the percentage of Diabetes mellitus, thalassemia, G6PD were 13%. The small minorities refer to allergic disease (12%), Scoliosis (12%) and Dyslipidemia (12%).

Figure 4.8: The distribution of Disease in student group



Among 52 people in student group, there were non-disease 87% and disease 13%. The majority of 13% disease was Allergic disease (72%). The small minorities refered to Major depressive disorder (14%) and Scoliosis (12%).

Figure 4.9: The distribution of Disease in employee group



Among 30 people in employee group, there were non-disease 90% and disease 10%. The majority of 10% disease was hypertension (34%). The small minorities referred to thyroid (33%), and Dyslipidemia (33%).

Table 4.5: The daily drug uses data in each group

Group	Daily Drugs use		
	Drug	frequency	Percent (%)
Lecturer (n=30)	NSAIDs	1	3.3
	Muscle relaxant	1	3.3
	PPI	1	3.3
	BPH	1	3.3
	Antihistamine	1	3.3
	Antipyretic	1	3.3
	Antihypertensive	1	3.3
	Antidiabetic	1	3.3
Student (n=52)	Calcium	1	1.9
	vitamin D	1	1.9
	Antidepression	2	3.8
	Muscle relaxant	1	1.9
Employee (n=30)	Antidepression	1	3.3
	Beta blocker	1	3.3
	Antihypertensive	1	3.3
	Statin	1	3.3

Table 4.6: The distribution of sleeping drug uses in each group

Group	Sleeping Drugs used		
	Drug	frequency	Percent
Lecturer(n=30)	Melatonin	1	3.3%
	CPM	1	3.3%
	Diazepam	1	3.3%
Student(n=52)	Diazepam	1	3.3%

Table 4.7: The distribution of hobby activities in each group

Hobby		Lecturer		Student		Employee	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Sport	No	13	43.33	36	69.23	18	60.00
	Yes	17	56.67	16	30.77	12	40.00
Art	No	24	80.00	44	84.62	29	96.67
	Yes	6	20.00	8	15.38	1	3.33
Travel	No	17	56.67	36	69.23	17	56.67
	Yes	13	43.33	16	30.77	13	43.33
Instrumental	No	28	93.33	47	90.38	29	96.67
	Yes	2	6.67	5	9.62	1	3.33
Shopping	No	13	43.33	29	55.77	13	43.33
	Yes	17	56.67	23	44.23	17	56.67
Reading	No	12	40.00	29	55.77	24	80.00
	Yes	18	60.00	23	44.23	6	20.00
Listen	No	20	66.67	10	19.23	19	63.33
	Yes	10	33.33	42	80.77	11	36.67
TV	No	9	30.00	20	38.46	10	33.33
	Yes	21	70.00	32	61.54	20	66.67
Cooking	No	16	53.33	42	80.77	21	70.00
	Yes	14	46.67	10	19.23	9	30.00
Internet	No	8	26.67	4	7.69	4	13.33
	Yes	22	73.33	48	92.31	26	86.67

The most three popular activities in Lecturer group were internet surfing (73%), watching TV (70%), doing sport (57%) and shopping (57%). The most three popular activities in

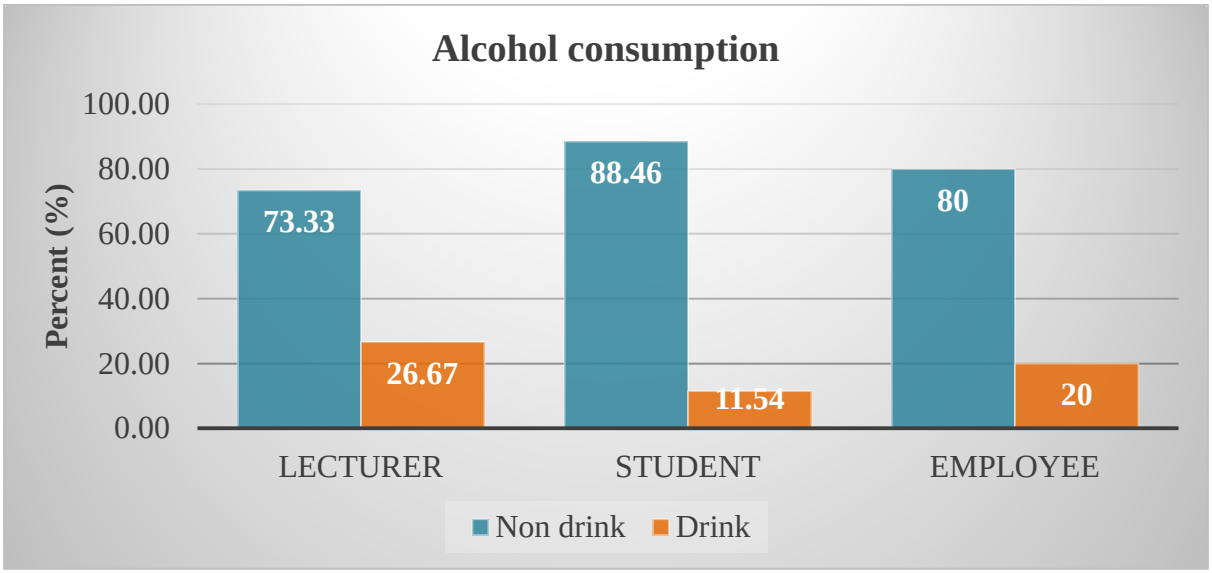
student group were internet use (92%), listening to music (81%), and watching TV (62%). The most three popular activities in employee group were internet use (87%), watching TV (67%), and shopping (57%).

Table 4.8: The distribution of salary data in each group

Salary (bath)	Lecturer (%) N=30	Student (%)	Employee (%)
n	30	52	30
< 10,000	0	67.31	0
10,000-20,000	0	30.77	23.33
20,000-30,000	6.67	1.92	63.33
30,000-40,000	43.33	0	10
40,000-50,000	33.33	0	3
50,000-60,000	10.00	0	0
60,000-70,000	0	0	0
70,000-80,000	3.33	0	0
80,000-90,000	0	0	0
> 90,000	0	0	0

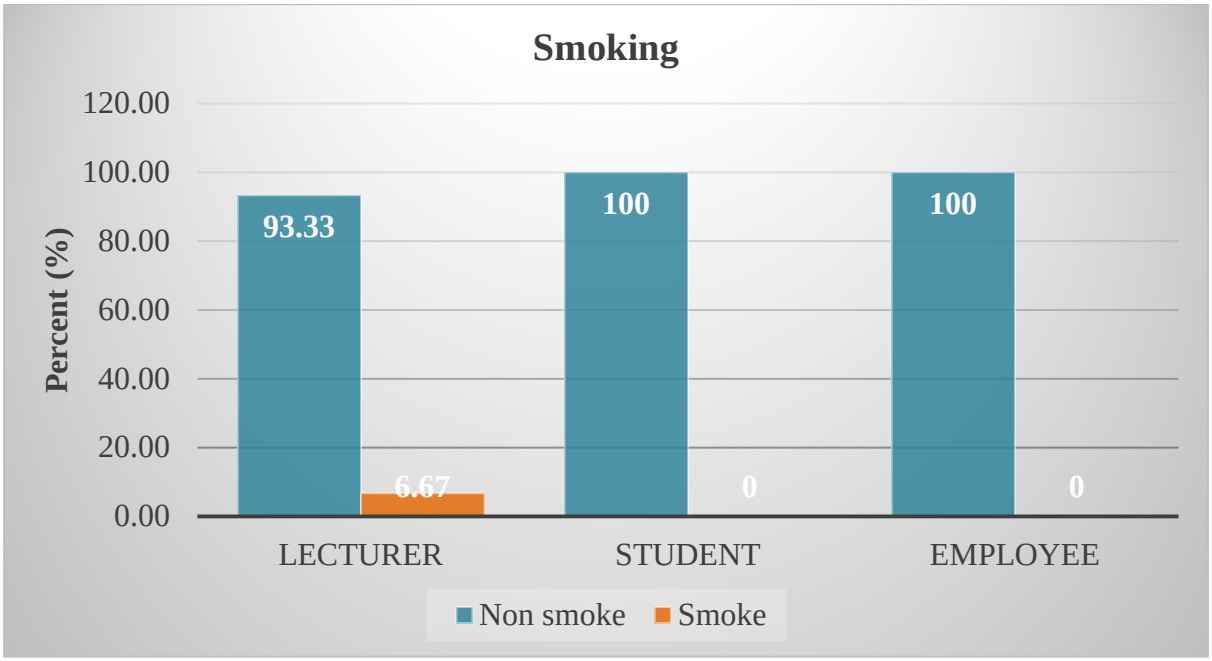
The majority percentage (43%) of salary in lecturer group was 30,000-40,000 bath. The majority percentage (67.31%) of salary in student group was less than 10,000 bath. The majority percentage (63.33%) of salary in employee group was 20,000-30,000 bath.

Figure 4.10: The distribution of alcohol consumption data in each group



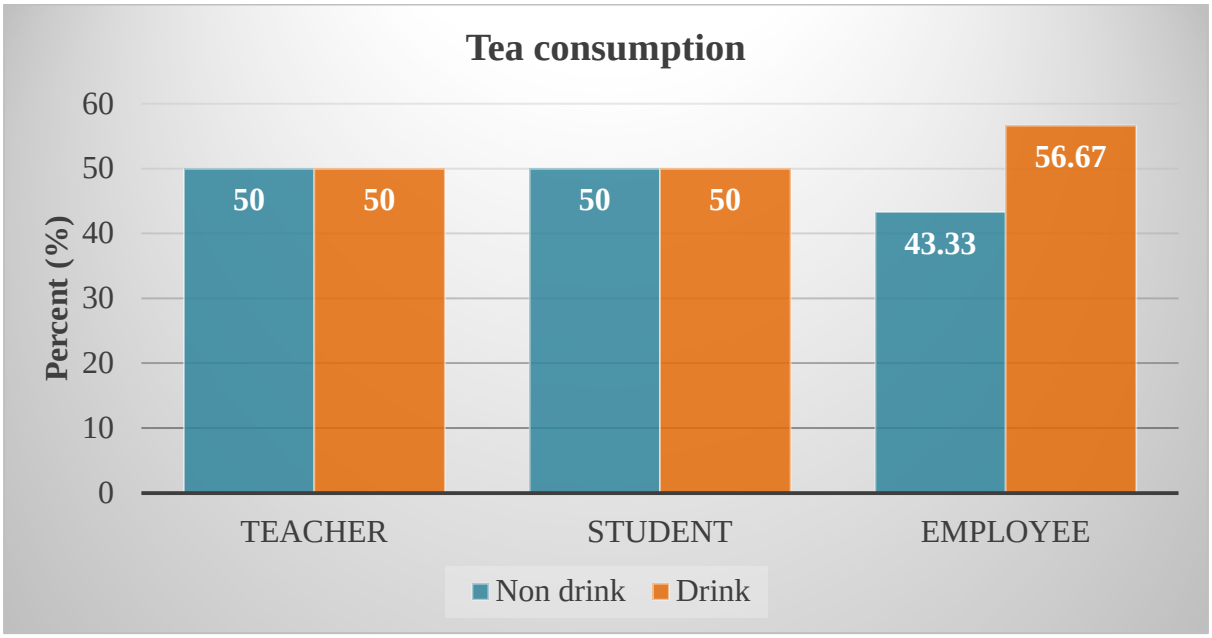
The highest percentage (88.46%) of alcohol consumption was student group. The percentage of alcohol consumption in employee group and lecturer were 80% and 73.33% respectively.

Figure 4.11: The distribution of smoking use data in each group



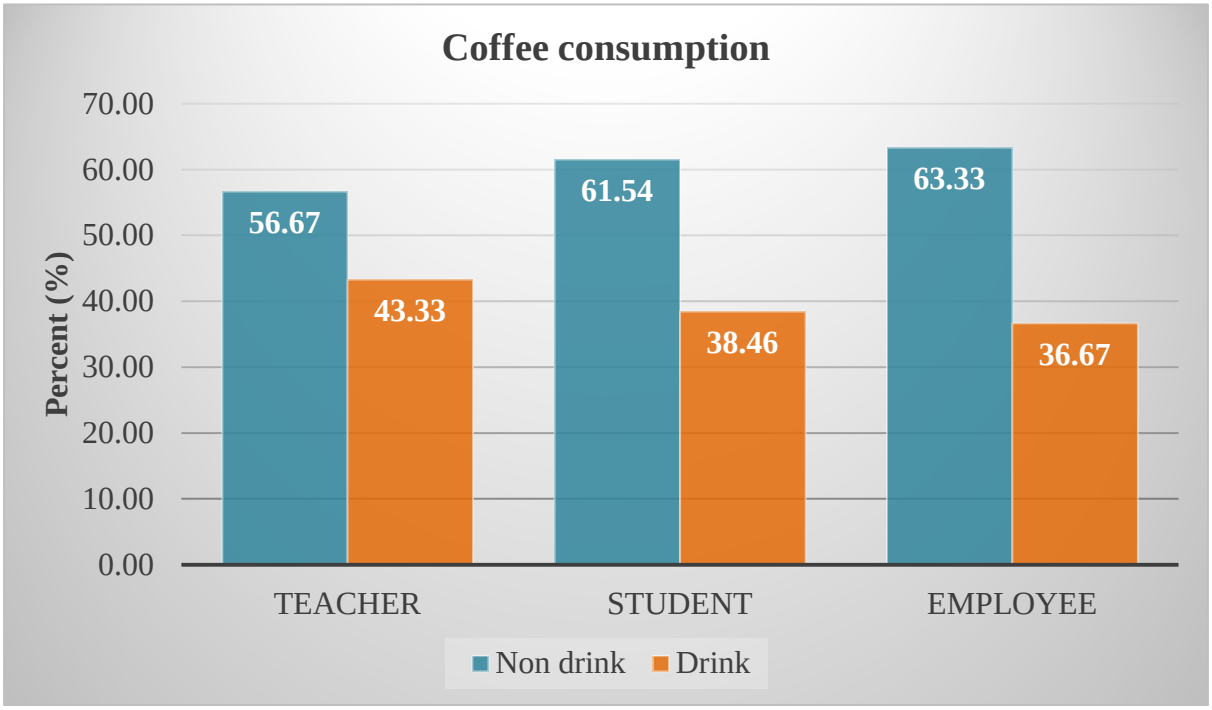
The highest percentage of smoking use is in Lecturer group (6.67%). The percentages of smoking use of student and employee group were 0%.

Figure 4.12: The distribution of tea consumption data in each group



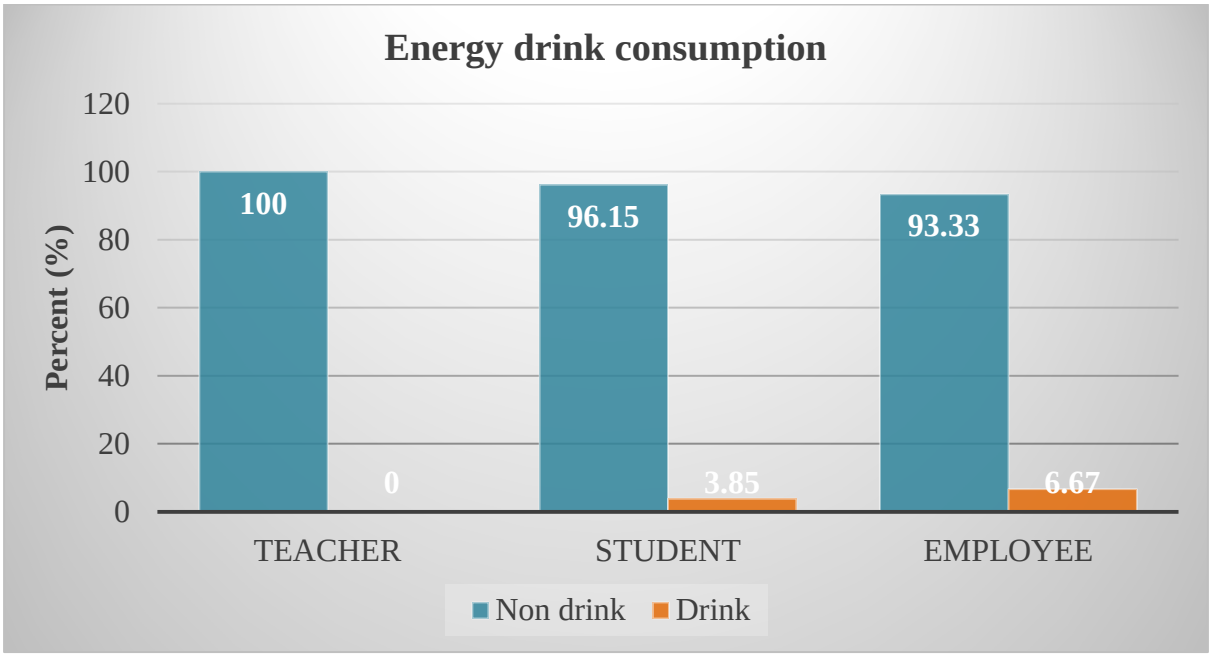
The highest percentage of tea consumption was in employee group (56.67%), following by the same percentage of tea consumption in Lecturer and student group (50%).

Figure 4.13: The distribution of coffee consumption data in each group



The highest percentage of coffee consumption was in employee group (63.33%), following by the Lecturer group (61.54%) and student group (56.67%).

Figure 4.14: The distribution of energy drink consumption data in each group



The highest percentage of energy drink consumption was in employee group (6.67%), following by the student group was 3.85%, while the Lecturer group was 0. The order of the PSQI items had 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) on a single page. Item 10, which was the second page of the scale, did not contribute to the PSQI score.

In scoring the PSQI, seven component scores were derived. Each scored 0 (no difficulty) to 3 (severe difficulty). The component scores were summed to produce a global score (range 0 to 21). Higher scores indicate worse sleep quality.

Component 1: Subjective sleep quality—question 9

Table 4.9: Percentage of subjective sleep quality in each group

Group	Subjective sleep quality			
	score	Response to Q9	Frequency	Percent
Lecturer	0	Very good	2	6.67
	1	Fairly good	21	70
	2	Fairly bad	6	20
	3	Very bad	1	3.33
Student	0	Very good	3	5.77
	1	Fairly good	26	50
	2	Fairly bad	20	38.46
	3	Very bad	3	5.77
Employee	0	Very good	4	13.33
	1	Fairly good	19	63.33
	2	Fairly bad	7	23.33
	3	Very bad	0	0

Subjective sleep quality can divided into 4 scores: 0 refers to very good, 1 refers to fairly good, 2 refers to fairly bad, and 3 refers to very bad.

Table 4.9 showed that, in the Lecturer group, the percentage of very good was 6.67%, fairly good is 70%, fairly bad was 20%, and very bad was 3.33%. In the student group the percentage of very good was 5.77%, fairly good was 50%, fairly bad was 38.46%, and very bad was 5.77%. In the employee group the percentage of very good was 13.33%, fairly good was 63.33%, fairly bad was 23.33%, and very bad was 0.00%.

Component 2: Sleep latency—questions 2 and 5a

Table 4.10: Percentage of sleep latency in each group

Group	Sleep latency			
	score	Score summation of Q2 and Q5a	Frequency	Percent
Lecturer	0	0	8	26.67
	1	1-2	12	40
	2	3-4	8	26.67
	3	5-6	2	6.67
Student	0	0	13	25
	1	1-2	20	38.46
	2	3-4	13	25
	3	5-6	6	11.54
Employee	0	0	7	23.33
	1	1-2	15	50
	2	3-4	7	23.33
	3	5-6	1	3.33

Sleep latency—Score summation of component 2 was the sum of questions 2 and 5a. The question 2 was categorized into 4 scores; < 15 minutes refers to score o, 16-30 minutes refers to score 1, 31-60 minutes refers to score 2, > 60 minutes refers to score 3. While the question 5a was categorized into 4 scores; Not during past month

refers to score 0, Not during past month refers to score 1, Once or twice a week refers to score 2, three or more times a week refers to score 3.

Sleep latency can divided into 4 scores: 0 refers to Sum of Q2 and Q5a = 0, 1 refers to Sum of Q2 and Q5a = 1-2, 2 refers to Sum of Q2 and Q5a = 3-4, 3 refers to Sum of Q2 and Q5a = 5-6

Table 4.10 showed that, in the Lecturer group the sleep latency percentage of Sum of Q2 and Q5a = 0 was 26.67%, Sum of Q2 and Q5a = 1-2 was 40%, Sum of Q2 and Q5a = 3-4 was 26.67%, and Sum of Q2 and Q5a = 5-6 were 6.67%. In the student group the sleep latency percentage of Sum of Q2 and Q5a = 0 was 25%, Sum of Q2 and Q5a = 1-2 was 38.46%, Sum of Q2 and Q5a = 3-4 was 25%, and Sum of Q2 and Q5a = 5-6 was 11.54%. In the employee group the sleep latency percentage of Sum of Q2 and Q5a = 0 was 23.33%, Sum of Q2 and Q5a = 1-2 was 50%, Sum of Q2 and Q5a = 3-4 was 23.33%, and Sum of Q2 and Q5a = 5-6 was 3.33%.

Component 3: Sleep duration—question 4

Table 4.11: Percentage of sleep duration in each group

Group	Sleep duration			
	score	Response to Q4	Frequency	Percent
Lecturer	0	>7 hr	5	16.67
	1	6-7 hr	23	76.67
	2	5-6 hr	2	6.67
	3	< 5 hr	0	0
Student	0	>7 hr	5	9.62
	1	6-7 hr	31	59.62
	2	5-6 hr	13	25
	3	< 5 hr	3	5.77
Employee	0	>7 hr	8	26.67
	1	6-7 hr	15	50
	2	5-6 hr	6	20
	3	< 5 hr	1	3.33

Sleep duration can divided into 4 scores: 0 refers to > 7 hr, 1 refers to 6-7 hr, 2 refers to 5-6 hr, 3 refers to < 5 hr .

Table 4.11 showed that, in the Lecturer group the percentage of >7 hr was 16.67%, 6-7 hr was 76.67%, 5-6 hr was 6.67%, and < 5 hr is 0%. In the student group the percentage of >7 hr was 9.62%, 6-7 hr was 59.62%, 5-6 hr was 25%, and < 5 hr was 5.77%. In the employee group the percentage of >7 hr was 26.67%, 6-7 hr was 50%, 5-6 hr was 20%, and < 5 hr was 3.33%.

Component 4: Sleep efficiency—questions 1, 3, and 4

Table 4.12: Percentage of sleep efficiency in each group

Group	Sleep efficiency			
	score	Sleep efficiency	Frequency	Percent
Lecturer	0	> 85%	30	100
	1	75-84%	0	0
	2	65-74%	0	0
	3	< 65%	0	0
Student	0	> 85%	47	90.38
	1	75-84%	3	5.77
	2	65-74%	0	0
	3	< 65%	2	3.85
Employee	0	> 85%	29	96.67
	1	75-84%	1	3.33
	2	65-74%	0	0
	3	< 65%	0	0

Sleep efficiency = (# hours slept / # hours in bed) X 100%

hours slept—question 4

hours in bed—calculated from responses to questions 1 and 3

Sleep efficiency can divided into 4 scores: 0 refers to > 85%, 1 refers to 75-84%, 2 refers to 65-74%, 3 refers to < 65%

Table 4.12 showed that, in the Lecturer group the percentage of > 85% was 100%, 75-84% was 0%, 65-74% was 0%, and < 65% was 0%. In the student group the percentage of > 85% was 90.38%, 75-84% was 5.77%, 65-74% was 0%, and < 65% was 3.85%. In the employee group the percentage of > 85% was 100%, 75-84% was

0%, 65-74% was 0%, and < 65% was 0%. In the student group the percentage of > 85% was 96.67%, 75-84% was 3.33%, 65-74% was 0%, and < 65% was 0%.

Component 5: Sleep disturbance—questions 5b-5j

Table 4.13: Percentage of sleep disturbance in each group

Group	Sleep disturbance			
	score	Sum of 5b to 5j	Frequency	Percent
Lecturer	0	0	0	0
	1	1-9	16	53.33
	2	10-18	10	33.33
	3	19-27	1	3.33
Student	0	0	0	0
	1	1-9	34	65.38
	2	10-18	16	30.77
	3	19-27	2	3.85
Employee	0	0	0	0
	1	1-9	13	43.33
	2	10-18	13	43.33
	3	19-27	2	6.67

Each question from 5b to 5j should be scored as follows: Not during past month refers to 0, not during past month refers to 1, not during past month refers to 2, Not during past month refers to 3.

Sleep disturbance can divide into 4 scores: 0 refers to Sum of 5b to 5j = 0, 1 refers to Sum of 5b to 5j = 1-9, 2 refers to Sum of 5b to 5j = 10-18, 3 refers to Sum of 5b to 5j = 19-27

Table 4.13 showed that, in the Lecturer group the percentage of Sum of 5b to 5j = 0 was 0%, Sum of 5b to 5j = 1-9 was 53.33%, Sum of 5b to 5j = 10-18 was 33.33% and Sum of 5b to 5j = 19- was 3.33%. In the student group the percentage of Sum of 5b to 5j = 0 was 0%, Sum of 5b to 5j = 1-9 was 65.38%, Sum of 5b to 5j = 10-18 was 30.77%, and Sum of 5b to 5j = 19-27 was 3.85%. In the employee group the percentage of Sum of 5b to 5j = 0 was 0%, Sum of 5b to 5j = 1-9 was 43.33%, Sum of 5b to 5j = 10-18 was 43.33%, and Sum of 5b to 5j = 19-27 was 6.67%.

Component 6: Use of sleep medication—question 6

Table 4.14: Percentage of sleep drug uses in each group

Group	Use of sleep medication			
	score	Response to Q6	Frequency	Percent
Lecturer	0	Not during past month	27	90
	1	Less than once a week	2	6.67
	2	Once or twice a week	0	0
	3	Three or more times a week	1	3.33
Student	0	Not during past month	48	92.31
	1	Less than once a week	3	5.77
	2	Once or twice a week	1	1.92
	3	Three or more times a week	0	0
Employee	0	Not during past month	28	93.33
	1	Less than once a week	1	3.33
	2	Once or twice a week	0	0
	3	Three or more times a week	1	3.33

Use of sleep medication can divided into 4 scores: 0 refers to Not during past month, 1 refers to Less than once a week, 2 refers to Once or twice a week, 3 refers to Three or more times a week

Table 4.14 showed that, in the Lecturer group the percentage of Not during past month was 90%, Less than once a week was 6.67%, Once or twice a week was 0%, and Three or more times a week was 3.33%. In the student group the percentage of Not during past month was 92.31%, Less than once a week was 5.77%, Once or twice a week was 1.92%, and Three or more times a week was 0%. In the employee group the percentage of Not during past month was 93.33%, Less than once a week was 3.33%, Once or twice a week was 0%, and Three or more times a week was 3.33%.

Component 7: Daytime dysfunction—questions 7 and 8

Table 4.15: Percentage of Daytime dysfunction in each group

Group	Daytime dysfunction			
	score	Score summation of Q7 and Q8	Frequency	Percent
Lecturer	0	0	3	10
	1	1-2	22	73.33
	2	3-4	4	13.33
	3	5-6	1	3.33
Student	0	0	6	11.54
	1	1-2	25	48.08
	2	3-4	17	32.69
	3	5-6	4	7.69
Employee	0	0	5	16.67
	1	1-2	22	73.33
	2	3-4	3	10
	3	5-6	0	0

Daytime dysfunction—questions 7 and 8 was the summation of questions 7 and 8. The question 7 was categorized into 4 scores; Not during past month refers to score o, Not during past month refers to score 1, Not during past month refers to score 2, Not during

past month refers to score 3. While the question 8 is categorized into 4 scores; No problem at all refers to score 0, No problem at all refers to score 1, No problem at all refers to score 2, No problem at all a week refers to score 3.

Daytime dysfunction can divided into 4 scores: 0 refers to sum of Q7 and Q8 = 0, 1 refers to sum of Q7 and Q8= 1-2, 2 refers to sum of Q7 and Q8= 3-4, 3 refers to sum of Q7 and Q8 = 5-6

Table 4.15 showed that, the Highest percentage in lecturer, student and employee group were73.33 % (score 1), 48.08 % (score 1), and 73.33 % (score 1).

Global PSQI score

Total score was the summation of all seven component together:

Table 4.16: Mean PSQI score in each group

		PSQI
Lecturer	Mean	6.07
	Median	5.00
	Std. Deviation	2.74
	Minimum	1.00
	Maximum	13.00
Student	Mean	6.96
	Median	7.00
	Std. Deviation	2.98
	Minimum	2.00
	Maximum	19.00
Employee	Mean	5.86
	Median	5.50
	Std. Deviation	2.63
	Minimum	1.00
	Maximum	11.00

Mean PSQI score $\leq$ 5 : Good sleep quality

Mean PSQI score > 5 : Poor sleep quality

Table 4.16 showed that the mean PSQI score of Lecturer, student and employee group were more than 5 (Poor sleep quality).

Table 4.17: Percentage of sleep quality in each group

Insomnia			
Group	Sleep quality	Frequency	Percent
Lecturer	Poor sleep	19	63.33
	Good sleep	11	36.67
First year student	Poor sleep	6	46.15
	Good sleep	7	53.85
Second year student	Poor sleep	4	30.77
	Good sleep	9	69.23
Third year student	Poor sleep	4	30.77
	Good sleep	9	69.23
Fourth year student	Poor sleep	4	30.77
	Good sleep	9	69.23
Employee	Poor sleep	14	46.67
	Good sleep	14	46.67

Table 4.17 showed that percent of good sleep quality and poor sleep quality of Lecturer group were 36.67% and 63.33%, first year student group were 53.85% and 46.15%, second year student group were 69.23% and 30.77%, third year student group were 69.23% and 30.77%, fourth year student group were 69.23% and 46.67%, and employee group were 46.67% and 46.67%.

Hamilton Depression Rating Scale

Table 4.18: Level of Depression in each group

		HAM-D
Lecturer	Mean	8.48
	Median	7.00
	Std. Deviation	4.89
	Minimum	2.00
	Maximum	22.00
Student	Mean	10.87
	Median	10.50
	Std. Deviation	6.30
	Minimum	2.00
	Maximum	29.00
Employee	Mean	8.71
	Median	7.50
	Std. Deviation	5.85
	Minimum	1.00
	Maximum	26.00

Score evaluation:

Scores < 7 : absence depression

Scores 7-17 : mild depression

Scores 18-24 : moderate depression

Scores $\geq$ 25 : severe depression

Table 4.18 showed that mean score HAM-D in Lecturer, student, and employee group were between 7-17 (mild depression).

Table 4.19: Percentage of depression in each group

Depression			
Group	Severity	Frequency	Percent
Lecturer	Normal	16	53.33
	Mild	8	26.67
	Moderate	4	13.33
	Severe	1	3.33
	Very severe	0	0
first year student	Normal	7	53.85
	Mild	3	23.08
	Moderate	1	7.69
	Severe	2	15.38
	Very severe	0	0
second year student	Normal	7	53.85
	Mild	1	7.69
	Moderate	4	30.77
	Severe	0	0
	Very severe	1	7.69
third year student	Normal	2	15.38
	Mild	5	38.46
	Moderate	6	46.15
	Severe	0	0
	Very severe	0	0
fourth year student	Normal	4	30.77
	Mild	5	38.46
	Moderate	2	15.38
	Severe	0	0
	Very severe	2	15.38

Employee	Normal	14	46.67
	Mild	10	33.33
	Moderate	2	6.67
	Severe	1	3.33
	Very severe	1	3.33

Table 4.19 showed that major percentage of Lecturer group was 53.33% (Normal), first year student group is 53.85% (Normal), second year student group is 53.85% (Normal), third year student group is 46.15% (Moderate), fourth year student group is 38.46% (Mild), Employee group is 46.67% (Normal).

Table 4.20: Comparison of mean of BMI, coffee, alcohol between and within groups

ANOVA					
		Sum of Squares	Mean Square	F	Sig.
BMI	Between Groups	12.68	6.34	0.48	0.62
	Within Groups	1340.75	13.27		
	Total	1353.43			
coffee	Between Groups	0.07	0.04	0.15	0.86
	Within Groups	26.64	0.24		
	Total	26.71			
alcohol	Between Groups	0.45	0.23	1.55	0.22
	Within Groups	15.97	0.15		
	Total	16.43			

*Sig at $p<0.05$

The mean of BMI between groups are not statistically significant different (ANOVA, $p=0.62$). The mean of coffee between groups are not statistically significant

different (ANOVA, p=0.86). The mean of alcohol between groups are not statistically significant different (ANOVA, p=0.22).

Table 4.21: Association between parameters with sleep quality in Lecturer group

	Lecturer			
Parameter	Poor sleep	Good sleep	Chi-square	p-value
Gender			0.072	0.789
Male	6	4		
Female	13	7		
Marry			2.580	0.275
Single	10	8		
Married	9	3		
Religion			0.599	0.439
Buddhism	18	11		
Christianity	1	0		
Islam	0	0		
Disease			0.574	0.449
Non-disease	16	8		
Disease	3	3		
Sleeping drug			5.758	*0.016
No use	19	8		
Use	0	3		
Salary			1.664	0.797
Less than 10,000	0	0		
10,000-20,000	0	0		
20,000-30,000	1	1		
30,000-40,000	9	4		
40,000-50,000	5	5		
50,000-60,000	2	1		

60,000-70,000	0	0		
70,000-80,000	1	0		
80,000-90,000	0	0		
More than 90,000	0	0		
Alcohol consumption			0.835	0.361
No drink	15	7		
Drink	4	4		
Smoking use			0.164	0.685
No smoke	18	10		
Smoke	1	1		
Tea consumption			1.292	0.256
No drink	8	7		
Drink	11	4		
Coffee consumption			0.344	0.558
No drink	10	7		
Drink	9	4		

*Sig at $p<0.05$

Table 4.21 showed that sleeping drug use in the Lecturer group was significantly associated with sleep quality.

Table 4.22: Association between parameters with sleep quality in student group

	Student			
Parameter	Poor sleep	Good sleep	Chi-square	p-value
Gender			0.011	0.915
Male	4	8		
Female	14	26		
Marry			-	-
Single	18	34		

Married	0	0		
Religion			1.958	0.376
Buddhism	15	30		
Christianity	1	0		
Islam	2	3		
Disease			0.131	0.718
Non-disease	16	29		
Disease	2	5		
Sleeping drug			0.540	0.463
Non use	18	33		
Use	0	1		
Salary			0.821	0.844
Less than 10,000	1	1		
10,000-20,000	11	22		
20,000-30,000	6	10		
30,000-40,000	0	1		
40,000-50,000	0	0		
50,000-60,000	0	0		
60,000-70,000	0	0		
70,000-80,000	0	0		
80,000-90,000	0	0		
More than 90,000	0	0		
Alcohol consumption			0.965	0.326
Non drink	17	29		
Drink	1	5		
Smoking use			-	-
Non smoke	18	34		
Smoke	18	34		
Tea consumption			0.340	0.560

Non drink	8	18		
Drink	10	16		
Coffee consumption			0.306	0.58
Non drink	12	20		
Drink	6	14		

*Sig at p<0.05

Table 4.22 showed that the associations between parameters in student group were not significantly associated with sleep quality.

Table 4.23: Association between parameters with sleep quality in employee group

	Employee			
Parameter	Poor sleep	Good sleep	Chi-square	p-value
Gender			0.164	0.686
Male	5	4		
Female	9	10		
Marry			1.215	0.545
Single	5	6		
Married	9	7		
Religion			-	-
Buddhism	14	14		
Christianity	0	0		
Islam	0	0		
Disease			0.0000	1.0000
Non-disease	13	13		
Disease	1	1		
Sleeping drug			-	-
Non use	14	14		
Use	0	0		
Salary			4.889	0.180

Less than 10,000	0	0		
10,000-20,000	0	0		
20,000-30,000	3	3		
30,000-40,000	11	7		
40,000-50,000	0	3		
50,000-60,000	0	1		
60,000-70,000	0	0		
70,000-80,000	0	0		
80,000-90,000	0	0		
More than 90,000	0	0		
Alcohol consumption			0.243	0.622
Non drink	12	11		
Drink	2	3		
Smoking use			-	-
Non smoke	14	14		
Smoke	0	0		
Tea consumption			0.144	0.705
Non drink	7	6		
Drink	7	8		
Coffee consumption			0.000	1.000
Non drink	9	9		
Drink	5	5		

*Sig at $p<0.05$

Table 4.23 showed that the associations between parameters in employee group were not significantly associated with sleep quality.

Table 4.24: Association between parameters with depression in Lecturer group

	Lecturer						
Parameter	Normal	Mild	Moderate	Severe	Very severe	Chi-square	p-value
Gender						4.471	0.215
Male	4	2	3	0	0		
Female	12	6	1	1	0		
Marry						0.915	0.822
Single	9	5	2	1	0		
Married	7	3	2	0	0		
Religion						0.842	0.840
Buddhism	15	8	4	1	0		
Christianity	1	0	0	0	0		
Islam	0	0	0	0	0		
Disease						1.405	0.704
Non-disease	13	6	4	1	0		
Disease	3	2	0	0	0		
Sleeping drug						5.639	0.131
Non use	16	6	4	1	0		
Use	0	2	0	0	0		
Salary						12.265	0.425
Less than 10,000	0	0	0	0	0		
10,000-20,000	0	0	0	0	0		
20,000-30,000	2	0	0	0	0		
30,000-40,000	6	5	2	0	0		
40,000-50,000	6	0	2	1	0		
50,000-60,000	1	2	0	0	0		
60,000-70,000	0	0	0	0	0		
70,000-80,000	0	1	0	0	0		
80,000-90,000	0	0	0	0	0		

More than 90,000	0	0	0	0	0		
Alcohol consumption						2.036	0.565
Non drink	13	6	2	1	0		
Drink	3	2	2	0	0		
Smoking use						2.719	0.437
Non smoke	15	8	3	1	0		
Smoke	1	0	1	0	0		
Tea consumption						2.218	0.528
Non drink	9	4	1	0	0		
Drink	7	4	3	1	0		
Coffee consumption						5.246	0.155
Non drink	8	3	4	1	0		
Drink	8	5	0	0	0		

*Sig at $p<0.05$

Table 4.24 showed that the associations between parameters in Lecturer group were not significantly associated with depression.

Table 4.25: Association between parameters with depression in Student group

	Student						
Parameter	Normal	Mild	Moderate	Severe	Very severe	Chi-square	p-value
Gender						10.645	*0.031
Male	3	2	5	2	0		
Female	17	12	8	0	3		
Marry						-	-

Single	20	14	13	2	3		
Married	0	0	0	0	0		
Religion						7.086	0.527
Buddhism	16	13	12	2	2		
Christianity	0	0	1	0	0		
Islam	4	1	0	0	0		
Disease						8.328	*0.03
Non-disease	18	13	11	2	1		
Disease	2	1	2	0	2		
Sleeping drug						16.654	**0.002
Non use	20	14	13	2	2		
Use	0	0	0	0	1		
Salary						24.627	*0.017
Less than 10,000	1	1	0	0	0		
10,000-20,000	13	11	7	2	0		
20,000-30,000	6	2	6	0	2		
30,000-40,000	0	0	0	0	1		
40,000-50,000	0	0	0	0	0		
50,000-60,000	0	0	0	0	0		
60,000-70,000	0	0	0	0	0		

70,000-80,000	0	0	0	0	0		
80,000-90,000	0	0	0	0	0		
More than 90,000	0	0	0	0	0		
Alcohol consumption						4.455	0.348
Non drink	19	13	10	2	2		
Drink	1	1	3	0	1		
Smoking use						-	-
Non smoke	20	14	13	2	3		
Smoke	0	0	0	0	0		
Tea consumption						6.397	0.171
Non drink	12	3	8	1	2		
Drink	8	11	5	1	1		
Coffee consumption						3.774	0.437
Non drink	13	6	9	2	2		
Drink	7	8	4	0	1		

*Sig at p<0.05 ,**Sig at p<0.01.

Table 4.25 showed that the associations between gender, disease, sleeping drug and salary in student group were significantly associated with depression.

Table 4.26: Association between parameters with depression in Employee group

	Employee						
Parameter	Normal	Mild	Moderate	Severe	Very severe	Chi-square	p-value
Gender						1.369	0.850
Male	5	4	1	0	0		
Female	9	6	1	1	1		
Marry						8.905	0.350
Single	5	3	2	1	1		
Married	9	6	0	0	0		
Religion						-	-
Buddhism	14	10	2	1	1		
Christianity	0	0	0	0	0		
Islam	0	0	0	0	0		
Disease						8.885	0.064
Non-disease	13	9	2	1	0		
Disease	1	1	0	0	1		
Sleeping drug						-	-
Non use	14	10	2	1	0		
Use	0	0	0	0	0		
Salary						9.324	0.675
Less than 10,000	0	0	0	0	0		
10,000-20,000	3	2	0	1	1		
20,000-30,000	9	6	2	0	0		
30,000-	1	2	0	0	0		

40,000							
40,000-50,000	1	0	0	0	0		
50,000-60,000	0	0	0	0	0		
60,000-70,000	0	0	0	0	0		
70,000-80,000	0	0	0	0	0		
80,000-90,000	0	0	0	0	0		
More than 90,000	0	0	0	0	0		
Alcohol consumption						2.376	0.667
Non drink	12	7	1	1	1		
Drink	2	3	1	0	0		
Smoking use						-	-
Non smoke	14	10	2	1	1		
Smoke	0	0	0	0	0		
Tea consumption						2.556	0.635
Non drink	8	4	1	0	0		
Drink	6	6	1	1	1		
Coffee consumption						3.547	0.471
Non drink	9	6	2	1	0		
Drink	5	4	0	0	1		

*Sig at p<0.05,**Sig at p<0.01.

Table 4.26 showed that the associations between parameters in Lecturer group were not significantly associated with depression.

Table 4.27: Pearson Chi-square value

	Value	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.88	0.000134
Likelihood Ratio	26.33	0.000027
Linear-by-Linear Association	21.34	0.000004
N of Valid Cases	107	

Table 4.27 showed that Pearson Chi-Square value is 22.88. Asymp. Sig. (2-sided) was 0.000134, more than α = .05. This means that H_0 was rejected or we can say that insomnia was significantly associated with depression.

Chapter 5

Conclusion

This study finally answered all research questions we did purpose:

We found that the percentage of gender in lecturer group was female 66.67%, and male 33.33%. The percentage of gender in student group was female 76.92%, and male 23.08%. The percentage of gender in employee group was female 66.67%, following by male 33.33%. The major percentage of Marital status in the student group was 100%(single), following by Lecturer group was 60.00%(single), and employee group was 53.33%(married). The major percentage of non-Diseases in the Lecturer group is 80.00%, following by student group was 86.54% and employee group was 90%. The major percentage of Diseases in the Lecturer group was hypertension 6.67%, student group is allergy 9.62% and employee group were Dyslipidemia 3.33%, Hypertension3.33% and Thyroid each 3.33%. The major percentage of sleeping drug uses in the Lecturer group is 10.00%, following by student group was 1.92% and employee group is 0.00%.The major percentage of salaries in the Lecturer group was 30,000-40,000 baht (43.33%), students group was <10,000 baht (67.31%) and student group was 20,000-30,000 baht(63.33%).The percentage of Alcohol consumption in the Lecturer group was 26.67%, following by employee group was 20.00% and student group was 11.54%.The percentage of Smoking in the Lecturer group was 6.67% and following by student group and employee group are 0.00%. The percentages of tea consumption in Lecturer and student group were 50%, and employee group was 56.67%. The percentage of coffee consumption in the Lecturer group was 43.33%, following by student group was 38.46% and employee group was 36.67%.

According to Demographic characteristics data, in the Lecturer group, the mean age was 37.27 year old, BMI was 21.79kg / m^2, major percentage of sleep quality was poor sleep quality 63.33% and major percentage of depression of Mild level was

26.67%, moderate was 13.33% and severe was 3.33%. In the student group, the mean age is 20.42 year old, BMI was 22.22 kg / m^2, most of them have good sleep quality; and major percentage of depression of first-fourth year students were Mild level 23.08%, moderate was 7.69% and severe was 15.38%. In the employee group, the mean age was 33.86 year old, BMI was 21.79kg / m^2, percentage of poor sleep quality and good sleep quality was 46.67% and percentage of depression of Mild level was 26.67 % equally, moderate was 6.67% and severe was 3.33%.

Comparison mean of BMI, coffee consumption, alcohol consumption of all three groups were evaluated by using One way ANOVA. The results found that p-value of BMI was 0.62, coffee consumption was 0.86 and alcohol consumption was 0.22. These mean that mean value of BMI, coffee consumption, and alcohol consumption of all three groups was not statistically significant different.

Discussions

Insomnia is frequently related with depression. These relationships appear to be bidirectional. The objective is to investigate the association between insomnia and depression. Table 4.27 showed that Pearson Chi-Square value is 22.88. Asymp. Sig. (2-sided) was 0.000134, less than a = .05. This means that H0 was rejected or we can say that insomnia was significantly associated with depression. These findings are consistent with previous research which has shown higher rates of depressive symptoms in nurses working night shifts may be associated with poorer sleep quality induced by night shift.[26] These findings also consistent with the meta-analysis research study of Liqing Li et al 2016. [30] The result of this meta-analysis supports the hypothesis that insomnia is associated with an increased risk of depression.

Strengths

1. This research studied insomnia and depression in first to fourth year student. It is the can be applied to manage the suitable teaching and learning program for each year.

2. The result of this study can be applied to help manage the work load of lecturer and employee to reduce the risk factors that may cause insomnia and depression.

3. This study can be proved that both insomnia and depression are associated.

Limitations

Several limitations of this study should be considered. First, this study has a limited number of employees and lecturers which do not generate a representative good sample of the population. Second, Data collection period may not be long enough.

Suggestions

1. Increasing the sample size of participants should be considered.

2. Assessment duration should cover all the period of semester.

3. Further studies should be conducted in all the Faculty of Pharmaceutical sciences in Thailand.

4. Exclusion criteria of anti-depressive drug uses should be included.

Conclusions

H0 is rejected. This study showed that insomnia is association with depression of people at Faculty of Pharmaceutical Sciences, Burapha University. Anyway, future investigations should focus on larger sample size and longer period of data collection.

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(Thungphet Paladchai)

Researcher

Date: _____/_____/_____

_____

(Lippakorn Chantarawichai)

Researcher

Date: _____/_____/_____

_____

(MISS THY VOUCHNY)

Researcher

Date: _____/_____/_____

_____

(Ass. Prof. Titinun Auamnoy Ph.D.)

Advisor

Date: _____/_____/_____

_____

(Krittaphas Kangwanrattanakul

Ph.D.)

Co-advisor

Date: _____/_____/_____

Appendix

แบบสอบถามประเมินภาวะซึมเศร้ากับคุณภาพการนอนของคณาจารย์ นิสิต และเจ้าหน้าที่คณะเภสัชศาสตร์ มหาวิทยาลัยบูรพา พ.ศ. 2562

<u>ตอนที่1</u> ข้อมูลทั่วไป

โปรดทำเครื่องหมาย ✓ ลงในช่อง ❑ หรือเติมข้อมูลเกี่ยวกับตัวท่านตามความเป็นจริง

1. เพศ ❑ ชาย ❑ หญิง
2. อายุ……ปี น้ำหนัก……กก. ส่วนสูง……ซม.
3. สถานภาพ
   ❑ โสด ❑ สมรส ❑ หม้าย/อย่าร้าง
4. ศาสนา
   ❑ พุทธ ❑ คริสต์ ❑ อิสลาม ❑ อื่นๆ……
5. อาชีพ
   ❑ อาจารย์คณะเภสัชศาสตร์
   ❑ นิสิต
   ❑ เจ้าหน้าที่ฝ่าย
6. โรคประจำตัว
   ❑ ไม่มี
   ❑ มี (ตอบได้มากกว่า1ข้อ) ระบุ 1……
   2 ……
   3……..
   4……..
7. ยาที่ใช้เป็นประจำ
   ❑ ไม่มี
   ❑ มี(ตอบได้มากกว่า1ข้อ) ระบุ 1……
   2……..
   3……..
   4……
8. ใช้ยาที่ช่วยให้นอนหลับ หรือยาที่ส่งผลรบกวนการนอนหลับ
   ❑ ไม่มี
   ❑ มี (ตอบได้มากกว่า1ข้อ)
   ระบุชนิด 1……..……ความถี่ในการใช้ยา……ครั้ง/สัปดาห
   2……..……ความถี่ในการใช้ยา……ครั้ง/สัปดาห์
   3……..……ความถี่ในการใช้ยา……ครั้ง/สัปดาห์
   4……..……ความถี่ในการใช้ยา……ครั้ง/สัปดาห์

9. งานอดิเรก (ตอบได้มากกว่า1ข้อ)

❑ เล่นกีฬา ❑ เล่นดนตรี ❑ ฟัง/ร้องเพลง ❑ เล่นอินเตอร์เน็ต
❑ ทำงานศิลปะ ❑ ช้อปปิ้ง ❑ ดูหนังดูทีวี ❑ ท่องเที่ยว
❑ อ่านหนังสือ ❑ ทำอาหาร ❑ อื่นๆ.....

10. รายได้เฉลี่ยต่อเดือน

❑ น้อยกว่า 10,000 บาท
❑ 10,000 – 20,000 บาท
❑ 20,000 – 30,000 บาท
❑ 30,000 – 40,000 บาท
❑ 40,000 – 50,000 บาท
❑ มากกว่า 50,000 บาท

11. ดื่มสุราหรือเครื่องดื่มแอลกอฮอล์อื่นๆ

❑ ไม่มี
❑ มี ระบุ จำนวน.....แก้วต่อสัปดาห์

12. สูบบุหรี่

❑ ไม่มี
❑ มี ระบุ จำนวน.....มวนต่อวัน

13. ดื่มชา

❑ ไม่มี
❑ มี ระบุ ชนิด.....จำนวน.....แก้วต่อวัน

14. ดื่มกาแฟ

❑ ไม่มี
❑ มี ระบุ ชนิด.....จำนวน.....แก้วต่อวัน

15. ดื่มเครื่องดื่มชูกำลัง

❑ ไม่มี
❑ มี ระบุ ชนิด.....จำนวน..... ขวดต่อวัน

<u>ตอนที่2</u> แบบประเมินคุณภาพการนอนหลับ

แบบสอบถามนี้ใช้ประเมินพฤติกรรมการนอนของท่านใน 1 เดือนที่ผ่านมา กรุณาตอบคำถามเหล่านี้ให้ใกล้เคียงกับความเป็นจริงมากที่สุดโปรดตอบทุกคำถามโดยทำเครื่องหมาย ✓ ลงใน ❑ หรือเติมข้อมูลเกี่ยวกับตัวท่านตามความเป็นจริง

1. ใน 1 เดือนที่ผ่านมา ส่วนใหญ่ท่านเข้านอนในเวลาใด

เวลาเข้านอนปกติคือ.....นาฬิกา

2. ใน 1 เดือนที่ผ่านมา เมื่อท่านเริ่มเข้านอน ท่านใช้เวลากี่นาทีถึงจะหลับจริง

จำนวน .....นาที

3. ใน 1 เดือนที่ผ่านมา ท่านมักจะตื่นนอนเวลาใด

เวลาตื่นนอนปกติคือ.....นาฬิกา

4. ใน 1 เดือนที่ผ่านมา ส่วนใหญ่ท่านจะหลับได้จริงรวมได้กี่ชั่วโมง (ไม่รวมจำนวนชั่วโมงที่อยู่บนเตียงแต่ยังนอนไม่หลับ)

จำนวนชั่วโมงที่หลับได้จริงต่อคืน.....ชั่วโมง

โปรดตอบคำถามข้างล่างต่อไปนี้ทุกข้อ โดยแต่ละข้อให้เลือกตอบเพียง 1 คำตอบ

5. ใน 1 เดือนที่ผ่านมา ท่านมีปัญหาการนอนหลับบ่อยแค่ไหน เนื่องจาก ...

5.1 ไม่สามารถหลับได้ภายใน 30 นาที

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.2 ตื่นกลางดึก หรือ ตื่นเช้ามากกว่าปกติ

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.3 ต้องตื่นมาเข้าห้องน้ำระหว่างการนอน

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.4 หายใจไม่สะดวก

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.5 ไอหรือกรนเสียงดัง

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.6 รู้สึกหนาวหรือเย็นเกินไป

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.7 รู้สึกร้อนเกินไป

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.8 ฝันร้าย

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.9 มีอาการปวด เช่น ปวดศีรษะ ปวดเมื่อยตามตัว เป็นต้น

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

5.10 เหตุผลอื่นที่รบกวนการนอนหลับ

- ❑ ไม่มี
- ❑ มี ระบุ.....

เกิดบ่อยเพียงใด 1 เดือนที่ผ่านมา

- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

6. ใน 1 เดือนที่ผ่านมา ท่านใช้ยาเพื่อช่วยในการนอนหลับบ่อยเพียงใด (รวมทั้งยาที่ได้มาจากโรงพยาบาลและยาที่ซื้อเอง)

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

7. ใน 1 เดือนที่ผ่านมา ท่านมีปัญหาง่วงนอนหรือเผลอหลับขณะขับขี่ยานพาหนะ, ขณะรับประทานอาหารหรือขณะเข้าร่วมกิจกรรมทางสังคมต่างๆบ่อยเพียงใด

- ❑ ไม่มีเลยใน 1 เดือนที่ผ่านมา
- ❑ อย่างน้อย1 ครั้งใน 1 เดือนที่ผ่านมา
- ❑ 1 หรือ 2 ครั้งต่อสัปดาห์
- ❑ มากกว่าหรือเท่ากับ 3 ครั้งต่อสัปดาห์

8. ใน 1 เดือนที่ผ่านมา ท่านคิดว่ามีปัญหามากน้อยแค่ไหนจากการทำงานไม่สำเร็จเนื่องจากขาดความกระตือรือร้น

- ❑ ไม่มีปัญหาเลยแม้แต่น้อย
- ❑ มีปัญหาเพียงเล็กน้อย
- ❑ ค่อนข้างที่จะเป็นปัญหา
- ❑ เป็นปัญหาอย่างมาก

9. ใน 1 เดือนที่ผ่านมา ท่านคิดว่าคุณภาพการนอนหลับโดยรวมของท่านเป็นอย่างไร

- ❑ ดีมาก
- ❑ ค่อนข้างดี
- ❑ ค่อนข้างแย่
- ❑ แย่มาก

<u>ตอนที่3</u> ประเมินภาวะซึมเศร้า

แบบสอบถามนี้ใช้ประเมินภาวะซึมเศร้าของท่านใน 1 เดือนที่ผ่านมา กรุณาตอบคำถามเหล่านี้ให้ใกล้เคียงกับความเป็นจริงมากที่สุด โปรดตอบทุกคำถามโดยทำเครื่องหมาย ✓ ลงใน ❑ หรือเติมข้อมูลเกี่ยวกับตัวท่านตามความเป็นจริง

1. อารมณ์ซึมเศร้า (เศร้าใจ, สิ้นหวัง, หมดหนทาง, ไร้ค่า)

- ❑ ไม่มี
- ❑ เศร้า แต่ไม่ร้องไห้
- ❑ เศร้า ร้องไห้บางครั้ง
- ❑ เศร้า ร้องไห้บ่อย
- ❑ เศร้า ร้องไห้มาก

2. ความรู้สึกผิด

- ❑ ไม่มี
- ❑ ติเตียนตนเอง รู้สึกตนเองทำให้ผู้อื่นเสียใจ
- ❑ รู้สึกผิด หรือครุ่นคิดถึงความผิดพลาดในอดีต
- ❑ รู้สึกว่าความเจ็บป่วยในปัจจุบันเป็นการลงโทษ, มีอาการหลงผิดว่าตนผิด

❑ ได้ยินเสียงกล่าวโทษ หรือประณาม และ/หรือ เห็นภาพหลอนที่ข่มขู่คุกคาม

3. การฆ่าตัวตาย

❑ ไม่มี

❑ รู้สึกชีวิตไร้ค่า

❑ คิดว่าตนเองน่าจะตาย หรือความคิดใด ๆ เกี่ยวกับการตายที่อาจเกิดขึ้นได้กับตนเอง

❑ มีความคิดหรือท่าทีจะฆ่าตัวตาย

❑ พยายามที่จะฆ่าตัวตาย

4. การนอนไม่หลับในช่วงเริ่มต้น เช่น ต้องใช้เวลามากกว่า30นาที กว่าจะหลับ

❑ ไม่มีปัญหา ❑ บางครั้ง ❑บ่อยครั้ง

5. นอนไม่หลับตอนกลางคืน(กระสับกระส่าย, ถูกรบกวน,ตื่นกลางดึก)

❑ ไม่มีปัญหา ❑ บางครั้ง ❑ บ่อยครั้ง

6. การตื่นนอนเช้ากว่าปกติและไม่สามารถหลับต่อได้

❑ ไม่มีปัญหา. ❑ บางครั้ง ❑ บ่อยครั้ง

7. การงานและกิจกรรม

❑ ไม่มีปัญหา

❑ มีความคิดและความรู้สึกว่าตนเองไม่มีสมรรถภาพ, อ่อนเปลี้ย, หรือหย่อนกำลังที่จะทำกิจกรรมต่าง ๆ

❑ หมดความสนใจในกิจกรรมหรืองานอดิเรกต่างๆ หรือเข้าสังคมลดลง

❑ ความสามารถในการเรียนหรือทำงานลดลง

❑ หยุดเรียน/หยุดทำงาน เพราะการเจ็บป่วยในปัจจุบันเท่านั้น หรือต้องเข้ารักษาตัวที่โรงพยาบาล แล้วไม่สามารถช่วยเหลือตนเองได้ถ้าไม่มีคนช่วย

8. อาการเชื่องช้า (ความคิดช้า พูดช้า เฉื่อยชาและมึนงง)

❑ ไม่มีปัญหา

❑ มีอาการเชื่องช้าเล็กน้อยขณะทำแบบสอบถาม

❑ มีอาการเชื่องช้าชัดเจนขณะทำแบบสอบถาม

❑ มีความยากลำบากในการทำแบบสอบถาม

❑ อยู่นิ่งเฉยโดยสิ้นเชิงขณะทำแบบสอบถาม

9. รู้สึกปั่นป่วน กระสับกระส่าย กระวนกระวาย เนื่องจากความวิตกกังวล เช่น เล่นมือ เล่นผมตัวเอง กัดมือกัดเล็บ กัดริมฝีปาก เป็นต้น

❑ ไม่มี

❑ เป็นบางครั้ง

❑ บ่อยครั้ง

10. จิตใจวิตกกังวล

❑ ไม่มี

- ❑ รู้สึกความตึงเครียดและหงุดหงิด
- ❑ วิตกกังวลกับเรื่องเล็กน้อย
- ❑ แสดงความกังวลผ่านทางสีหน้าและคำพูด
- ❑ แสดงความหวาดกลัว เช่น บีบมือ กัดเล็บ ดึงผม กัดริมฝีปาก

11. มีอาการวิตกกังวลทางร่างกาย เช่น ใจสั่น ปวดศีรษะ ถอนหายใจ ปัสสาวะบ่อย เหงื่อออกมาก
    - ❑ ไม่มีปัญหา
    - ❑ เล็กน้อย
    - ❑ ปานกลาง
    - ❑ รุนแรง
    - ❑ เป็นมากจนสูญเสียความสามารถในการทำสิ่งต่างๆ

12. อาการเกี่ยวกับระบบทางเดินอาหาร เช่น ไม่อยากอาหาร รู้สึกหน่วงท้อง ท้องผูก
    - ❑ ไม่มี
    - ❑ เล็กน้อย
    - ❑ รุนแรง
13. ความวิตกกังวลซึ่งแสดงออกทางกายแบบทั่วไป เช่น รู้สึกหนักที่แขนขา หลัง ศีรษะ รู้สึกเหนื่อยล้า ไม่มีพลัง
    - ❑ ไม่มี
    - ❑ เล็กน้อย
    - ❑ รุนแรง
14. อาการทางระบบสืบพันธุ์ เช่น หมดความต้องการทางเพศ, ปัญหาด้านประจำเดือน
    - ❑ ไม่มี
    - ❑ เล็กน้อย
    - ❑ ปานกลาง
15. คิดไปเองว่าตนป่วยหรือมีปัญหาทางสุขภาพ
    - ❑ ไม่มี
    - ❑ หมกมุ่นในตนเอง (ด้านร่างกาย)
    - ❑ หมกมุ่นเรื่องสุขภาพ
    - ❑ แจ้งถึงอาการต่าง ๆ บ่อย เรียกร้องความช่วยเหลือ ฯลฯ
    - ❑ มีอาการหลงผิดว่าตนป่วยเป็นโรคทางกาย
16. น้ำหนักลด
    - ❑ ไม่มี

- ❑ น้ำหนักลงเล็กน้อย
- ❑ น้ำหนักลดลงอย่างเห็นได้ชัด หรือ รุนแรง

17. รับรู้และทราบถึงความผิดปกติทางอารมณ์ของตนเอง

- ❑ ยอมรับว่ากำลังซึมเศร้า และเจ็บป่วย
- ❑ ยอมรับความเจ็บป่วยของตนเองเพียงบางส่วน
- ❑ ปฏิเสธการเจ็บป่วยโดยสิ้นเชิง

คณะผู้วิจัยขอขอบกราบพระคุณเป็นอย่างสูงในความร่วมมือของท่านที่จะก่อให้เกิดประโยชน์ศึกษาต่อไป

ใบรับรองจริยธรรมการวิจัยของข้อเสนอการวิจัย
เอกสารข้อมูลคำอธิบายสำหรับผู้เข้าร่วมการวิจัยและใบยินยอม

หมายเลขข้อเสนอการวิจัย ๓/๒๕๖๒
(งบประมาณประจำปี ๒๕๖๒)

ข้อเสนอการวิจัยนี้และเอกสารประกอบของข้อเสนอการวิจัยตามรายการแสดงด้านล่าง ได้รับการพิจารณาจากคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ คณะเภสัชศาสตร์ มหาวิทยาลัยบูรพาแล้ว คณะกรรมการฯ มีความเห็นว่าข้อเสนอการวิจัยที่จะดำเนินการมีความสอดคล้องกับหลักจริยธรรมสากล ตลอดจนกฎหมาย ข้อบังคับ

ชื่อข้อเสนอโครงการวิจัย : โรคซึมเศร้ากับคุณภาพการนอนของบุคลากรคณะเภสัชศาสตร์ มหาวิทยาลัยบูรพา พ.ศ. ๒๕๖๒

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ผู้วิจัย : นสภ.ลิปปกร จันทรวิชัย
นสภ.ถุงเพชร ปลัดชัย
นสภ.Thy Vouchny

ลงนาม

(เภสัชกรหญิง ดร.ณัฏฐิณี ธีรกุลกิตติพงศ์)
ประธานคณะกรรมพิจารณาจริยธรรมการวิจัยในมนุษย์
คณะเภสัชศาสตร์ มหาวิทยาลัยบูรพา

หมายเลขรับรอง : ๓/๒๕๖๒
วันที่ให้การรับรอง : วันที่ ๗ มิถุนายน พ.ศ. ๒๕๖๒
วันหมดอายุรับรอง : วันที่ ๗ มิถุนายน พ.ศ. ๒๕๖๓