A MEDITATION PROGRAM FOR SLEEP PROMOTION: ITS EFFECTS ON STRESS AND QUALITY OF SLEEP IN THE MIDDLE-AGED

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A MEDITATION PROGRAM FOR SLEEP PROMOTION: ITS EFFECTS ON STRESS AND QUALITY OF SLEEP IN THE MIDDLE-AGED

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ABSTRACT

Insufficient amount of sleep, whether in time or quality, is a crucial health problem of middle age, which effects both physical and mental health and causes stress. Promoting sleep among the middle-aged is therefore essential to help improve the time and quality of their sleep.

This research studied the effectiveness of a meditation program on stress and quality of sleep in the middle-aged. The Anapanasti meditation handbook, prayers, were employed in the meditation of the test group over an eight-week period. For both test group and control group a general data questionnaire, a sleeping problem and behavior evaluation form, a stress evaluation form, a meditation record form, a sleeping record form, a sphygmomanometer, and a fingertip thermometer were used to measure results.

In comparison with before the experiment, after the experiment the experimental group had a higher average score for sleeping time, feeling active while awake, and having long uninterrupted sleep, and a lower average score for stress. For the comparison group, there was no significant difference in the average scores for stress, sleeping time, or feeling active while awake, but there was a significant difference in having long uninterrupted sleep. The experimental group's generally better scores for quality sleep and its lower score for stress indicate that, among the middle age, practicing Anapanasti meditation along with praying can help improve the quality of sleep and reduce stress . Therefore this method can be useful for promoting sleep and reducing stress among people in that age group. Further studies could determine whether it has application for other age groups as well.

KEY WORDS: MEDITATION/ SLEEP PROMOTION / STRESS / QUALITY OF SLEEP

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ผลของโปรแกรมส่งเสริมการนอนหลับโดยการปฏิบัติสมาธิ ต่อความเครียดและคุณภาพการนอนหลับของวัยกลางคน (A MEDITATION PROGRAM FOR SLEEP PROMOTION : ITS EFFECTS ON STRESS AND QUALITY OF SLEEP IN THE MIDDLE-AGED)

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บทคัดย่อ

การนอนหลับไม่เพียงพอทั้งปริมาณและคุณภาพเป็นปัญหาสุขภาพที่สำคัญของวัยกลางคนซึ่งมีผลกระทบต่อร่างกายและจิตใจ และทำให้เกิดความเครียด การช่วยเหลือให้วัยกลางคนสามารถส่งเสริมการนอนหลับได้ด้วยตนเองจึงเป็นสิ่งจำเป็น

การวิจัยกึ่งทดลองเพื่อศึกษาผลของโปรแกรมส่งเสริมการนอนหลับโดยการปฏิบัติสมาธิต่อความเครียดและคุณภาพการนอนหลับของวัยกลางคนครั้งนี้ด้วยการคัดเลือกกลุ่มตัวอย่างแบบเฉพาะเจาะจงตามคุณสมบัติจำนวน 60 ราย ระยะเวลาในการทดลอง 8 สัปดาห์ เครื่องมือที่ใช้ในการวิจัยคือ คู่มือการปฏิบัติสมาธิ (อานาปานสติ) , บทสวดมนต์ , แบบสัมภาษณ์ข้อมูลทั่วไป , แบบประเมินปัญหาและพฤติกรรมการนอนหลับ , แบบประเมินความเครียด ,แบบบันทึกการฝึกสมาธิ , แบบบันทึกการนอนหลับ , เครื่องวัดความดันโลหิตปรอทวัดอุณหภูมิปลายนิ้ว และเครื่องวัดความดันโลหิต

การเปรียบเทียบคะแนนเฉลี่ยตัวแปรต่างๆก่อนและหลังการการทดลอง พบว่า ในกลุ่มทดลองหลังการทดลองมีคะแนนเฉลี่ยระยะเวลาในการนอนหลับ,ความรู้สึกสดชื่นหลังตื่นนอนและการนอนหลับอย่างต่อเนื่องมากกว่าก่อนทดลองอย่างมีนัยสำคัญทางสถิติแต่มีคะแนนเฉลี่ยความเครียดน้อยกว่าก่อนทดลองอย่างมีนัยสำคัญทางสถิติ ในกลุ่มเปรียบเทียบหลังการทดลองมีคะแนนเฉลี่ยระยะเวลาในการนอนหลับและความรู้สึกสดชื่นหลังตื่นนอนไม่แตกต่างกันแต่มีการนอนหลับอย่างต่อเนื่องแตกต่างจากก่อนทดลองอย่างมีนัยสำคัญทางสถิติและมีคะแนนเฉลี่ยความเครียดไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติ เมื่อเปรียบเทียบระหว่าง 2 กลุ่ม พบว่าหลังการทดลองกลุ่มทดลองมีคะแนนเฉลี่ยระยะเวลาในการนอนหลับ,ความรู้สึกสดชื่นหลังตื่นนอนและการนอนหลับอย่างต่อเนื่องมากกว่ากลุ่มเปรียบเทียบอย่างมีนัยสำคัญทางสถิติและมีคะแนนเฉลี่ยความเครียดน้อยกว่า กลุ่มเปรียบเทียบอย่างมีนัยสำคัญทางสถิติ

จากผลการวิจัยแสดงให้เห็นว่าการการปฏิบัติสมาธิแบบอานาปานสติร่วมกับการสวดมนต์สามารถเพิ่มคุณภาพการนอนหลับและลดความเครียดได้ จึงควรนำไปเป็นกิจกรรมในการส่งเสริมการนอนหลับและลดความเครียดในบุคคลกลุ่มอายุอื่นๆ ต่อไป

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CHAPTER 1
INTRODUCTION

The Effectiveness of Sleep Promoting Program By Meditation On Stress and Quality Of Sleep In The Middle Aged

Middle age is the age that has a role, duty and important responsibility which exists in every aspect of the framework of our society. These are the people that have ages between 40 to 60 years old. It is the time that a person reaches his or her highest physical, economic and social ability. It is a crucial time in one's life where high adaptation is needed (Theeradakorn, S. 1983: 243). Middle age is also the time when ones physical condition starts to deteriorate. Organs in the body do not function as well as during earlier stages. Physical deterioration affects emotional wellbeing, goals in lives, and relationships with close friends (Kaewkangwan, S. 2521: 140) 2539: 5). Middle age is the time of many changes. This include physical changes where strength decreases, senses are slower, skin begins to wrinkle, eyes become short or long sighted and sexual ability reduces. Women aged between 45 - 60 go through menopause and usually with stress. Many illnesses begin to attack such as hypertension, diabetes,and emotional changes due to worries. This is because during this age women are worry about their health and their responsibilities. Relating to social life and occupation They may be promoted to a higher position where they must adjust themselves to their personal life, family and relationship with their work colleagues. Concerning intellectual changes, ability to deal with numbers and calculation gradually reduces while intellectual ability in other areas continues to develop (Theeradakorn, S. 1983: 244-245). These changes cause stress among the middle aged population. Their bodies excrete corticosteroid and adrenalin which is the result of the function of sympathetic nervous system causing the increase in metabolism which activate their body making it difficult for them to go to sleep and They can develop sleeping problem (Hodgson 1991: 8) People who have severe sleeping problems and do not get sufficient amount and quality of sleep will develop

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negative effects on their physical and mental health. This can cause changes in behavior, personality and emotions which is an obstacle to healthy living and ability to work (Martikainen, et al. 1992: 340 cited in Kosol, S. 1995: 1)

The causes of deep sleep each night decreases from deterioration of the central nervous system, decreasing the ability to enjoy a deep sleep (Webb, 1982: 315). The imbalance of Acetycholine which helps a person to sleep and colinesteres which interrupt sleep or the insufficiency of both of these substances, make it difficult for a person to sleep for a long time; moreover the deterioration of the autonomic nervous system causes the work of symphathetic nervous system to increase, which results in decrease in the length of deep sleep (Kronhotm and Hyyppa, 1985: 790)

There are many way which one can improve a sleeping problem depending on the causes but the ways which help slow down the sleep pattern of the middle ages population are to practice sleep promoting behaviors which are to avoid drinks containing caffeine, alcoholic drinks, and smoking before going to bed. They should also exercise daily, have sufficient sleep, go to sleep and wake up on time, learn to relax and have peace of mind and set the environment to be sleep promoting etc. (Thorpy, 1990: 790)

From the study of the researcher on 30 out of 50 health tour members aged between 45-60 years old of Damnoensaduak Hospital, Damnoensaduak, Ratchaburi province, it was found that 50% of the members have sleeping problem. There were 55% with the problem of waking up at least twice in the middle of the night, 30% having difficult time trying to sleep at night, and 45% were feeling tired after waking up in the morning. From the survey on sleep promoting behavior in this age group on those who had no sleeping problem it was found that 45% pray before going to sleep using the prayers of Namo tasa, Budhakhun, and Chinabanchorn, 10% meditate before going to sleep, and 10% exercised in the evening.

Meditation is a way that helps promote sleeping which is easy, convenient and economical to practice, and it is also an appropriate way to promote quality sleep among the middle age population. Meditation helps balances the excretion of neurotransmitter. It also helps increase HIAA(Serotoninmetablite)which is a neurotransmitter which helps increase sleeping time. On the contrary causes VMA (Catecholamime) which is a neurotransmitter that stimulates the senses to reduce, so

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catecholamime is related to stress in a normal person. In having this specific neurotransmitter reduced it may also help the stress of normal person to reduce (Bujatitiand Riederew,1976 cited in Triemchaisri, S. 2000).

Therefore meditation can be one of the methods which the middle aged population with sleeping difficulties can practice to help reduce stress and promote quality sleep. This method can be individually practice. Self-care is a basic need of every human being. Universal Self-care requisites is the kind of care which satisfies the basic needs found in every stage of life of each individual. It is a life process which promotes and supports the richness of the structure, duty and the function of the body (Orem, 1980: 37 cited in Pawilai, J. 1992: 32). Rujirawan, S. (1985:) found that .The Jitkrumkai relaxation method increases sleeping time, changes sleeping time and make a person who practiced this method feel relaxed.

Therefore, as a community nurse working under the Ministry of Public Health, the researcher is interested in using the benefit from sleep promoting program to help improve the quality of sleep and reduce stress in the middle aged population agiedng between 45- 60 years old in this study.

1.1 Research Question

Is a practical Sleep promotion program increase the quality of sleep and decrease stress in the middle aged.

1.2 Research Objectives

General Objective

To study the effect of a practical sleep promotion program on the quality of sleep and stress in the middle aged.

Specific Objectives

1. To compare the quality of sleep between the middle age group who practiced sleep promotion program and the middle age group who did not practice that before and after the experiment.

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2. To compare the quality of sleep within the middle age group who practiced the sleep promotion program and the middle age group who did not practice it before and after the experiment.

3. To compare the mean scores of stress between the middle age group who practiced the sleep promotion program and the middle age group who did not practice that before and after the experiment.

4. To compare the mean score of stress within the middle age group who practiced the sleep promotion program and the middle age group who did not practice it before and after the experiment.

1.3 Research Hypotheses

1. After the experiment, the middle age group who practiced the sleep promotion program had a better quality of sleep than that group who did not practice it.

2. After the experiment, the middle age group who practiced sleep promotion program had better quality of sleep than before the experiment.

3. After the experiment, the middle age group who practiced the sleep promotion program had lower mean scores of stress than that group who did not practice it.

4. After the experiment, the middle age group who practiced sleep promotion program had lower mean scores of stress than before the experiment.

1.4 Scope of the study

This study was carried out with the middle aged who were aged 45 - 60 years old and lived in Amphur Damnoensaduak Ratchaburi province .

Fundamental Agreement

The quality of sleep could measured by using the questionnaire. The answers were the perception of individuals and should be considered that these were reality.

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1.5 Research Variables

Independent variable included

- Sleep promotion program

Dependent Variables included

1. Quality of sleep
   - Sleep time
   - Amount of continuously sleep
   - Amount of sound sleep
2. Stress

1.6 Definition of Terms

1. **The middle aged** is a person who is aged 45-60 years old. It is the stage of early change to degeneration. The physical organs do not function as well as the early adult stage (Kaewkungwan, S.1978;140).

In this study, the middle aged refers to a person aged 45-60 years old by calendar and lived in Amphur Damnoensaduak Ratchaburi province.

2. **Quality of sleep** refers to behavior and perception related to sleep since going to bed to awakened. It contained characteristics of sleep that are the feeling after awaking, time used in sleep, duration time since arising and getting up.

In this study quality of sleep refers to sound sleep and continuous sleep without awaking after sleep onset, and feel freshy after arising in the morning.

3. **Stress** refers to the stimulus that humans try to avoid or a stimulus that affects physiological aspects associated with emotion change in human beings.

In this research, stress refers to the excitement, preparing to face and unliked condition which is very violent more than the correction of individuals. This condition will cause he / she to be harassed and result is in abnormal physical symptoms and insomnia.

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4. **Finger temperature** refers to a temperature which is measured by a finger thermometer, the scientific equipment that is used to measure thermal/ blood flow biofeedback. The increase of finger temperature of more than 2 degrees of Fahrenheit refers to skin vasodilation, good blood circulation resulting in decrease stress, decreased heart rate, and decreased of blood pressure (Delmonts M, 1984:9).

In this research, skin temperature was gained from measuring by a finger temperature by adhering finger thermometer at the end of left middle finger of the hand in experimental group. Increased finger temperature meant the relaxation of physical and mental aspects.

5. **Sleep promotion program** refers to the practice s that promotes sleep. There are many methods such as exercise in the evening, massage, drinking a warm drink and calming the mind before sleep such as practing meditation.

In this research, sleep promotion program refers to practicing Anapranasti meditation associated with Buddhist prayer before bed.

The experiment group received 2 weeks of training in meditation practice and Buddhist prayer from the researcher. Then later, they practiced by themselves every day before go to bed 45 minutes for 8 weeks. The researcher met the samples 3 times per week to empower and help them and give suggestion about practice.

The control group received the conventional practice which they used to practice in their normal lifestyle.

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CHAPTER 2
LITERATURE REVIEW

This chapter covers the related literature which are the concepts, theories, and related research. The researcher applied them as the base of this research framework. The topic reviewed are presented as follows.

2.1 Concepts of middle age
2.2 Concepts of sleep
2.3 Concepts of Stress
2.4 Meditation
2.5 Biofeedback
2.6 Concepts of self- care
2.7 Concepts of learning theory
2.8 Related research

2.1 Concepts of middle age

The meaning of middle age

Pentapate S.(1994: 213) mentioned that middle age starts at the age of 40-60 years old. This stage is an important period of human life because it needed much adaptation. In the women, middle age refers to be unable to a child, loss of the pettyness and attachment to others. In men, its refers to the degeneration of the physical power and includes sex power. The anxiety of losing this ability leads to the presentation of the strength of the man in this stage.

Kaewkunwan S. (1978: 140) mentioned that the middle age is the age between 40-60 years old. It is the stage of starting degenerate changes. The physical organs functions are not as good as in the early adult stage. The physical degeneration affects emotions, characteristics, the target of life, the interpersonal relationships with close friends, and work friends.

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This stage is called the testing period because the persons in this stage will assess their happiness, sadness , success, and failure of their past life.

Teeradakorn S. (1983: 240) mentioned that middle s age starts at 40-60 years old. It is the stage when persons attain the height of their physical strength, economic power and the social acceptation. In the opposite way this stage is the starting of physical and mental degeneration. The persons will start to assess the degree of the successful and their failure of the life in the past.

In conclusion, middle age starts at 40-60 years old. It is the important period of human life because there are physical and mental changes in this stage which causes the persons to need to adapt at. It is the testing period because the persons will start to assess the successful or failure of their past life.

The change in the middle age

There are several changes in this stage including :

1. Physical change: the decrease in energy, easy tiredness, the slow neuron perception, slow muscle movement, wizened skin, the long and short sightedness, the change of the body shape, the hair turning gray, decrease sexual relationship need, in the person who lacks exercise will develop a middle- aged shape. In women, They will loss of menstruation. The persons in this stage start to have the interfering diseases such as hypertension, diabetes mellitus, heart disease, and the degeneration of bones and joints .

2. Emotional change: Because of the changes of physical body and the health, the persons in this stage are anxious about their health and their responsibility for works when causes emotional changes. The women will have more upset emotions than the men.

3. The social change and work change: In usually, the persons in this stage are often successful in occupation or have a high level position at work which leads to the adaptation including themselves, their family, and the interpersonal relationship with a friend working normally. Although the middle-age persons have the responsibility to higher work than the adults, there are some work which must be sharen between the middle age and the adult persons.

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So there will be the problem of the adaptation between the different aged friend work.

4. **The intelligence change :** the study about the intelligence found that **I.Q.** of human will increase to the highest when they are aged 18-25 years old. After 30 years old the memory about the numbers and the calculus will decrease but the other side of the ability of the brain still continuously increases.

2.2 Concept of Sleep

Definition of sleep

Early in the 20th century, scientists believed that sleep was a process resulting from the congestion of toxic substances produced in the every day life. The new concept results from several studies defining sleep as a bodily process occurring to maintain homeostasis status and reduce congestion of sleep inducing substances. In 1994 , sleep was thought to be a spontaneous mechanism resulting from the functions of the brain rather than stimulating substances.

Miaskowski (1998: 700) defined sleep as a state of reduced responsiveness to external stimuli, an altered state of consciousness from which a person can be aroused only if a stimulus is of sufficient magnitude. On the other hand, sleep was described as the physically inactive part of circadian (around a day) sleep – wake – activity cycle (Hodgson, 1991: 1503) and is characterized by clinical changes in the electroencephalogram (EEG) , and other physiological parameters; physiological , biological , behavioral (Jitpanya, C., 2000: 1).

Guyton (1991: 659) defined sleep as the state when a person lost consciousness but could be aroused by sufficient stimulation. During sleep, a body had little movement , uncertain level of consciousness had physiological changes , and reduced responses to external stimuli.

Davis- Sharts (1989: 756) mentioned that sleep is the internal process which has the rhythm of the happening and the complex. It is a stimulating situation which depends on the physical function mix to the external timing signs such as cycle, and the darkness and the brightness.

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Beger and Williams (1992: 1317) mentioned that sleep is a behavior and the complex biological rhythm which happened by instinct resulting in changes of the consciousness whether unconsciousness or mild consciousness, because of the decreased of reactions to external stimulus or no reaction and the momentary stop of organs function cause the decreasing of energy use.

Therefore, sleep is a complex multidimensional process and varies according to the bodily requirement in individuals. During sleep , the level of consciousness and the movement responses to stimuli decreases until there is no or little movement. Sometimes , the environmental stimuli would waken up that individual either easily or with difficulty.

Sleep Cycle

Sleep is the specific characteristics of individuals , who have different patterns. The timing , duration , and internal structure of sleep varies according to individual requirements following the different circadian rhythms , and the adaptation capabilities to new situations or environments. Moreover , it results from the complex process of internal bodily systemic factors as well as the external factors.

The sleep cycle is a continuous and dynamic process that is sub served by antagonistic brain activities and modulated by the thalamus , hypothalamus , brain stem nuclei , and the basal forebrain (Spangler, 1997). Sleep cycle in general people are defined on the basis of characteristic patterns by using EEG recording (Miaskowski , 1998: 700) that divided into two the stages of sleep: non – rapid – eye – movement (NREM) and rapid – eye – movement (REM) sleep. There two stages usually progress through repetitive cycles during the night and alternate through the night with an average period of 90 to 110 minutes (Czeister, et. al., 2001: 155) percycle and about 4 to 6 cycles are repeated during the night.

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Non – Rapid – Eye – Movement (NREM) Sleep

NREM sleep is further subdivided into four stages , characterized by an increasing arousal threshold and slowing of the cortical EEG (Czeister, et. al., 2001: 155) as follows:

Stage 1 is a transitional phase between full wakefulness and sleep and is characterized by low – amplitude , mixed – frequency EEG activity. People also are easily aroused while the body and emotion begin to relax. Some individuals experience myoclonic jerks of the face , hands , or feet. Individuals seem to be drowsy. The functions of the sympathetic nervous system are diminished as shown by a decline in pulse rate , a drop of blood pressure , and decrease sweating. Moreover , the respiratory rate becomes irregular and has a little pause. There are also rolling eye movement. In normal sleepers , stage I lasts from about 1 to 7 minutes.

Stage 2 is marked by distinct EEG changes including the appearance of “sleep spindles” (brief bursts of EEG activity) , large amounts of theta waves , K complexes (EEG wave forms consisting of a high amplitude , negative sharp wave immediately followed by a positive wave). A person is unaware of his surroundings but is aroused relatively easy by a walking sound or the body – touch. Eye movements are decreased and absent. Respiratory rate begins to be regular and is slightly further reduced. There are sometimes sighs and mutation consists of short , mundane , and fragmented thoughts or the period of sound sleep. This stage lasts 5 to 15 minutes.

Stage 3 is distinguished by high amplitude, slow frequency delta waves less than 4 Hz and 75 μV or greater occurring in 50% or more of the epoch. This stage lasts only a few minutes and turns into Stage 4. In this stage , muscle tone is reduced and it is very difficult to arouse. The responses to external stimuli are diminished while vital signs are normal.

Stage 4 Very slow and big EEG wave or Theta waves 4 – 8 Hz marks this stage 4. A person is difficult to awaken and is in deep sleep. Blood pressure , heart rate , respiratory rate , temperature , and metabolic rate decrease to basal levels. Anterior pituitary secreted growth hormone (GH), and levels of other hormones such as serotonin and somatotrophic hormone, are high. When a

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person who has insufficient sleep is asleep, stage4 is prolonged. This stage's duration is of the deepest sleep. If a person is aroused to awaken, he will be confused, sleep- walk, or cannot remember what he has done. Some people were reported to have wet the bed at night.

Rapid Eye Movement (REM) Sleep

This stage is characterized as the deepest sleep and with the most muscle relaxation, Moreover, there are frequent bodily movements and increased functions of the reticular area. There is a low amplitude, mixed frequency EEG similar to that of NREM stage1 sleep. Neuron cells works in simultaneously. Furthermore, sleepers exhibit numerous physiological changes, including rapid eye movements, facial muscle twitching, irregular respiratory pattern, increased blood pressure, increased metabolic rate, and increased temperature. It is believed to be an important stage for mental restoration, learning memory, and physiological and emotional well – being. However, patients with cardiac disease may be most vulnerable due to brief tachycardia, followed by bradycardia that may trigger nocturnal angina or infraction. The time spend in this stage is 1-5 minutes in the early stage and increases in the continuing cycle for 20-40 minutes when the person nearly awaken. This stage gives 20-25% of the quantity of sleep.

In normal adult sleep cycle, when people prepare to fall sleep, they enter a pre- sleep period in which they begin to feel drowsy. The behavior responds to the environment and movement decreases. There is yawning. every bodily parts begins to relax at the onset of sleep usually beginning at 10-30 minutes after people prepare for sleep. In a person who has difficulty to fall asleep, this period lasts for more than an hour. The number of cycles during a period of sleep varies between four to six depending on how long the individual sleeps. Each cycle consists of the four stages of NREM and a period of REM sleep. The sleep cycle usually progresses from stage1 though stage4 of NREM, followed by a reversal from stage4 to3 to2, ending with a period of REM. The time spend in sleep cycle (NREM/ REM cycle) lasts about 90-110

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minutes alternately. There are 4-5 times of sleep cycles (NREM/ REM cycle) in the time of 7-8 hours of sleep in each night.

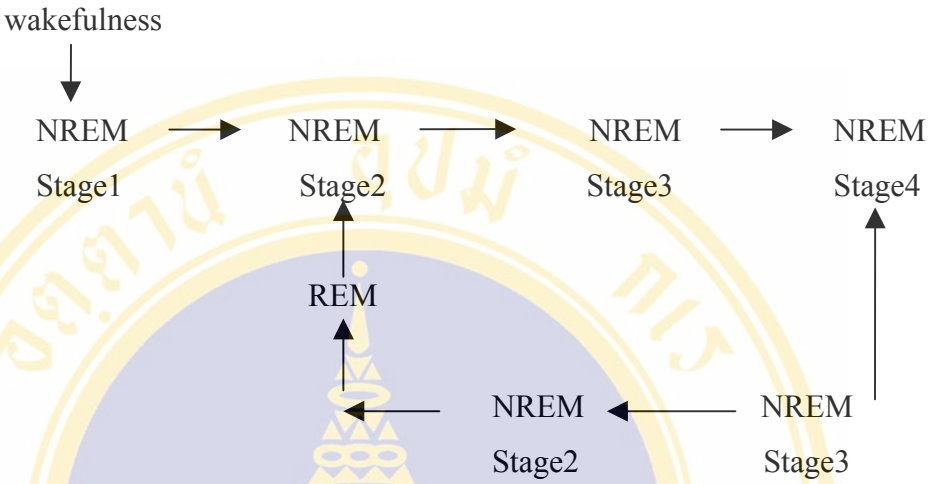

Figure 1 Sleep cycle (Eill & Nowlis 1985: 467)

Sleep requirement

There are different sleep requirements in each person and each age. When the persons have increased old age, they will decreasingly need the period time of sleep (Booncho, 1993: 18).Moreover, the appropriate period time of sleep is the time which to able to make the person to feel fresh, spirited, full of rest, and can efficiently work on the day(Fuller & Schaller- Ayers,1990: 335).

Quality of sleep

Quality of sleep is a complex phenomena that is difficult to clarify. It refers to both the subjective assessment given by the subject of how restorative and undisturbed his her sleep has been(via a standardized questionnaire) and to a sense of objective measures which may be derived from polygraphic recording (in the laboratory or at home) or from recording of wrist activity movement (“night cap” monitoring). Subjective and objective measures of sleep quality are not necessarily concordant depending on a purpose of study and suitability of the situation (Richardson: 1997).

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Measurements of Sleep Quality

Beck in Frank- Stromborg, ed. (1988: 257-258) classified measurement of sleep into three methods as follows:

1. Polysomnograghy: includes recording of electroencephalography (EEG), electroculogram(EOG), and chin electromyogram (EMG). The EOG and EMG are useful in distinguishing between REM and NREM sleep (Schwab,1994). This method provides the most reliable way of measuring all sleep parameters such as the onset, progress, and depth of sleep. It remains the best - validated method to assess sleep. However, it is expensive, time consuming and requires technical training to operate the equipment and to score sleep stages (Snyder-Halpren & Verran,1987).In addition, a polygraph machine, EEG machine, paper or computer disc, electrodes, paste, and colloid of electrode application are costly. Consequently, it will be used in only is selecting. Those who really requires measuring sleep accurately and reliably.

2. Observation : This method is a simple method that is widely used in observing sleep behavior every 5 minutes. Sleep behavior is categorized as sleep, wakefulness, or arousal. The variables were operationlized based on specific criteria (Beck,1992). Its reliability requires more than one observer. Moreover, this assessment requires the continuity of observation and it provides information only about the quality and duration of sleep(Jitpunya, 2000: 7). The disadvantages are its inconvenience and inapplicable process leading to limited use.

3. Self- report: self- reports measure widely and have been used to gather both qualitative and quantitative data. It can be done in two methods in which the persons records data by themselves and they were recorded by the measuring person following a manual. Advantages of these are They are easy, safe, convenient, and widely applicable methods. Limitations are that they assess the individual ‘s perception resulting from their memory information so there is an opportunity for error and prejudice both in measurement and interpretation. However, these methods are widely applicable and have many types as follows:

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3.1 Beck in Frank- Stromborg. ed.(1988: 158) mentioned that the related variables to measure the sleep are the total sleep time, sleep latency or time to sleep onset, waking time after sleep onset, the number of sleep stage shifts/night, percentage of time in bed spent asleep, soundness of sleep, movement during sleep, difficulty in falling back to sleep, sleep interruption of number of nights/week and number of times/ night awakened spontaneously.

3.2 Hauri (1991: 34-35) mentioned that the health roles of the good sleep are going to bed when feeling sleepy, awakening at the regular time of day, not sleeping a minute on the day , avoiding to drink caffeine drinking at least 6 hours before going to bed, avoiding to smoking and drinking alcohol before go to bed , stability exercising everyday drinking milk before going to bed, avoiding to drinking a lot of water before sleep, avoiding to eating snacks when awakened between periods of sleep, and using an environment that promotes sleep.

3.3 Hayter (1983: 242-246) modified the sleep measuring equipment from Tune's sleep chart (1988). The sleep behavior that were studied are time for going to bed, sleep latency, amount of awake times after sleep onset, number of awake times after sleep onset, time awake before arising, time for arising, number of daytime naps, total time asleep, excluding naps.

3.4 Metteson and Mc Connell (1988: 407-411) mentioned that the assessment of sleep must cover the quality of sleep, dreams, arising in the morning, sleep problems, activities on the day, exercise, and environment of sleep such as the change of sleep model, noise, temperature, and the person who they sleep with.

3.5 McCann Flynn in Flynn and Herifrom, ed.(1988: 484) mentioned that the assessment of sleep must he assessed as follows.

3.5.1 Sleep habits, includes time for going to bed, sleep latency, amount of awake times after sleep onset, number of awake times after sleep onset, time awake before arising, time for arising, number of daytime naps, total time in asleep, excluding naps. Total time of need to sleep, the feeling of freshness when awake.

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3.5.2 Sleep environment includes bed, budget, temperature, noise, light, radio and television.

3.5.3 Aids activities includes reading books, listening radio, watching television, and exercise.

3.6 Nukool (1988) modified sleep measurement equipment from Domino's sleep measuring questionnaire. The characteristics of sleep that were studied included the asking of experiences of sleep in the last 6 months. The important variables are sleep latency, mean time of sleep in each night, time of sleep in the night that gives the feeling of sufficient sleep, number of unstable time of going to bed, number of hypnotic drug uses, number of time of difficulty in sleeping, number of awake times after sleep onset, number of difficulty in sleeping after awakening between the period of sleep, number of more quick arousal than desire, number of insufficiency sleep, number of feeling soft being sleepy in a day, number of day time naps, number of mentions to of decreasing ability to work in daytime because of insufficient sleep, and the total quality of sleep.

In this research use Nukool's equipment was used to assess the quality of sleep.

The benefits of sleep.

Physical health

It is believed that NREM sleep promotes the healing of wound by the process of repair of the degenerated fibers and builds new fibers to replace the old cells lead to cells separated process. It was found that bone cell and skin cell are the most separated cells while sleeping. The process of fiber repair and building happened while persons sleep; the fiber's decreasing use of energy causes high energy stores in the cell in the form of adenosine triphosphase (ATP) (closs,1966: 48-49). This hormones which are related to promote fiber building will be highly secreted, whereas the hormone which related to building energy such as glucacon, corticosteroid, corticoid, and catecholamine will be decreasingly secreted. Growth hormones which are the important hormones in fiber building will be highly secreted in stage 3, stage4 of sleep, in the deep sleep stage(Hill

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and Smith,1990: 276 ; Hodgson, 1991: 1505) or in the 3 hours after sleep onset. Growth function is to carry amino acid to cells and add free fatty acid in blood circulation which leads to the break down of amino acid prevention and increases the capability of proteins synthesis causes the promotion of proteins and ribo- nuclic acid (RNA) synthesis. When sleeping, immunity will be at full function because of the decreasing of corticosteroid hormone which cause's not depress the immunity function (Closs,1988: 49). It is believed that REM sleep causes the building and repairs brain fibers by the function of a catecholamine agent which increases the sympathetic function (Oswald, 1976: 15-16).

Intelligence and Emotions

It is believed that REM sleep is an important stage for middle brain development which is related to the learning and memory process, mental restoration and psychological and emotional well- being. If a person has insufficient sleep, he/she may has the unusual emotion such as petulance, aggression, confusion, and hallucination.

Factors related to quality of sleep (Kuasirikul, 1993: 9)

1. Age is a factor that to be attach the duration and the stage of sleep. Infants use all the time in a day to sleep and the time spent in sleep in adults (age 25-45 years old) is 6-8 hours but decreased to 6.5 hours per day in old age. The characteristic of abscence of part of the period of sleep (frequency awakened) and difficulty in continuing to fall sleep is found when the age is increased. The NREM and REM sleep can be separated since the baby's birth, but the stage of NREM can be clearly separated at the more than 6 months of age. The first stage of sleep lasts 5% of total sleep in the children, and continuously increase to 15% in old age. The data sleep of infant is 50% of total sleep and decreases to 20% in adults, and decreases until nearly empty at aged more than 60 years. REM sleep of infant is 50% of total sleep and decreases to 20 % in adolescent stage and continues stable through life.

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2. The sleep in the last night a person who did not sleep last night will have a more prolonged sleep and deeper sleep, because of more occurrence of REM sleep and will rebound the following night.

Chronic sleep abscence or unstable times of sleep and awakening may change the traditional sleep such as one may have sleep onset REM episode mixed with sleep paralysis, hypnagogic hallucination and hypnic myocalnia.

3. Circadian rhythms and the effective environments such as light, noise, temperature, and the bedroom environment.

4. Drugs or substances : Drugs in Benzodiazepines group tend to decrease SWS sleep and REM sleep. Some anti- depressant drugs decrease REM sleep and increase the extremities movement such as having REM sleep without muscle atomia or increasing twitches of extremities in the sleep period. Alcohol will decrease REM sleep at the onset of sleep but will be cause REM rebound in the early morning when alcohol was eliminated.

5. Pathological factors: individual' health status

Promoting behavior to sleep

1. Diet

1.1 A diet which promotes sleep before going to bed: a diet which contains to L- trytophan such as beans, milk, cheese, meat, and protein diet will promote sleep (Closs, 1988: 48-55) by helping the person to be drowsy and easily sleep, increasing the deep sleep stage, REM stage and the total period of sleep, so the person will continuously sleep and have prolonged sleep (Buysse and Reynolds III in Thorpy, ed., 1990: 393-395).The mechanism to take effect is caused from L- trytophan, the amino acid, that is the starting agent of serotonin that is inhibits conductors of neurons which causes the NREM stage 1,2,3,4, and the early stage of REM by inhibition of the function of the reticular activating system to signal neuron signs to the cortex resulting to the onset of sleep and continuous sleep (Berger and Williams,192: 1320). So, a person should eat and drink the diet which has the component of milk such as Milo,

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Ovaltin (Webster and Thompson,1986: 452). Hill and Smith mentioned that milk has a high amount of L-Trytophan.

1.2 Avoid eating a heavy diet before going to bed or snacking when awakened between periods of sleep

A heavy diet or snacks will cause discomfort of abdomen leading to the difficulty in sleeping, so one should eat dinner before 18.00 p.m.(Pichai, 1993: 48-49).

1.3 Avoid to drinking too much water in the evening for prevention of voiding many times in the night(Collier. ed., 1992: 63).

1.4 Avoid drinking alcohol or the drink which has a component of alcohol. It was found that beer, alcohol, whisky, and wine cause changes of sleep(Blowise,1992: 83). Urponen, et. al., (1988 :419) studied the factors that promoted and interrupted sleep in the persons age 36-50 years old. The result of the study found that persons who drink alcohol frequently awakened threefold more than those who not drink. Berger and Williams, 1992: 1322 mentioned that alcohol makes it difficult to continue sleep after awakening between the periods of sleep; moreover, it will decrease the total sleep time, deep sleep stage, and REM sleep resulting quicker awakening than normal and feeling weak in the morning because alcohol will action the middle brain and has the diuretic action resulting in awakening to void many times. So, one should avoid drinking alcohol in the evening or before going to bed (Kearnes,1999: 32-33) or do not drinking alcohol at least 2 hours before going to bed (Hauri,1991: 34-35).

1.5 Avoid drinking the caffeine component drinks such tea, coffee, chocolate, coco, coca- cola, and Pepsi before going to bed because they will cause the change of sleep(Hauri,1991: 68) by making it difficult to sleep, frequently awakening, decreased deep sleep stage, and decreased total time of sleep. Caffeine will stimulate the midbrain system which is to related awakening system and replace the position of adrenosin that is the inhibitor conductor neuron which promote sleep. Otherwise, Hauri, (1991: 68) reasoned that the person who has insufficient sleep will be more sensitive to caffeine than those who have normal sleep. So, persons should avoid to drinking the caffeine

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component drinks after 12.00 a.m. or drink it at least 6 hours before going to bed (Hauri, 1991: 35).

2. Avoid smoking before going to bed because the action of nicotine will stimulate the midbrain(Hauri, 1991: 98) resulting in more frequently awakening, decreased deep sleep stage and REM sleep.

3. Stability exercise every day helps a good sleep in the night (Urponen, et. al.,1988: 98) by increasing the depth of sleep and the total time of sleep. Suggestions about of exercise were to do light exercise in the afternoon or the evening. Hauri (1991: 67-68) reasoned that exercise will help to decrease the body temperature 4-6 hours and help increased good sleep because the good sleep will happen when the body temperature is decreased. Avoid doing heavy exercise after 18.00 p.m. or the time close to going to bed or exercise at least 2 hours before go to bed (Miline,1982: 24-27) because during exercise, adrenaline or nor -adrenaline will be secreted and the body temperature will be increase resulting in arousal of the body which causes difficulty in sleeping and decreased REM sleep (Uponen, et. al., 1988: 443-449).

4. Relaxation and Comfort: comfort will help good sleep. The practice methods to help relaxation and comfort include:

4.1 Pain relief technique: Pain will disturb sleep. Webster and Thompson(1986: 451-452)mentioned that pain will cause frequently awakening. Pain relief will help comfort and increase good sleep.

4.2 Relaxation training techniques: the change of sleep causes the stress of muscles, increased sympathetic function. Training in relaxation will help muscle relaxation and decrease the sympathetic function resulting in deep sleep.

4.3 A warm bath before going to bed will help relaxation of muscles resulting in good sleep (Hill and Smith,1990: 279).

4.4 Back massage promotes sleep because it helps body relaxation (Burnside,1988: 226)

4.5 The position in sleep: sleep in a comfortable position will help muscle relaxation. Bloss (1988: 48-55) mentioned that a person who has bad sleep favors lying that on one's back more that other positions and will

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frequently change position because to lay on one's back increases the chance of snoring and stop respiration.

4.6 To turn oneself over: Kominck, et. al., (1992: 143-149) found that the immobilie will frequently change position.

4.7 To wear comfortable clothes: The study of Urponen, et al., (1988: 443-447) found that the old aged who wore comfortable clothes could promote sleep especially in old woman.

5. Relaxation of mind and emotions: The practice methods include:

5.1 Conversation to decrease anxiety.

5.2 Reading a book will promote sleep because it will help mental relaxation, resting of the brain will come from the stories which cause stress. The reading book should be a book that makes relaxation or helps to feel sleepy.

5.3 Listening to song before sleep will promote sleep.

5.4 Watching television helps feel relaxed and it is easy sleep.

5.5 Prayer is the training of the mind to calm down which promotes sleep (Hill and Smith, 1990: 383).

5.6 Meditation promotes sleep because it is the method of mental training to be calm resulting in increasing the good mechanisms of sleep.

5.7 To turn the interest by building the imagination promotes sleep because turning the interest from the thing that stimulates difficult sleep will cause the calm mind (Spielman, et. al., 1987: 541-553).

6. Increase the stability of sleep cycle in each day

6.1 Timely going to bed and awakening : it is a sign that tells the time from external environment which is important to control the mechanism of sleep and awakening in the body cycle. Going to bed and awakening in the same time every day will help the stability of the daily rhythm of sleep.

6.2 Go to bed when sleepy because being not sleepy will cause difficulty in sleeping resulting from thinking about the stories that make calmness of physical and mental aspects (Hauri, 1991: 34-35).

6.3 Sleep only for freshness because too much sleep will cause the change of sleep resulting from too much sleep disturbs the daily rhythm and

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is a factor which conducts the continual changes of sleep and increases violence when arising in the morning (Hauri, 1991: 66)

6.4 Avoid trying to force yourself to sleep because it was found that trying to sleep will make it difficult to sleep.

6.5 Avoid the daytime naps : it was found that daytime naps will cause the change of sleep such as difficulty in sleeping, sleep without continuous rest.

7. Provide a sleep promoting environment includes:

7.1 Sleep in the appropriate temperature room and with good ventilation: a high or low temperature disturbs sleep because the cycle of sleep and awakening related to the temperature cycle. Small changes of temperature can make the deployed sleep cycle (Closs, 1988: 48-55), decrease the effectiveness of sleep especially the REM stage because the decreasing function of temperature control results in a change of physical temperature through the environment in the last stage of sleep.

7.2 Sleep in a room that is without the disturbing noise and light: Light stimulates the perception neurons and the noise causes frequent awakening.

7.3 A clean and comfortable bed, things that are used in sleep.

7.4 Having or not having other person when you sleep: McNeil, et. al., (1988: 26-27) mentioned that the person who you sleep with is a cause of difficult sleep. Having or not having must be appropriately adjusted to the wants of each person (Burnside, 1988: 226).

2.3 Concepts of Stress

Stress is the imbalance in the body system resulting from the changes of the internal and external environment. Stress is a natural condition of individuals that can occur anytime. The reaction of a person to stress can be positive or negative. The positive effect of stress is to challenge one's capability, promote physical and mental development, learn new knowledge, and it leads to success. The negative effect is to make someone suffer from their stress and stress can

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be the cause of illness or inappropriate behavior and severe stress may sometimes lead to death (Wallance, 1978: 457).

The Definition of Stress

The meaning of stress as defined by Selye is the response of the body and mind to both internal and external stimuli which obstruct the body's work, growth, and requirements. The internal change of the body causes an unbalanced status of the body system including; body change, emotional change, thinking change, and behavioral change (Selye,1956: 53-54).

The meaning of stress as defined by Lazarus et al., is an event which is evaluated by people and has an effect on their own security (Lazarus & Luaneir, 1978 ; Lazarus & Cohen,1977 ; Lazarius & Folkman, 1984 cited in Hanujareongkul, S. 1991: 107).

The meaning of stress as defined by Panpresa, C. is one's emotional status of comfort with one's internal or external problems which are the body system or emotional problems. Stress is composed of many unpleasant emotions and brings emotional, thinking , and behavioral variation (Panpreesa, C. 1994: 482).

The meaning of stress as defined by Otragul, U.(1992: 26) is feelings and reactions of the body and emotions to unfavorable stimuli.

From all the mentioned definitions, it can be summarized that stress is feelings and reactions of both the body and emotions of people to internal or external stimuli which brings a change in their own body and emotions.

Causes of Stress

Causes of stress which are defined by Parnpreecha, C. (1994: 486-488) are:

1. **Internal causes** mean stress which is caused by human factors.

1.1 Physical causes: When the body become sick, stress also occurs to the mind. Conditions which are the causes of stress include:

1.1.1 Exhaustion

1.1.2 Insufficient rest

1.1.3 Malnutrition or loss of appetite

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1.1.4 Chronic disease

1.1.5 Alcoholism or drug addiction

1.2 Mental causes : Some mental abnormalities can cause stress

1.2.1 Negative emotions such as fear, nervousness, anger, and sadness.

1.2.2 Some feelings such as dishonor, loss of pride, or feeling after immoral actions.

1.2.3 Distressed feelings after confronting action with any obstacles.

1.2.4 Some personal characteristics can cause stress such as

- Being a perfectionist
- Being a hot head (Hot spur)
- Being dependant is one type of human being who has lost of self-confidence and needs recommendations or will power from another person.

2. External causes are other factors outside the human being which can cause stress.

2.1 Loss of loved things such as a lover, possessions, occupation, etc.

2.2 Change of life stage such as psychological imbalance with unexpected events such as a wedding , menopause , changing school, etc.

2.3 Dangerous phenomena e.g. war, flood, fire

2.4 Type of work such as unsafe work or dislike of work.

2.5 High responsibility such as working as a leader.

2.6 Low income

2.7 Low class in society

Level of stress

Janis (1952: 130 cited in Krajandan, S. 996: 13) classified stress into 3 levels

1. Mild stress is a short duration stress which ranged from a minute to 10 hours. Its cause is simple such as disappointment or traveling.

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2. Moderate stress is more severe than mild stress. The duration ranges from many hours to days. Examples of causes of mild are sickness and conflict with coworkers.

3. Severe stress is the most severe. The duration ranges from weeks to months or years. The cause of severe stress may be due to many factors such as the loss of a loved person , or severe disease.

Reaction to stress (Bualert, A. 1993: 42 cited in Tawichachut, T. 1996: 13)

When stress occurs, people usually respond in 4 different ways as follows.

1. Thinking and recognition

1.1 Escape and avoidance are self-prevention mechanisms from dangerous events.

This thinking relies on one's own interpretation of each event. Escape from simple event reflects an abnormal process of one's thinking.

1.2 Concession and facing stress.

This process starts by investigating the source of stress then finding the way to solve the problem or changing oneself to reduce stress. The first reaction is to solve the external factor which is the cause of stress and then it is to make oneself stronger to confront the stress.

1.3 Learning to live with stress , if there is no way to expect or solve the stress.

2. Emotional reactions

In stressed people, emotions and feelings are changed into a worse way including nervous anxiety, insomnia, moodiness, numbness, anxiousness, fear of something or depression.

3. Behavioral reactions

Behavioral response to stress is the reaction of the body system to escape confronting the problem. Behaviors shown include shaking, jerking, stammering, and non stop talking. In the opposite way , behavior may be shown as lack of concentration, working less, absent mindedness, or antisocial behavior.

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4. Physiological reactions

When stressed the autonomic nervous system can cause changes in the cardiovascular system, respiratory system, sweat glands, and endocrine glands. This response may occur in specific organs or in the whole body system in 3 stages.

4.1 Alarm reaction stage is the stage in which the body is stimulated to prepare itself. Substances released from the hypothalamus stimulate the endocrine gland and autonomic nervous system to release epinephrine into the blood stream. The effect of epinephrine is to enhance sugar flow and increase the heart rate. At the same time , there are other effects which occur such as headache , hyperglycemia, higher blood pressure, sweating, paleness and cold skin, weight loss, constipation, flatulence, insomnia , and fatigue. The duration of this stage is short and it may be adjusted to normal or may be reacting to the resistance stage.

4.2 Resistance stage is the true adjustment stage. The body adjusts itself to return to a normal status and concurrently prepares, a prevention mechanism of its own. The example of change is immunization , hormone release, change of blood sugar, etc. This response will return to normal when the stress stimuli are diminished and will last to the stage of exhaustion.

4.3 The stage of exhaustion occurs when people cannot adjust themselves to a severe system for a long time. The imbalance of body status still occurs, and will go to the stage of exhaustion which causes body and mental diseases and may be linked to death.

Results of Stress

A low level of stress and a short-term of stress is a stimulation for a person to eagerly do some activities. One will be able to practice problem-solving skills. One may have a better creative mind. One's organs have chances to bear with the stress situation. These events generate satisfaction with personal skills, self-confidence and being proud of oneself. However, a high level and a long- term of stress generates negative effects as follow:

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1. Physical Effects. When one is in a long - term stress situation, one's health is actually getting worse from the impact of the imbalance of hormone situation. Hormones are important bio-chemical factors of everybody. Whose function is to control the work of the internal body systems. When hormones are in an imbalance situation, the internal body systems work improperly. So, the body shows signs of mal-function through the state of headache, backache, tiredness, or the psychosomatic disease. One who has psychosomatic disease displays the states of dizziness, stroke, heartburn, heart disease, high blood pressure, the clogged of blood vessels, overweight, and bladder contusion. Serious high stress may cause one's death or expand any disease that one already faces such as diabetes or urticaria.

2. Effects on Mind or Temper: The mind of one who is under stress is preoccupied and thoughtful. One pays no attention to surroundings. One actually loses one's mind, can not concentrate and easily forgets. One can not make a decision, and one loses working caution that may be a cause of an accident. One's temper is under the state of irritability and gets angry easily. One loses self-confidence to manage one's life. One may present a state of stupefaction and sadness, fidgeting, anxiousness, oppression, no self-confidence and being disheartened. Some patients who are under long term stress may suffer from mental disorder and nervous disorder.

3. Effect on the Ability to Think: One who is under a high level and a long term of stress may have thinking processes that yield no benefit but are harmful that as they may cause higher stress. Many cases show that the stress from the first situation yields less bad effects than the stress that has arisen from one's thought. For example, one may negatively criticize oneself, discourage oneself, unreasonably distort, side with oneself and misinterpret a situation, etc.

4. Effects on Behavior: One with stress may be fed up with food, can not sleep well, and separate oneself from society that may cause loneliness with the problem and stress situation. One may be more aggressive and unable to endure any situation. One is ready to be a foe of anyone else. One's working ability declines. Frequently, one's behavior is wrongly adjusted in order to relax from the stress situation such as smoking, drinking, being addicted to drugs, gambling, committing suicide, etc. These behaviors lead to other negative effects.

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5. Effects on Economics: Stress cause high loss economic from low working ability, absence from work or low working quality. When one gets sick, there are costs to be paid to remedy it.

Stress Determination.

Stress is the state of pressure that we can not observe. However, when one has stress, there are four reactions which include thinking, temper, behavior, and physical aspects. Therefore, we can determine the stress via these reactions. There are 4 methods to determine than (Lazarus, 1966: 319-390 ; Suppapittayakul, S. 1991: 20-22 cited in Tawichachart, T. and et. al., 1996: 27-28)

1. Self-report The filling out of a questionnaire, interviewing form, research form or standardization test is used to determine stress. Additionally, there are the inspections for the quality of the method both on correction and accuracy.

2. Projective Techniques This technique is used to measure the response of a person to a motivation that is specified. There is a picture presentation for one's response such as Rorschach test, TAT test (Thematic Apperception Test), etc. These techniques need expertise to translate the test results. A translator needs specific training.

3. Observation This method is to observe one's behaviors when one is under stress such as sharply speaking behavior, inability to sleep, inability to concentrate, fed up with food, declining in working ability. One may fine some body language such as breathing, tone of voice, sitting style, the light in one's eyes, facial expression, etc.

4. Neurophysiological change. There are some physical changes such as the rate of heart beat, rate of breathing, blood pressure, the tension of muscle, etc. However, this method needs an expert to examine for it and suitable equipment.

Facing stress behavior: When one faces stress, it will affect one's balance situation. One will adjust and solve the problem to be back in a balanced situation. So, there are the changes in the mind, temper, behavior and physical aspeels. Behavior that one presents when facing threatening situations or problems is called facing stress behavior.

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Lazarus & Folkman (Lazarus & Folkman, 1984: 141-2225 cited in Khajangdan, S. 2540: 21) divided facing stress behaviors into 2 categories that are:

1. Problem Focused Behavior: One tries to use problem-solving processes by focusing on the real event and tries to find the solution. One may try to increase the ability to solve and to confront the problem. Those behaviors are data searching especially the problem-related data; a problem capable of finding of various problem-solving methods, the asking for support from other sources to solve the problem, etc.

2. Emotional-Focused Behavior: One will use the mind system to manage or to moderate the stress situation to keep a balanced situation in one's mind. These behaviors are denying, avoiding, dreaming, drinking, taking sleeping pills, separating from society, listening only to good news, finding a scapegoat, expressing irritable moods, etc.

Lazarus & Folkman also divided the coping model into 5 methods that are:

1. Information seeking is the way that one tries to study and understand the problem in order to solve the problem.

2. Direct action is the expression of some behaviors to manage the problem that one determines as the stress.

3. Inhibition of action is the way the one does not have any action or stops any activity that is involved in the situation that is determined as a dangerous situation.

4. The search for support from society and persons who are around is a way to decline the stress.

5. Psychological process is the process that one uses to control the feelings that may harm one's body such as defense mechanism, relaxation and Biofeedback.

2.4 Meditation

Meditation is defined in several ways : a systematic and continued focusing of the attention on a target perception, a sound or mantra, or continually holding a specific attention set, or a technique that allows a person to investigate the process of his or her consciousness and experiences to discover the more

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basic underlying qualities of existence, or simply any activity that keeps the attention pleasantly anchored in the present moment. Meditation is a way we learn to access the relaxation response.

There are several approaches to meditation including:

Concentrative meditation : Attention is focused on breathing, an image, or a sound(e.g. a mantra or chant); this calms and promotes a sharp awareness and clarity of the mind.

Mindfulness meditation : Attention is given to the sensations, sounds, smells, thoughts, and feels that are being experienced; one is aware without becoming involved in the experiences; this promotes a calm, nonreactive state of mind.

Transcendental meditation: This from of meditation was introduced by Maharishi Mahesh Yogi and involves the body reaching a level of profound relaxation while the mind achieves a more alert state.

The level of meditation

There are 3 levels of Buddhist meditation including:

1. Calmness meditation refers to the attention of mind for a while. It is called momentary meditation or a while meditation. It is a normal level that can be useful and effective in daily life. It's original to approach concentration.

2. Mindfulness meditation refers to attention of the mind which is focusing on one thing for a long time more than in Calmness meditation but not long as the practitioner wants.

3. Insight meditation refers to attention of the mind which is focusing on one thing as long as he/ she wants and with no limit of time. It is a high and accurate level of concentration that succeeds in going to nirvana and wisdom and nirvana.

The practice of Meditation in Buddhist methods

There are forty methods to practice Buddhist edition (Pratepwate,2532: 851-854). In this research the two specifics of practical meditation are prayer and Anapanasati.

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Prayer

Prayer refers to meditation in which attention is focused on prayer.

Anapanasati

It means to think of and inspiration an expiration to developing to concentrate or protection of the mind. One has to know the movement or stopping of one's own breathing. Buddha said this practice of Anapanasati in Buddhist theology as "go to silent place to sit in meditation posture with a, straight body with the intention of consciousness and recall to inspire and expire of breathing"(Plron,.C. cited by Wanasiri, R. 1996: 50). Sett one's own breathing at the tip of a nose or sternum or upper navel as center. There is the consciousness at inhale-exhale of breathing and intention of mind on breathing (Tanassiri, C. 1996: 112). This formula is stated as follows:

1. When you inhale or exhale, you know that is a long period of breath
2. When you shortly inhale or exhale, you know that.
3. When you inhale, you have to observe all your body, then you exhale.
4. When you inhale, you have to mark management of all your body peacefully then, you exhale.

The breath is the element. It is short or long and forceful or weak, that it is the balance of mechanics in physiology. We are the only case taker on one's own breathing.

Buddhism said that your practice of breathing had to be careless when you had to have a peaceful mind.

Anapanasati Meditation brings you happiness, self composure, no fear and anxiety. It makes you free from suffering, no fear even if you die, not tired of your mission, to be enduring and vigorous and solving problems with the courage to the nearest righteousness (Tanasiri, 1996: 114).

The benefits of meditation (Pratepwate, 1989: 833-835)

1. The useful from practices will be free from lust and edit suffering.
2. The usefulness of intellectuality is all hearing ears, recalling previous existence and reading somebody's mind.

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3. The usefulness in health and behavior are developing the mind. For example, you are calm, self composed, polite, clear, cheerful, kind and know yourself and others, stable of spirit or mood and have immunization of the mind.

4. The usefulness in daily life.

4.1 You are not tense, agitated, or anxious so you will have happiness and relaxation.

4.2 It increases the common sense is effective in work, learning, protection from accident and decreases the chance to.

4.3 Curing diseases and helping to supplement health. Body and mind are relative. When the body is not alright, the mind is weak and feeling unwell. When the mind is vigorous, it has influence to reduce physiological diseases or simple treatment or energy from meditation can be eliminate the pain.

The Change of Body from Meditation

The practice of meditation was originally about mind and spirit over five thousand years ago. About twenty years ago, there were some scientic experiments to examine meditation to be related to the change of chemicals in the body (Treauchaisri, S. 1999: 78). When the practical of meditation succeeded, the body has been changed which is stated as follows:

1. The changing of neurotransmitters (Manoongit, K. 1995: 8). The impulse changes the level of neurotransmitters to the cerebral cortex and it can control the different inhibitory pathways from touch to pain and temperature which it increases or decreases as inhibitors of concernment.

2. The changing of physiology

When you are training for meditation, the body uses some oxygen less than sleepinghy about 20%. Oxygen consumption decreases more than when you rest. Heart rate decreases about 25% of normal condition. While a short period of practice in meditation shaved the reaction of electricity at skin increased about 2-8% equivalent to when you slept(Potter and Garfield cited by Pemgsuwon ,S.1985: 87).

3. The changing of Biochemical

A decrease of norepinephrine is found which had the effect of decreasing the level of lactate in blood circulation. It had the effect on patients of decreasing

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anxiety (Wallesse and Bensen cited in Jitsuwon, P. 1992: 96). The body allowed Endorphine to flow which had the function to inhibit nerve impulse from the spinal level when you had stimulus of pain. It had the effect of decreasing pain(Jitsuwon, P. 1992 :97)

4. The changing of brain waves

This was related the period of practice. The wave changes to 2 waves when you practice basic meditation but when you trained for more than about 2 years , you had prolonged 2 waves. When you trained for more than 10 years up to 40 years, you had C wave(Thusabumlera, C. 1996: 109-111).

5. The changing of immunology

Scientists believe that people who usually trained in meditation will have increased melatonin to activate the hypothalamus, pituitary and adrenal cortex which are an important neuron system with pure interleukin, peptide to stimulate at all immediate immune responses so then the body had immunity (Triemchaisri, S. 1999: 80).

In this research to meditation which was used to promote sleep were Prayer and Anapanasati. The training was measured by using biofeedback equipment.

2.5 Biofeedback

Biofeedback training is a method of learning how to consciously regulate normally unconscious bodily functions (such as breathing, heart rate, and blood pressure) to improve overall health. Its refers to any process that measures and reports back immediate information about the biological system of a person being monitored so he or she can learn to consciously influence that system, and thus gain control over activities that are not usually thought to be controllable. At first, equipment with audio or visual response is used to train the individual to control bodily functions and then eventually the control is performed without the equipment. With continued practice, the skills continue to improve.

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Biofeedback equipment

1. Electromyography or EMG is muscle stress measuring equipment. It is used by adhering a connection on a muscle. EMG will report back the state of muscle stress that brings symptoms such headache , muscle pain , and chronic pain. When persons can self regulate the body function, the EMG will give information back about increasing stress.

2. Thermal, blood flow biofeedback: This is the equipment that is used to measure skin circulation by reporting back information of increasing temperature when peripheral blood vessels at the skin are dilated and blood flow is good; in contrast decreasing skin temperature occurs when constriction of blood vessels occurs due to decreased blood.

3. Electrodermal response feedback (EDR) measures the skin action from the hand and finger. EDR will be sensitive to emotional reactions. It is used to treat patients with continuous sweating.

4. Brain feedback: The electroencephalography (EEG) is use to measure brain waves .The feedback information is used to treat diseases like: Aurthism, epilepsy, and insomnia.

In this study, the researcher used thermal biofeedback to measure skin in type II diabetes mellitus patients by using finger temperature which provides sensitive responses when persons can regulate physical functions to normal.

2.6 The concept of self-care

Self-care is the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being. Self- care has a purpose. It is action that has a pattern and sequence and, when performed effectively, contributes in specific ways to human structural integrity, human functioning, and human development (Dorcthea E. Orem,1991: 117).The purposes to be attained through the kind of actions termed self- care are named self-care requisites. Three types of self-care requisites are identified: universal, developmental, and health-deviation. They rest on the following assumptions:

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1. Human beings, by nature, have common needs for the intake of material (air, water, foods) and for bringing about and maintaining living conditions that support life processes, the formation and maintenance of structural integrity, and the maintenance and promotion of functional integrity.

2. Human development, from the initial period of intrauterine life to the fullness of adult maturation, requires the formation and the maintenance of conditions that promote known developmental processes at each period of the life cycle.

3. Genetic and constitutional defects and deviations from normal structural and functional integrity and well- being are requirements for their prevention and regulatory action to control their extension and to control and mitigate their effects.

Self- care requisites are expressions of the kinds of purposive self-care that individuals require. They should be expressed in terms of action. Three types of self-care requisites were identified in the preceding section. Each type represents a category of deliberate actions to be taken by or for individuals because of their needs as human beings.

1. Universal self-care requisites are common to all human beings during all stages of the life cycles, adjusted to age, developmental state, and environmental and other factors. They are associated with life processes and with the maintenance of the integrity of human structure and functioning. There are eight self-care requisites :

1.1 The maintenance of a sufficient intake of air.

1.2 The maintenance of a sufficient intake of water.

1.3 The maintenance of a sufficient intake of food.

1.4 The provision of care associated with elimination processes and excrements.

1.5 The maintenance of a balance between activity and rest.

1.6 The maintenance of a balance between solitude and social interaction.

1.7 The prevention of hazards to human life, human functioning, and human well-being.

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1.8 The promotion of human functioning and development within social groups in accord with human potential, known human limitations, and the human desire to be normal, Normally is used in the sense of that which is essentially human and that which is in accord with the genetic and constitutional characteristics and the talents of individuals.

2. Developmental self-care requisites are associated with human developmental processes and with conditions and events occurring during various stages of the life cycle and events that can adversely affect development. There are two categories of developmental self- care requisites :

2.1 The bringing about and maintenance of living conditions that support life processes and promote the processes of development, that is, human progress toward higher levels of the organization of human structures and toward maturation during various stages of the life cycle(e.g., prematurity, pregnancy) and events that can adversely affect development.

2.2 Provision of care either to prevent the occurrence of deleterious effects of condition that can effect human development or to mitigate or overcome these effects from conditions.

3. Health- deviation self-care requisites are associated with genetic and constitutional defects and human structural and functional deviations and with their effects and medical diagnosis and treatment. There are six categories of health - deviation self-care requisites :

3.1 Seeking and securing appropriate medical assistance in the event of exposure to specific physical or biological agents or environmental conditions associated with human pathological events and states, or when there is evidence of genetic, physiological, or psychological conditions known to produce or be associated with human pathology.

3.2 Being aware of and attending to the effects and result of pathological conditions and states.

3.3 Effectively carrying out medically prescribed diagnostic , therapeutic, and rehabilitative measures directed to the prevention of specific types of pathology, to the pathology itself, to the regulation of human integrated

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functioning, to the correction of deformities or abnormalities or to compensation of disabilities.

3.4 Being aware of and attending to or regulating the discomforting or deleterious effects of medical care measures performed or prescribed by the physician.

3.5 Modifying the self - concept (and self image) in accepting oneself as being in a particular state of health and in need of specific forms of health care.

3.6 Learning to live with the effects of pathological conditions and states and the effects of medical diagnostic and treatment measures in a life-style that promotes continued personal development.

The three types of self–care requisites are different by age, gender, developmental state, life style and environment factors.

The self- care action to be performed for some duration in order to meet known self-care requisites by using valid methods and related sets of operations or actions is termed the therapeutic self-care demand. An individual's self-care demand cannot be known until it is calculated. The important factor that affects the ability of individuals to engage in self-care demand is called self-care agency, the human capabilities of individuals to perform actions to care for themselves and others. The structure of self-care agency is formalized as a three part structures

1. Capabilities for self-care operation : It is the phase of deliberate action, namely, estimative operations, transitional operations, and productive operations

2. Power components of self-care agency:

2.1 Ability to maintain attention and exercise requisite vigilance with respect to self as self-care agent and internal and external conditions and factors significant for self-care.

2.2 Controlled use of available physical energy that is sufficient for the initiation and continuation of self-care operations.

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2.3 Ability to control the position of the body and its parts in the execution of the movements required for the initiation and completion of self care operations.

2.4 Ability to reason within a self-care frame of reference.

2.5 Motivation

2.6 Ability to make decision about care of self and to operationalize these decision.

2.7 Ability to acquire technical knowledge about self-care from authoritative sources, to retain it, and to operationalize it.

2.8 A repertoire of cognitive, perceptual, manipulative, communication, and interpersonal skills adapted to the performance of self-care operations.

2.9 Ability to order discrete self-care actions or action systems into relationships with prior and subsequent actions toward the final achievement of regulatory goals of self-care.

2.10 Ability to consistently perform self-care operations, integrating them with relevant aspects of personal, family, and community living.

3. Foundational capabilities and dispositions are the foundational capabilities and dispositions which are essential for human behavior to learn and take action by themselves such as personal values, self – as felt and known, ideal self, and long- range goal orientations.

2.7 Concept of Learning Theory

Learning theory of Bloom

Bloom classified learning behavior of human being to 3 group including:

1. Cognitive domain : the ability and skill of the brain to think about the things. It is divided into 6 stages including:

1.1 Knowledge includes knowledge about the definition of words, meaning, the truth, theory, role, structure, the method of solving problems, and standards.

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1.2 Comprehension includes translation of meaning, explanation of meaning and estimation.

1.3 Application includes the ability to bring the role or theory to develop to use in the other situations.

1.4 Analysis includes the ability to separate the stories and components to a fraction and ability to know the importance and the relation of it.

1.5 Synthesis includes the ability to collect stories and components or mixes them with new things.

1.6 Evaluation includes the decision value of things or stories by using the truth or the standard role .

2. Affective domain is the behavior related mental change, characteristics, virtues, and morals. It is divided into 5 stages including:

2.1 Receiving or attending includes sensitivity to perceive a stimulus from experience and understand the important characteristic of it.

2.2 Responding includes the expression to want to participate with the stimulus. It is the starting of a reaction to the received stimulus.

2.3 Valuing includes the expression to bind to participate. It is the feeling about the value until one turns to believe and have an attitude.

2.4 Organization includes bringing value to make a system by thinking about the related value and the relation of it and decide that what is an important value.

2.5 Characterizing by a value or value complex includes the adaptation of oneself to comparate it with his/her beliefs and thoughts.

3. Psychomotor Domain is the ability in effective work practice which is related to the function of organs in the body. It is divided into 5 stages including:

3.1 Imitation is the selection of a sample or model which is interesting.

3.2 Manipulation is the practice following an interested model.

3.3 Precision is the decision to practice the model that is thought correct.

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3.4 Articulation is the continuously practice the model that is thought correct.

3.5 Naturalization is practicing until it is a skill and one can practice it natural and autonomically.

Psychology and Adult Teaching Techniques.

The learning of adults is different from youths because adults and youths are different in many ways. Knowles (Knowles, 1970: 39-49 referring to Suntorn Khoathbantao, S. 1981: 95) started the outstanding difference between adults and youths as follows:

1. Self-Concept: A youth or child need the support from others in every way but adults understands causes and effects, are able to make decisions are able to direct their life and want to show their ability as a leader too. So, adults needs respect from others and a chance to make decisions and they would like to be free from any domination.

2. Experiences: Adults have various experiences from many aspects from an early age. Adults actually accepts the worth of experiences and determines themselves more from the experiences more than children.

3. Readiness to Learn: Adults will be able to learn and be a good learner if they learns things that benefit them and things that they need to know. Adults are actually ready to learn more than youths. So, to teach adults is to teach beneficial subjects and needed subjects at that time. The teaching should be at the time that they are ready to learn too.

4. Time Perspectives: Adults aim at bringing what they learn to use and solve their daily problems. So, they understands the value of time.

Therefore in the adult teaching, the instructor is important. The personalities of the instructor should consists of teaching skills, sense of humor, adaptation, endurance, gracefulness, respect, candid and good interpersonal relationship. (Srisane,S. 1984: 145-146)

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The rules of adult teaching.

One should manage adult teaching to suit the characteristics and the changes of adults in order to produce the good quality of learning. (Khoatbantao, S. 1981: 103-107)

1. Reaction Time is the time starting from the beginning to the moment that an adult moves his body to responded or the reaction to the motivation. The time may be short or long. So, an instructor should not seriously control about time. The time of teaching should depend on the ability of the learner to understand the lesson. The learner should realize about his progress. The teaching method should be varied to avoid a tedious problem. The use of the same teaching technique may cause a disheartening problem. The Q&A technique should be used but the time to find out the answer should not be limited but depend on the learner's ability. The environment should be well adjusted. Short breaks should be set. The motivation to urge the learner interest should be set and should set some activities should be down to practice the lessons. Group learning, self-practice and supports from the instructor to the learner are important. The good recommendations are a the must no matter the result of the practices and the lessons are.

2. The problem about eyesight and hearing. An instructor should use the technique that can avoid problems about eyesight and hearing. The management of teaching instrument and learning support should suit a learner so that it enables a learner to learn the lesson himself such as leaflet, videos, lectures, demonstrations and practicing, etc.

3. Alertness to Body language. The body language of an instructor may cause boredom in a learner such as lacking of interesting, class skipping, or withdrawing from the lesson.

4. Against Rules. Adult actually are not against rules, so an instructor should create an informal class environment and give chances to interchange opinions. Politeness is an important factor too.

5. Personal Problems. Some learners may be faced with family or economic problems so an instructor should not pay too much attention to materials.

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Adult Teaching Techniques.

The techniques that are used the most are(Suporn , S. 1984: 151-159)

1. A lecture is a message preparation to deliver data from an instructor to the learner via speaking on a topic to bring about the opinion and persuade the listeners. It is suitable for any number of listeners. It is easy to organize and more convenient when compared to the other method. It is suit able for one who prefers to listen instead of reading. The good lecture needs to be well prepared and managed. It should have clear data presentation and be able to motivate the listeners. It will be effective when (Suwan, P. & Suwan, S. 1993: 314)

- The lecturer is an expert about the topic.
- All listeners would like to listen to the same topic at the same time.
- The number of listeners is high enough to use a lecture group instead of an activity group.
- There is a time limitation.
- There is a handout for self-study and to be use as the guideline on the lecture.

2. Demonstration is a working presentation or working process presentation. Actually, after the demonstration, the learners will be allowed to practice following the processes that were already shown. There is a close overseeing. This method is from the opinion that one actually believes in what one can see oneself more than what one has heard or read. This technique allows the learners to practice as much as one wants.

3. Group Process is a learning technique that allows the learner to join the learning activities to produce the long-term learning and a joyful learning experience. Additionally, there are the group lecture, learning by traveling, teaching as a team, role acting, self-study, case study, brain storming, problem-solving, and teaching media, etc.

Related researches

Pongpua, S.(1999) studied the effect of meditation on self-efficacy , good vision in life, and health status in the old age. The results of the study showed that after the experiment the samples had higher self- efficacy, good

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vision in life, physical health and mental health status than these before the experiment.

Setagasikorn, K. (1998) studied the effects of Upamonya 4, Buddhist meditation, on pain and anxiety in twenty burn patients. The results of the study showed that after the experiment, the experimental group had a mean score of anxiety statistically significantly lower than that in the control group whereas, the mean score of pain, respiration, blood pressure, and number of drug used of both groups were not statistically significantly different .In the experimental group, while training meditation, the sample felt relaxed, forgot pain and anxiety, had good dreams were calm and fresh in mind.

Delmonote (1984) studied the physiological reaction including the resistance of skin, respiration rate, and plasma Lactate level while training in meditation and rest through an experiment with 52 female samples, 40 samples trained meditation and 12 samples had not trained in it. The results of the study showed that the experienced person who stably trained in meditation had lower body stress and blood pressure with heart contraction and heart rate at normal rest and the persons who had long training had more effect than those who had recent trained. This was the same as the recently trained who had the physiological reaction higher than the person who did not train at normal rest. The results could indicate that training in meditation in an any way had the effect on physical aspects and could increase the relaxation of physical function.

Pawaponon na Sarscam, W. (1984) concluded that meditation (Kumuttarn meditation) had affected physical and mental changes. Kummutarn meditation could decrease Defense- Alarm reaction or Fight or Fight reaction, the opposite reaction of mind when one had the reaction of exit, fear, avoidance, and frighten, of individuals . When this reaction occurred, the sympathetic system will be quicker a stimuli to increase function, blood pressure will be increase, quickly heart rate, much blood circulation to muscle, high need oxygen to use in respiration and metabolism. The frequent stimuli of the sympathetic system in midbrain causes the disease of the brain, hypertension, and physical abnormality symptoms. The medicine believed that if we can decrease stress of that brain function, it will increase the good health of people. Kummutarn meditation could

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decrease this reaction, make a calm mind and the body received rest. Practicing meditation promotes good health to the practitioner.

Waruwon , K.(1987) studied the effect of Buddhist meditation on cortisol level and blood protein level, the function of blood circulation system, respiratory system, and reaction time. The samples were divided into two groups, the experimental and control group. Then, the experimental group was divided into two groups, group A, the samples who had a calm mind and could hold their attention on the glass every time of practice meditation and group B, the samples who had a calm mind but sometime could not hold the attention on the glass. The control group was the samples who did not practice meditation. The results of the study showed that after the experiment, the experimental group had statistically significantly changes of blood cortisol both in group A and group B. Group A had statistically significantly higher increase of blood protein but group B was not the different, Both group A and B had statistically significant decreased blood pressure and heart rate which itself is the part of circulatory function system. So, this can indicate that respiration was increased too. There were statistic significantly decreased of reaction time. In the control group, there were no statistically significant differences of biochemistry and physiology between before and after the experiment. Reaction time statistically significantly decreased but did not more decrease equality in the experimental group. The results of the study could conclude that the training in Tomagai meditation could change biochemistry and physiology by decreasing sympathetic function and increasing the efficiency of physical reaction.

Chungkao (1987)studied the cure of suffering by mentality. The research was intervention by considering the suffering, feeling, the cause of suffering and the ways and methods to eliminate it patients in mind meditation for 2 years and 3 months. There were 5,375 patients who were received cures from 58 provinces, 65 % women and 35 % men. The results found that there were more increase interest of the patients at every providing cure day. Later, in 1985, the 550 samples were selected from 58 provinces to answer the questionnaire for studying and evaluation. There were 97% of the samples who answered the questionnaire, 52.52% aged 31-50 years old, 73.64 % were married. The education

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was varied since no one educated to doctor degree, the most common occupation was government officer (48.04 %). The results of the research found that

1. The use of mentality to eliminate suffering: the success of it were

1.1	Heart suffering	success	93.33%
1.2	Digestion system suffering	success	83.33 %
1.3	Blood suffering	success	83.33 %
1.4	Endocrine system suffering	success	83.33 %
1.5	Sex of women suffering	success	80.82 %
1.6	Muscle bone and joint suffering	success	76.04 %
1.7	Skin suffering	success	75.00 %
1.8	Elimination system suffering	success	73.91 %
1.9	Respiratory system suffering	success	73.17 %
1.10	Eye, ear, and throat suffering	success	71.43 %
1.11	Brain suffering	success	66.33 %

2. The use of mentality for physical and mental health
   - 2.1 Increased more better physical and mental health 76.45 %
   - 2.2 Have a happy life 40.19%
   - 2.3 Increase family happiness 32.15 %
3. To be cured with meditation method for health 1-3 times 70.03 %
4. The total of answering samples answered that other curing methods that they had received in the part could not eliminate suffering 69.53% and could only momentary relieve illness then they relapsed again to suffering 30.47%

This research could have the basic conclusion that the use of mentality in meditation had the good effect s on physical and mental health.

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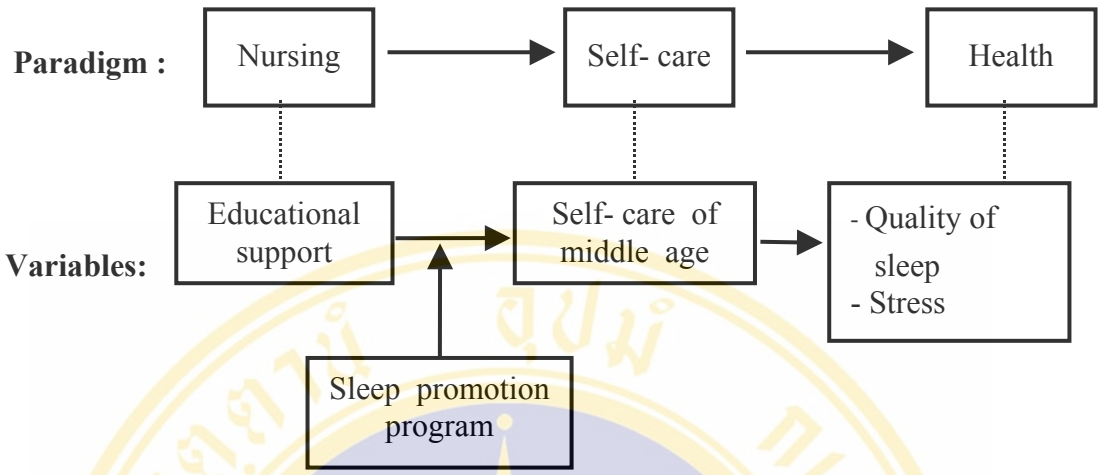
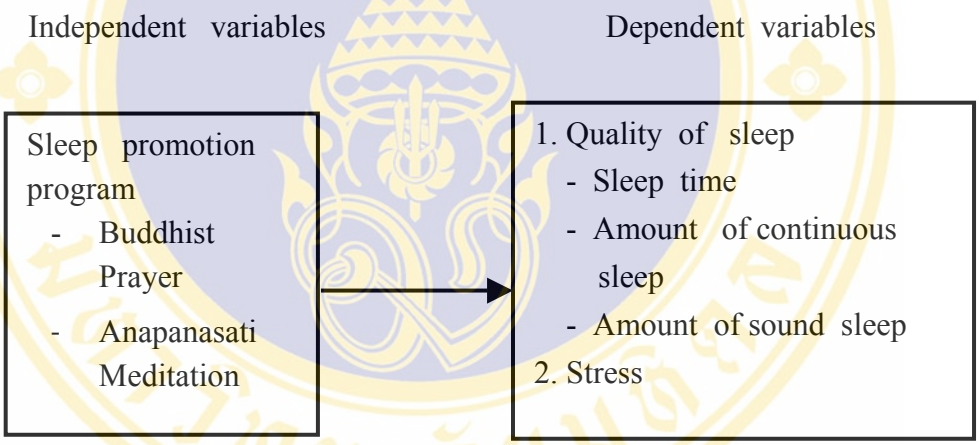


Theoretical framework of the study



Conceptual Framework of this Study

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CHAPTER 3
METHODOLOGY

3.1 Research Design

This research was a Quasi-Experimental Research aimed to study the result of a program to promote sleep through meditating to reduce stress and improve the quality of sleep in the middle-aged population. The study compare the result of the experimental group, the group that practice meditation to promote quality sleep, and the control group, the group that did not practice meditation to promote quality sleep. The research began in mid August and ended in the beginning of October 1996, with a total research time of eight weeks.

3.2 Population and Sampling

The population of this study was health tour members aged between 45 and 60 years old of Damnuensaduek Hospital, Damnuensaduek, Rachaburi province.

Purposive Sampling method was used to select 60 subjects according to the following criteria:

Criteria for Selecting Participants in the Study

1) Age between 45-60 years old
2) A buddhist
3) Able to tell information, places and time correctly
4) Able to read and write
5) Has sleeping problems
6) Does not use sleeping pills
7) Participants must not suffer from any critical illnesses or other illnesses that can affect sleeping such as Parkinson disease, or thyroid disease

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8) Should be willing to participate in the research from the beginning to the end.

Criteria for Terminating Research Participation

1) Participants were not qualified according to the research criteria
2) Participants have fallen ill during the research
3) Participants decided to quit.

Grouping the Sample

The author separated the subjects into the experimental group and control group by drawing lots pair by pair. The first person in the pair will be in the group that he or she drew, while the second person, who must have an age difference of not more than 5 years, the same gender and have sleeping problem, will be placed automatically in a different group from the first.

Experimental group refers to the group of 30 subjects who went through sleep promoting program

Comparison group refers to the group of 30 subjects who did not go through the sleep promoting program

In the random selection of middle age participants into the two sample groups the following rules were observed

1. They were the same gender
2. Their stress level before going through sleep promoting program was about the same level (According to the standard of the Ministry of Public Health).
3. Their sleeping time should be about the same or close using the sleeping behavior evaluation form (part two of the questionnaire) and sleeping problem evaluation form (part 3 of the questionnaire).

3.3 Instrumentation

1) The following instrumentation was used.

1.1 Teaching plan on sleeping and sleep promoting by meditation (Anapasti) which the author has compiled with the advice of experts.

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1.2 Anapasti meditation handbook which the author had compiled with the advice of An Anapasti meditation expert composed of the following:

- Pre-meditation practices
- Anapasti meditation method
- Buddhakhun prayer

2) Evaluation tools for the research

2.1 Thermometer for skin

2.2 Sphygmomanometer

2.3 Stethoscope (diaphragm)

2.4 Watch with hand to tell seconds to time breathing and pulse rate.

2.5 Meditation record forms which included, skin temperature, breathing rate, pulse rate and blood pressure record forms for prior to and after meditation.

2.6 Forms to record sleeping each day which included, sleeping time at night, waking up time, characteristics during sleep, feeling after waking up, hours of sleep.

3) Tools for Data Collection

3.1 Agreement to participate form

3.2 Personal data form for collecting general information about an individual which included sex, age, religion, marital status, education level, occupation, monthly average income, income sufficiency, illnesses, chronic illness, current use of drugs.

3.3 Sleep evaluation form which was adapted from the sleep evaluation tool of Beck (Beck in Frank-Stomporged, 1988 cited in Kahawong, W. 1995: 30), the sleep evaluation tool of Hayter (Hayter, 1983 cited in Kahawong, W. 1995: 30) including related literature reviews, composing of altogether 20 closed and open questions which included time of going to sleep, time between going to sleep and sleeping, numbers of wake ups, time of waking up, and span of time of waking up between sleep, time of waking up in the morning, number and time of naps during the day. Questions are divided as follows:

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1. Time of sleeping and warning up 4, questions (no. 1, 2, 3, 4)
2. Environment 7 questions (no 4, ,14, 16, 17, 18, 19, 20)
3. Problems related to sleeping, 8 questions (no. 6, 7, 8, 9, 10, 11, 12, 13)
4. Activities before sleep 1 question (no. 15)

3.4 Sleeping problem evaluation form and ways of solving it adopted from Nukul sleeping problem measurement tool (Nulul, 1998 cited in Kahawong, W. 1995: 30) including related literature reviews, composed of questions related to causes of sleeping problems, ways of solving problems and questions related to physical health, thoughts and feelings and practices in trying to solve sleeping problems, and the number of times of having sleeping problems in the past two months. It consisted of a total of 23 questions which include difficulty in sleeping, distraction during sleep, waking up abnormally early, quality of sleep etc. These questions are evaluated by a four-level rating scale with the meanings of terms as follows:

- Always means that the statement is consistent with the symptom or feeling which occurred 4-5 times per week
- Usually means that the statement is consistent with the symptom or feeling which occurred 2-3 times per week
- Sometimes Means that the statement is consistent with the symptom or feeling which occurred once a week
- Never Means that the statement is untrue

The interpretation of the result is considered from $\overline{X}$ ±SD as follows:

Serious Condition	$> \overline{X}+SD$
Moderate Condition	$\geq \overline{X} \pm SD$
Normal	$\leq \overline{X} - SD$

3.5 The Stress Test of the Department of Mental Health, Ministry of Public Health was used as the stress evaluation form. It is composed of 20 questions which are related to feelings, symptoms or behavior, for example, how many times did the symptom occur in the past two months etc. The 4 level rating scale was used

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to calculate the score and the response for each item ranged from 0 to 3. The following are the description of the responses.

- Never Means the statement does not represent symptom, behavior or feeling. (0 Point)
- Sometimes Means only part of the statement represent the symptom, behavior or feeling. (1 point)
- Usually Means that much of the statement represent the symptom, behavior or feeling. (2 points)
- Always Means that most of the statement is represent the symptom, behavior or feeling. (3 points)

The interpretation of the result uses the standard of evaluation of stress level of the Department of Mental Health, Ministry of Public Health as follows:

Points	Stress Level
0 – 5	Below normal level
6 – 17	Normal level
18 – 25	Slightly above normal level
26 – 29	Moderately above normal level
30 – 60	Highly above normal level

3.4 Validity and Reliability

1. The testing of the validity of instrument used in the research were as follows:

1.1 Teaching plan of sleep and sleep promoting by meditation

The author compiled the teaching plan with advice from experts and checked the accuracy of the content.

1.2 Handbook for practicing meditation to promote sleeping.

The author compiled the handbook after consultation with a meditation expert and the content and the language was checked by the meditation expert. The handbook was then tested by 20 middle aged samples who had similar qualities to the

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research participants to measure their understanding and ability to practice the content of the handbook that the author compiled.

2. Testing validity of equipment used in the research.

2.1 Skin thermometer or fingertip thermometer.

Check and see that the thermometers are in their working order. The thermometers were stuck on the finger tips of the left hand for at least 3 minutes until the temperature stabilized then the thermometer is read.

2.2 Sphygmomanometer

A Mercury sphygmomanometer was checked and tested to make sure that it was in working order. It was tested twice with the experimental group. During the test the subjects were placed to sit in a comfortable posture. The right arm of the subjects was placed at the level of the heart. Air is squeezed out of the cuff before wrapping the cuff around the upper arm at two centimeters above the elbow. The posture of the subject remained the same for the first and the second measurement. The second measurement value was used. It was checked and tested for accuracy by Medical Tool and Equipment Repair and Maintenance Department of Damnoensaduak Hospital.

2.3 Stethoscope (Diaphram type)

The Stethoscope was tested by testing the ability to hear from both left and right earpiece, making sure that they are at the same level.

2.4 Timer with Second pointer

The timer was always kept in functioning order and the accuracy was always checked before using.

2.5 Meditation Record Form

The content validity of the form was checked by the thesis adviser.

2.6 Daily Sleeping Record Form

This included time of sleeping at night, time of waking up in the morning, sleep pattern, feeling after sleep, number of hours of sleep.

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2. Testing the validity of research instruments

2.1 General Data Record Form - the questionnaire which has been checked for validity with 20 middle aged samples with similar problems to the subjects and use the information gathered was used to improve the form.

2.2 Sleep Evaluation Form – the form was tested with 20 middle aged samples with similar problems to the subjects and the validity was calculated by using Cronbach Coefficient Alpha (Ganasutra, P. 1986: 43), which gave the validity was calculated value of 0.74

2.3 Sleeping Problem Evaluation Form and Correction Guide - the form was tested with 20 middle aged samples with similar problems to the subjects and the validity was caculated by using Cronbach Coefficient Alpha (Ganasutra, P. 1986: 43), which gave the validity value of 0.73

2.4 Middle Age Stress Evaluation Form – the form was tested with 20 middle aged samples with similar problems to the subjects and the validity was calculated by using Cronbach Coefficient Alpha (Ganasutra, P. 1986: 43), which gave the validity value of 0.91

Formula for Calculating Validity

$$\alpha = \frac{n}{n-1}1-\left\langle\frac{\Sigma S^2 i}{\Sigma S^2 x}\right\rangle$$

given α = reliability

n = number of items in evaluation form

S i = variance of score of each item

S x = variance of the total scores of all participants

3.5 Data Collection

The revised instruments were used for data collection as follows:

1. Steps in Preparation

1.1 The researcher prepared herself by participating in meditation for promoting sleep program for two months (practice of Anapanasti meditation and prayers)

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1.2 An introductory letter from the dean of the graduate studies school was sent to the director of Damnuensaduak Hospital to obtain provisional permission to study Damnuensaduak Hospital health tour.

1.3 After the permission was granted data was solely collected by the researcher. Middle age people who meet the criteria were invited to participate in the research by filling out participatory form.

1.4 The religious ceremony room was selected as the venue for carrying out the research.

2. Research process

The total time used in this study was 8 weeks. After the researcher selected 60 participants as the subjects for the research, 30 participants were put into the control group and another 30 were put into the control group. All the subjects were in their middle age. The researcher divided each step of the research into 8 weeks so the research was clear and more convenient in data collection. The details of the study were as follows:

1) Comparison Group

The subjects in the comparison group were prepared prior to participating in the research for 7 days. The researcher made appointments with them 3 times on the 1st, 3rd, and 7th day of the study, in front of the religious ceremony room of Damnuensaduak Hospital to prepare them for this study. Then the data collection began from the 1st to the 8th week, altogether 8 weeks. The details of the study were as follows.

1.1 During the preparation week the researcher made 3 appointments with the comparison group to meet in religious ceremony room of Damnoensaduak Hospital, on the 1st, 3rd, and 7th day to participate in the following activities.

First Day

1) The researcher built a relationship with the subjects in the comparison group by introducing herself and explaining the purposes of the research while inviting them to confirm their participation in the study.

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2) After the subjects in the comparison group confirmed their will to participate in the study the researcher ask them to write down and sign the written consent to reconfirm their participation. After the signing the researcher then explained the steps in the research.

3) The researcher interviewed the subjects in the comparison group for personal data, sleep behavior, sleeping problem, and stress.

4) The comparison group was educated about sleep and the researcher answered questions and doubts of the comparison group.

Third Day

1) It was explained how to use the sleeping behavior record form to the subjects until they understand and able were to correctly use the form.

2) Was started practicing recording in the sleeping behavior record form. The researcher evaluates the accuracy of the record. If the recording was inaccurate the researcher then would explain again until the participants understood.

3) Questions and doubts of the comparison group were answered

4) An appointment with the comparison group on the 7^{th} day was made as to evaluate the continuity of the recording of the subjects again.

Seventh Day

1) Evaluated the recording of sleeping behavior form from the 4^{th}, 5^{th} and 6^{th} day was evaluated for accuracy. If the recording is in accurate the researcher explained until the participants understood and were able to record correctly.

2) The important practices in the study were reviewed and strossed which was to continuously record sleeping behavior every morning for 8 weeks

3) The participants were allowed to ask questions and answer their questions were answer

2) Experimental Group

Middle age participants in the experimental group were prepared for two weeks prior to their participation in the research. There were 5 appointments made at the religious ceremony room of Damnuensaduak Hospital on the 1^{st}, 3^{rd}, 6^{th}, 8^{th}, and

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14th day. The subjects were then asked to continuously practice sleep promoting program which the author has compiled from 1st week to 8th week with the following details.

During the preparation week of the research the researcher made 3 appointments with the experimental group for the following activities.

First Day

1) The researcher built a relationship with the experimental group by introducing herself and explaining the purposes of the research including asking them to confirm their participation in the study.

2) After the experimental group confirmed their consent to participate in the study, the researcher had their consent written down and signed to reconfirm their participation. After the signing the researcher explained the steps in the study.

3) The researcher interviewed the experimental group for personal data, sleep behavior, sleeping problems, and stress.

4) The experimental were educated group about sleep and experimental .The reseche answered questions and doubts of group.

5) Appointments to meet the experimental group again on the 3rd day were mate.

Third Day

1) The method of using sleeping behavior record form to the subjects until they understood and were able to correctly was explained use the form.

2) Education on sleep promoting by meditation was given and brochures about sleep promoting by meditation which the researcher had compiled were distributed to the experimental group. The researcher then explained how to use the handbook until the participants understood

3) Sleep promoting by meditation method was practised with experimental group by following the handbook. Steps are as follows:

3.1 Sit on a chair or sit leg folded on the floor.

3.2 Pray using Namo Tasa 3 times (See attachment)

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3.3 Practice breathing putting both hands on the laps then closing the eyes and cutting off from the world concentrating on breathing in and out and the air felt at the tip of your nose. Breathe normally. Do not force your breathing in order to feel your breath. Practice breathing in and out 50 times.

3.4 Say Bhudhakhun prayer 30 times paying full concentration to the prayers (See attachment)

4) Allow the participants to ask questions and answer their questions.

5) Motivate the subjects in the experimental group to pray and encourage them to meditate.

Day 6th, 8th, and 14th

The researcher practiced meditating with the subjects in the experimental group by following the sleep promoting by the meditation hand book which follows these steps below:

1) Before meditating the researcher attached the finger thermometer on the middle finger on the left hand of the participants. The thermometer was left on the fingers for about 3 minutes until the temperature was stable then the thermometer was read. The reading was recorded in the meditation record form then the pulse rate, breathing rate and blood pressure was checked and recorded in the form.

2) The meditation was practised with the experimental group according to the sleep promoting by meditation handbook.

3) After the meditation the researcher evaluated the result of the meditation of the subjects and recorded the reading of the finger thermometer, pulse rate, breathing rate and blood pressure of the participants in the meditation record form.

4) Meditation practice daily before sleeping for 45 minutes and record sleeping in the sleep recording form every morning was reviewed and stressed

1.2 The experiment during the 8 weeks of the research from week 1 to week 8 consisted of the following activities and practices.

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1.2.1 The experimental group was asked to regularly practice sleep promoting activities according to the handbook once a day before sleeping for 45 minutes for 8 weeks.

1.2.2 The experimental group were asked to record their sleeping pattern every morning.

1.2.3 The researcher made appointments with the experimental group twice a week from the first week to the fourth to encourage and advise the subjects.

1.2.4 On the last day of the 8th week the researcher made appointments with the experimental group to collect the sleeping record forms and interviewed about the problem using the sleeping problem evaluation form (part 3 of the questionnaire) and evaluate stress by using the stress evaluation form of Department of Mental Health (Part 4 of questionnaire) and finally announce the end of the participation and encouraged the people who volunteered as participants to continually practice sleep promoting activities.

1.3 Collected data from the sleeping record, sleeping problem evaluation form, and stress evaluation form was use in to distribute score and then it was analyzed.

For clarification the researcher presented the collected data between the experimental group and the control group as shown in table 1.

Table 1 Data of Experimental and Control Group

Experimental Group	Control Group
Preparation Prior to Participation This stage took 2 weeks where the researcher meet the experimental group at the religious ceremony room 5 times	**Preparation Prior to Participation** This stage took 1 week where the researcher met the control group in the religious ceremony room for 3 days

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Table 1 Data of Experimental and Control Group (cont.)

Experimental Group	Control Group
First Day of the Study - Build Relationship - Interview for personal data - Interview on sleep, sleep problem, and stress - Give knowledge about sleep **Third Day of the Study** - Explain how to use the sleep record form - Give knowledge about sleep promotion meditation practice - Distribute the sleep promotion meditation handbook - Practice sleep promotion meditation **6th, 8th and 14th Day of the Study** - The researcher measured temperature from the finger tip, blood pressure, breathing rate and pulse rate and recorded them in the meditation record - The participants and the researcher together practiced sleep promoting meditation according to the guide book - The researcher measured the temperature from the fingertip, blood pressure, breathing rate and pulse rate of the participants and recorded them in the meditation record - Reviewed and stressed the important practices which were needed in participating in this research.	**First Day of the Study** - Build a relationship - Interview for personal data - Interview on sleep, sleep problems and stress - Give knowledge about sleep **Third Day of the Study** - Explain how to use sleep record form - Practice recording in sleep record form **7th Day of the Study** - Evaluated the accuracy in sleep recording in sleep record form - Reviewed and stressed the important practices in participating in the research

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Table 1 Data of Experimental and Control Group (cont.)

Experimental Group	Control Group
Experimental Stage week 1-8 - The experimental group practiced meditation according to the hand book before sleep daily for 45 minutes. - Participant record their sleep every morning when they wake up. - Made appointments to meet participants twice weekly to meditate, advise, assist and encourage them. - Last day of the 8th week the researcher made appointments to gather their sleep record form, interviewed about their problems with sleeping using the sleeping problem evaluation form (3rd part of the questionnaire) and evaluated stress (4th part of the questionnaire). - Encouraged the participants to continually practice sleep promoting meditation for their own benefit. - Used the collected data for analysis.	**Experimental Stage week 1-8** - The comparison group practiced their normal daily routine - Participants recorded their sleep in the sleep record form in the morning daily. - Week 4 the researcher made appointments with the participants at religious ceremony room to evaluate the accuracy of the data recorded in the sleep record form. - Last day of the 8th week the researcher made appointments to gather their sleep record form, interviewed about their problem with sleeping using the sleeping problem evaluation form (3rd part of the questionnaire) and evaluated stress (4th part of the questionnaire). - Used the collected data for statistical analysis.

1) Data received from personal data interview is reviewed for accuracy by the researcher. Recording data from the sleeping habit record form the researcher explained the method of recording for the participants and let them try recording until they could do it correctly.

2) Data from the use of equipment

- Fingertip thermometer – the thermometer was to attaches the finger tip of the middle finger on left hands of participants. It was reft for 3 minutes for the temperature to stabilize then it was read and record the temperature recorded

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- Stop watch – time accuracy was tested every time before it was used in measuring breathing and pulse rate 10 minutes prior to meditation and 10 minutes after the meditation.
- Sphygmomanometer – measured blood pressure 10 minutes prior to meditation and 10 minutes after meditation

3.6 Data Analysis

A computer program was used in the data analysis setting. The statistically significant value at 0.05. The steps of data analysis were as follows:

1. Frequency distribution and percentage were used to analyze personal data, sleeping behavior and problem in sleeping.
2. Some sleeping behavior and scores for sleeping problems were analyzed by calculation of mean and standard deviation.
3. Paired t-test was used to test the average differences of sleeping time of the experimental group and the comparison group.
4. Paired t-test was used to test the differences of average quality sleep the experimental group and comparison group prior to and after the research.
5. Paired t-test was used to test the differences of the average score of stress in the experimental and comparison groups before and after the research
6. Independent Paired t-test was used to test average temperature, pulse rate, breathing rate and blood pressure in The experimental group before and after the research .

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CHAPTER 4
RESULTS

This research studies the effect of a sleep promotion program by practicing meditation on stress and the quality of sleep in the middle aged people. The subjects were 60 middle aged persons, 30 persons in the experimental group and 30 persons in the control group. Data of both groups from interviewing before and after the experiment were analyzed. Results are consecutively presented in two parts including :

Part I General data of each group

Part II The analysis of mean difference

1. The comparison of mean scores of the quality of sleep between the experimental group and control group before and after the experiment.

2. The comparison of mean scores of the quality of sleep within the experimental group and control group before and after the experiment.

3. The comparison of mean scores of sleep time between the experimental group and control group before and after the experiment.

4. The comparison of mean scores of sleep time between the experimental group and control group before and after the experiment.

5. The comparison of mean scores of the amount of continuous sleep between the experimental group and control group at the first week to the eighth week of the experiment.

6. The comparison of mean scores of the fresh feeling after awakening between the experimental group and the control group at the first week to the eighth week of the experiment.

7. The comparison of mean scores of stress between the experimental group and control group before and after the experiment.

8. The comparison of mean scores of stress within the experimental group and control group before and after the experiment.

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Part I General data of each group

The sixty middle aged people were aged 45-60 year and who lived in Amphour Domnansadoung were included in this study. The characteristics of them in both the experimental and control group are shown in Table 2.

In the experimental group, the maximum age of the subjects was 60 years old. The minimum age was 45 years old .The mean of age was 57 years old. Most of the subjects were 56- 60 years old (73.4 %), followed by 51-55 years old(13.3%) and 45-50 years old (13.3%). About 76.7% of the subjects were female and 23.3% of them were male. Most of them were married (73.3%), 20 % were widowed, and 6.7% were single. All the subjects were Buddhist. About 73.3% of the subjects had primary education, followed by 20 % with secondary education. The occupations were employment (36.67%), had not occupation (30%), and agriculture(13.4%), respectively. The family income of most subjects was just sufficient but they had not savings (43.4%), 30% had sufficient income and had savings. Most of the subjects had no disease (96.7%) and had not regularly used drugs (76.7%).

In the control group, the maximum age of the subjects was 60 years old. The minimum age was 45 years old .The mean of age was 52 years old. Most of the subjects were aged 45- 50 years old (53.3 %), followed by 56-60 years old (30%). About 56.67% of the subjects were female and 43.3% of them were male. Most of them were married (76.7%), followed by 13.3 % who were single. All the subjects were Buddhist. About 50% of the subjects had primary education, followed by 20 % with a bachelor's degree education. The occupations reported were employee (33.3%), government official (33.3%), no occupation(6.6%).The family income of the most subjects were just sufficient but they had no savings (46.6%), and sufficient and had savings (46.6%),whereas some subjects reported insufficiency of income (6.67%). Most of the subjects had not disease (96.7%) and had no regularly used drugs (93.3%).

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Table 2 Number and percentage of patients by patients' characteristics

Patients' characteristics	Experimental group (n=30)		Control group (n=30)	
	Number	Percentage	Number	Percentage
Gender				
Male	7	23.3	13	43.3
Female	23	76.7	17	56.7
Total	30	100	30	100
Age(years)				
45- 50	4	13.3	16	53.3
51- 55	4	13.3	5	16.7
56- 60	22	73.4	9	30
Total	30	100	30	100
Mean age (years)	57		52	
S.D	4.3		5.9	
Maximum age(years)	60		60	
Minimum age(years)	45		57	
Status				
Single	2	6.7	4	13.3
Married	22	73.3	23	76.7
Widowed	6	20	3	10
Total	30	100	30	100
Education				
Primary	22	73.3	24	80
Secondary	6	20	6	20
Diploma certificate	2	6.7	3	10
Bachelor's degree	0	0	6	20
Total	30	100	30	100

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Table 2 Number and percentage of patients by patients' characteristics (cont.)

Patients' characteristics	Experimental group (n=30)		Control group (n=30)	
	Number	Percentage	Number	Percentage
Occupation				
Agriculture	4	13.4	0	0
Trading	3	10	7	23.3
Government official	2	6.6	10	33.3
State enterprise	1	3.3	1	3.3
Employee	11	36.7	10	33.3
Total	30	100	30	100
Family income				
Sufficient and savings	8	26.7	14	46.7
Sufficient but no savings	13	43.3	14	46.7
Insufficient	9	30	2	6.6
Total	30	100	30	100
Disease				
No	29	96.7	29	96.7
Yes	1	3.3	1	3.3
Total	30	100	30	100
Drug regularly used				
No	23	76.7	28	93.4
Yes	7	23.3	2	6.6
Total	30	100	30	100

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Part II The analysis of mean differences of quality of sleep and stress of the middle aged subject.

2.1 The comparison of the mean scores of the quality of sleep between the experimental and control group before, and after the experiment. The results were shown as follows :

The mean scores of sleep time between the experimental and control group at before the experiment were not different ($p = 0.81$), whereas after the experiment the mean scores were significantly different ($p < 0.001$).

The mean scores of the amount of continuous sleep between the experimental and control group at before the experiment were not different ($p = 0.125$), whereas after the experiment the mean scores were significantly different ($p < 0.001$).

The mean scores of the fresh feeling between the experimental and control group at before the experiment were not different ($p = 0.60$), whereas after the experiment the mean scores were significantly different ($p < 0.001$).

Table 3 The comparison of mean scores of quality of sleep between the experimental and control group before and after the experiment.

Quality of sleep	Before the experiment		After the experiment		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
Sleep time						
Experimental group	5.33	1.12	7.23	0.47	9.65	< 0.001
Control group	5.27	1.01	5.25	0.30	0.07	0.942
The amount of continuous sleep						
Experimental group	1.87	1.00	2.96	0.09	5.89	< 0.001
Control group	2.27	0.98	1.88	0.23	2.05	0.049
The fresh feeling after awakening						
Experimental group	1.43	0.50	1.98	0.04	5.89	< 0.000
Control group	1.37	0.49	1.37	0.14	0.10	0.90

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2.2 The comparison of mean scores of the quality of sleep within the experimental group and control group before and after the experiment.

The results showed that the sleep time before and after the experiment in the experimental group were significantly different ($p<0.001$), whereas the results of that in the control group were not different ($p=0.92$).

The amount of continuous sleep before and after the experiment in the experimental group were significantly different ($p < 0.001$), while the results of that in the control group were also significantly different ($p <0.05$).

The fresh feeling after awakening before and after the experiment in the experimental group were significantly different ($p<0.001$), whereas the results in the control group were not different ($p= 0.91$).

Table 4 The comparison of mean score of the quality of sleep within the experimental group and control group before and after the experiment.

Quality of sleep	Before the experiment $\overline{X}$	SD	After the experiment $\overline{X}$	SD	t	p- value
Sleep time						
Experimental group	5.33	1.12	7.23	0.47	9.65	< 0.001
Control group	5.27	1.01	5.25	0.30	0.07	0.942
Amount of continuous sleep						
Experimental group	1.87	1.00	2.96	0.09	5.89	< 0.001
Control group	2.27	0.98	1.88	0.23	2.05	0.049
Fresh feeling after awaken						
Experimental group	1.43	0.50	1.98	0.04	5.89	< 0.001
Control group	1.37	0.49	1.37	0.14	0.10	0.91

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2.3 The comparison of the mean scores of sleep time between the experimental and control group at the first week to the eighth week of the experiment.

The results showed that mean scores of sleep time between the experimental and control group at the first week to the eighth week of the experiment were significantly different ($p < 0.05$) (Table 5).

Table 5 The comparison of mean scores of sleep time between the experimental and control group at the first week to the eighth week of the experiment.

Week	Experimental group (n = 30)		Control group (n=30)		t	p- value
	$\bar{X}$	SD	$\bar{X}$	SD		
1	5.39	0.46	5.17	0.23	2.26	0.02
2	5.71	0.43	5.12	0.31	6.04	<0.001
3	6.03	0.48	5.09	0.24	9.47	<0.001
4	6.33	0.43	5.16	0.29	12.35	<0.001
5	6.54	0.37	5.16	0.30	15.59	<0.001
6	6.79	0.41	5.20	0.30	16.78	<0.001
7	6.91	0.50	5.09	0.33	16.36	<0.001
8	7.23	0.47	5.25	0.30	19.14	<0.001

2.4 The comparison of mean scores of the amount of continuous sleep between the experimental and control group at the first week to the eighth week of the experiment.

The results showed that the mean scores of the number of continuous sleep between the experimental and control group at the first week and the third week to the eighth week of the experiment were significantly different ($p<0.001$). But there were not different between the experimental and control group at the second week of the experiment ($p=0.87$) (Table 6) .

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Table 6 The comparison of the mean scores of the number of continuous sleep between the experimental and control group at the first week to the eighth week of the experiment.

Week	Experimental group (n = 30)		Control group (n=30)		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
1	11.43	1.33	13.20	1.37	5.05	<0.001
2	13.67	1.63	13.73	1.66	1.57	0.87
3	14.93	1.84	12.83	1.56	4.71	<0.001
4	15.57	1.87	13.17	2.23	4.51	<0.001
5	16.47	1.81	12.83	1.80	7.78	<0.001
6	18.17	1.29	13.50	2.58	8.85	<0.001
7	18.93	1.46	13.60	2.22	10.98	<0.001
8	20.73	0.69	13.20	1.67	22.83	<0.001

2.3 The comparison of mean scores of fresh feeling after awakening between the experimental and control group at the first week to the eighth week of the experiment.

The results showed that the mean scores of fresh feeling after awakening at the first week and the third to the eighth week of the experiment between the experimental and control group were significantly different ($p= 0.002$, $p < 0.001$ at the first week and the third week to the eighth week of the experiment, respectively). (Table 7)

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Table 7 The comparison of mean scores of the fresh feeling after awakening between the experimental and control group at the first week to the eighth week of the experiment.

Week	Experimental group (n =30)		Control group (n=30)		t	p- value
	$\bar{X}$	SD	$\bar{X}$	SD		
1	9.10	0.84	9.86	0.97	3.25	0.002
2	9.83	0.91	10.06	0.82	1.03	0.30
3	10.06	0.88	9.63	0.85	4.61	<0.001
4	11.00	0.94	10.03	0.85	4.16	<0.001
5	11.66	0.88	9.60	1.10	8.01	<0.001
6	12.30	1.11	9.70	0.98	9.54	<0.001
7	12.93	0.82	9.66	1.15	12.59	<0.001
8	13.86	0.34	9.63	0.99	21.92	<0.001

2.6 The comparison of the mean score of stress between the experimental and control group before and after the experiment.

The results showed that the mean scores of stress between the experimental group and control group were significantly different both before and after the experiment ($p < 0.001$)(Table 8).

Table 8 The comparison of mean scores of stress between the experimental group and control group before and after the experiment.

Testing	Experimental group (n = 30)		Control group (n=30)		t	p- value
	$\bar{X}$	SD	$\bar{X}$	SD		
Before the experiment	21.50	10.11	11.37	5.40	9.04	< 0.001
After the experiment	8.47	4.09	13.70	4.74	1.99	< 0.001

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2.7 The comparison of the mean score of stress within the experimental and control group before and after the experiment.

The results showed that the mean scores of stress in the experiment before and after the experimental group were significantly different ($p<0.001$). Whereas the means scores of the stress of the control group before and after the experiment were not different ($p= 0.056$) (Table 9).

Table 9 The comparison of mean scores of stress within the experimental group and control group before and after the experiment.

Sample group	Before the experiment		After the experiment		t	p- value
	$\bar{X}$	SD	$\bar{X}$	SD		
Experiment Group	21.50	10.11	8.47	4.09	9.04	< 0.001
Control Group	11.37	5.4	13.70	4.74	1.99	0.056

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CHAPTER 5
DISCUSSION

The purpose of this research was to study the effectiveness of sleep promoting by meditation on stress and quality of sleep in the middle aged. The results were discussed and presented in two parts as follows:

Part 1: Discussion of Research Methodology

Part 2: Discussion of the Results of the Research based on the Hypotheses

Part 1: Discussion of the Research Methodology

1) Research Methodology

This research was a quasi – experimental research that used two groups pretest-posttest method, which is appropriate for studying the selected topic, "The Effectiveness of Sleep Promoting by Meditation on Stress and Quality of Sleep in Middle Age." In using this method the result of meditating to reduce stress can be compared to the quality of sleep. It is also an appropriate method of study to find the variables of changes because there are pretest and posttest to the study.

2) Population

The population of this study is middle aged people who were the members of health tour of Damnoensaduak Hospital, Rachaburi. The subjects should meet the following criteria: They can be both male and female. They should have ages between 45-60. They should be Buddhist, able to read and write and tell places and time. They should not use sleeping pills, or have serious illnesses or other illness, which affect their sleep. They should be willing to practice meditation and participate in the study.

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There were a total of 60 middle-aged participants in this study. Most participants were female between 56-60 years old. To get participants, who were really interested in meditating, the participants were selected according to the set criteria and must be willing to participate in the study. Therefore the result was most participants were females who were quite old. The researcher divided the subjects into an experimental group and control group, each group consisting of 30 participants equally by the method of casting lots. The researcher made sure that the level of stress and the sleeping time of people in both groups were at a similar level. Most participants were in their late adulthood and have specific type of stress. The experimental group stress level was slightly above the normal level while the comparison group did not have stress. From the characteristic of the population in the study it was indicated that the author was being partial in selecting sample groups.

3) Research Tools and Data Collection

The research tools were lesson plan on sleeping, lesson plans on meditation, Anapansti meditation handbook, and Buddhakhun, Dharmakhun, and Sangkhakhun Prayers. Equipment used include fingertip Thermometer, sphygmomanometer, stopwatch for timing breathing rate and heart rate, meditation record form, sleep record form for participants to record their sleep at home. Data collection tools include personal data record forms, sleeping behavior evaluation form, sleeping problem evaluation form, stress analysis and evaluation form. All tools used in the research were checked and tested for their functionality and accuracy by experts before they were used.

4) Data Collection

The time given for data collection was eight weeks. The experimental group was interviewed before the experiment and was also given knowledge about sleep and meditation. They were then trained according to the program for sleep promoting by meditation with the researcher before they were put into two weeks of experiment, altogether 5 times, for 45 minutes each time. Then they were experimented again twice a week for eight weeks and then they did to do daily practice at home by themselves. They were then interviewed after the experiment.

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During data collection the subjects cooperated well with the researcher. This may be because the subjects recognized the importance of this research. Moreover the researcher had also built good relationships with the participants. The equipment which were used during meditation to measure and record conditions of the subjects such as, blood pressure, pulse rate and fingertip temperature etc. also helped participants in the experimental group see the changes of their body, and motivated them to put effort in participating in the research. The members of the comparison group were interviewed before the experiment. They were also given knowledge about sleep and asked to record their sleep daily for 8 weeks. The interview was then conducted again after the experiment.

5) Statistics Used in Data Analysis

General data were analyzed by mean percentage, frequency distribution and average scores, comparing differences in the average time of sleep, quality of sleep and stress of both experimental group and comparison group before and after the experiment by means of dependent group paired T-test statistical analysis. The differences between average fingertip temperature, pulse rate, breathing rate, blood pressure level and stress of experimental group before and after the experiment were compared by means of independent group paired T-test.

Part 2 Discussion of the Result of Analysis Based on The Hypotheses.

Testing of Research Hypothesis

Testing of Hypothesis 1:

Middle aged subjects who practiced sleep-promoting program had better quality of sleep than those who did not practice

The result in comparing the differences of average sleeping time between the experimental group and the comparison group (Table 3, page 66) revealed that the experimental group, which practices sleep promoting program has higher average sleeping than the comparison group, which did not practice, at a statistically significant level of 0.001. When the differences of the weekly average sleeping time

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from week 1-8 (Table 5, page 68) were compared it was found that the experimental group had higher average sleeping time than the comparison group at a statistical significant level of 0.001. And when the differences between average sleeping time within the experimental group was compared before and after the experiment (Table 4, page 67) it was found that the average sleeping time after the experiment was longer than before the experiment at a statistically significant level of 0.001. When the differences of average sleeping time before and after the experiment in the comparison group was compared (Table 4, page 67) it was found that there was no significant differences (p=0.94). The result on the average score of feeling fresh when waking up between the experimental group and the comparison group (Table 3, page 66) indicated that the perimental group had a higher average score for feeling fresh after waking up than the comparison group at a statistically significant level of 0.001. When the differences of average weekly scores of the experimental group and the comparison group was compared during week 3-8 (Table 6, page 69), it was found that the differences were at a statistical significant level of 0.001. When the differences of the number of time of continual sleep before and after the experiment was compared within the experimental group (Table 4, page 67), it was found that the differences were at a statistically significant level of 0.001

Testing of Hypotheses 2:

Middle aged people who practiced sleep-promoting program have better quality of sleep after the experiment

The result in comparing the differences of average sleeping time within the experimental group (Table 4, page 67) revealed that the experimental group had longer average sleeping time after the experiment than before the experiment at a statistically significant level of 0.001, and the result in comparing the average score for feeling active while waking up within the experimental group (Table 4, page 67) revealed that after the experiment, the experimental group had higher average score for feeling active while waking up higher than before the experiment at a statistically significant level of 0.001. The result in comparing the differences between the average Number of times of long continual sleep within the experimental group (Table 4, page 67) showed that after the experiment the number of times of having a

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long continual sleep was higher than before the experiment at a statistically significant level of 0.001

The study of sleeping patterns of early adulthood and aged persons by using scientific equipment and personal evaluation forms for quality of sleep, revealed that the characteristics of sleep of elderly people had an overall decrease in both the number of hours and quality of sleep. Waking up between sleeps has increased and the ability to adapt themselves to interruption during sleep has decreased (Feinberg & Carilsson 1986 cited in Gislason, et al 1993: 31 cited in Potaros, D. 1995: 20). Another method of evaluation for sleep sufficiency is to consider the symptoms and the expression of people who had sufficient sleep and their need for waking up with active feeling, and the feeling of having maximum rest. (Huttirat, S. 1994: 2-3). Methods which can help slow down the changes in sleeping behavior is sleep promoting behavior, which include sleeping and waking up on time, and relaxation practice (Thorpy, 1990: 790). Rujirawan, S. (1985:K) found that The Mental Controlling Physical relaxation method helped increase sleeping time, changed sleeping time and helped the subjects to feel rested. Therefore the experimental group who practiced this method for 45 minutes daily before going to sleep for 89 weeks experienced the changes in the secretion of neurotaungnutters. Meditation practice caused the neurotransmitter 5-HIAA (Serotoninmetablite) to (increase/decrease) which helps increase sleeping (Bujatiti & Rewderew, 1976 cited in Riupaipoon, W. 2000)

Testing of Hypotheses 3:

Middle aged people who practiced sleep promoting program have lower average score for stress than those who did not practice the program

The result of the analysis of the differences of the average scores for stress between the experimental group and the comparison group before and after the experiment (Table 8, page 70) indicated that the experimental group, which practiced the sleep promoting program has lower average score for stress than the comparison group at a statistically significant level of 0.001.

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Testing of Hypotheses 4:

Middle age people who practiced the sleep promoting program had lower average score for stress after the experiment than before the experiment.

From the result of the analysis of comparison of differences of average scores of stress in the experimental group (Table 9, page 71).it was found that after participation in the sleep promoting program the average score of stress of the subjects was lower than before participation at a statistically significant level of 0.001.

The explanation is that meditation helps with the changes of hormone and chemical levels in the body. David studied people who practice meditation and found that there was an increase in stability of the automatic nervous system, and they were better in handling stress than those who did not practice meditation (David Orme – John, 1973, cited in Intapuek, S. 2000: 107). Meditation influences the changes of neurotuangnutters secretion level. It causes neurotransmitter 5-HIAA (*Serotoninmetablite) which helps to increase sleeping. On the contrary, meditation helps decrease neurotransmitter VMA (Catecholamine Metabolites), which influences alertness. Catecholamine is a chemical that is related to stress. A decrease in catecholamine secretion may result in a decrease in stress in normal people (Bujatiti and Riederew, 1976 cited in Riupaipoon, W. 2000). From the study on the effect of meditation on the level of blood cortisol level, circulation system, respiratory system and reaction time (Chintanet, W. and others, 1988: 1077), it was found that after meditation practice blood cortisol level decreased causing the level of stress to reduce.

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CHAPTER 6
CONCLUSION

This quasi – experimental research aimed to study the effects of sleep promotion program on quality of sleep and stress in middle aged people. The samples were 60 persons of the middle age who were aged 40-60 years old, had sleep problems, Buddhist religion, had full consciousness, and were the member of health tour of Damnoensaduak Hospital. They were divided into two groups equally, the experimental group who participated in the sleep promotion program, and the control group who did not participate in it . The program was conducted from August to September 2002.

Instruments which were used in this research comprised of research instruments including teaching plan of sleep and Anapanasti meditation manual. Research evaluation instruments included finger thermometer, sphygmomanometer and stethoscope, clock, meditation practice record, and sleep record. Data collection instruments included personal data, sleep behavior evaluation form, sleep problem evaluation form, and stress evaluation form.

The experimental group were learned about sleep, practicing sleep promotion program and data recording technique from the researcher for two weeks and then the samples practiced 45 minutes of sleep promotion program following the manual that the researcher constructed at their home before going to bed at night for 8 weeks. The researcher went to support, help, and advice to the samples one time per week though the experiment. The control group were received the learning about sleep, the data record, and they practice daily life style as usual.

Data collection was performed twice , before and after the experiment, both in the experimental group and control group. The data collected was statistically analyzed by computer with 95% confidence significant(p–value <0.05). The general characteristics of the samples were analyzed by percentage, mean scores, and standard deviation. Mean scores of quality of sleep and stress

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compared the difference by using t-test. The results of the analysis and recommendation are as follow :

1. The general characteristic of the samples.

The mean age of the samples in the experimental group were 57 years old and in the control group 55 years old. Most of the samples were female, had primary education, employee occupation, and had sleep problem at night.

2. The comparison of quality of sleep and stress between the experimental and control group and within the experimental group and control group.

2.1 the quality of sleep

The results of the comparison of mean scores of sleep quality between the experimental and control group showed that there were no difference in mean scores of sleep time between the experimental and control group at before the experiment($p=0.81$). Whereas, there were significant difference of mean scores of sleep time between the experimental and control group after the experiment ($p<0.001$).The mean scores of sleep times of the experimental group were significantly longer than that in the control group at the two weeks to the eight weeks of the experiment when compared by week ($p<0.001$).

The comparison of mean scores of sleep times within the experimental and control group before and after the experiment showed that there were significant differences of mean scores of sleep time before and after the experiment in the experimental group ($p<0.001$). Whereas, there were no differences of mean scores of sleep time at the third to the eighth week of the experiment when compared by week ($p=0.94$).

The comparison of mean scores of the numbers of continuous sleep between and within the experimental group and control group showed that before the experiment, there were not differences of mean scores of the amount of continuous sleep time between the experimental and control group($p=0.12$). After the experiment, there were significant differences between the experimental and control group ($p<0.001$). The experimental group significantly had higher

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mean scores of the number of continuous sleep than in the control group at the third to the eighth week of the experiment when compared by week ($p<0.001$). There were significant differences of mean scores of the amount of continuous sleep before and after the experiment in the experimental group ($p<0.001$).The same as in the control group that there were significantly higher mean scores of the number of continuous sleeps after the experiment than before the experiment ($p<0.05$).

The comparison of mean scores of the fresh feeling after awakening between and within the experimental group and control group showed that There were no differences of the fresh feeling after awakening between the experimental group and control group at before the experiment ($p=0.60$). There were significant differences of the fresh feeling after awakening between the experimental group and control group after the experiment ($p<0.001$). The experimental group had significantly higher mean scores of fresh feeling after awakening than the control group had in the third week to the eighth week of the experiment when compared by week ($p<0.001$). In the experimental group, there were significantly higher mean scores of fresh feeling after awakening after the experiment than before the experiment ($p<0.001$). There were no differences of mean scores of fresh feeling after awakening before and after the experiment ($p=0.12$).

2.2 Stress

The results of the experiment showed that there were significant differences of mean scores of stress both in the experimental and control group before and after the experiment ($p<0.001$). After the experiment, the mean scores of stress were significantly lower than before the experiment in the experimental group ($p<0.001$). Whereas, they were no differences of stress before and after the experiment in the control group ($p=0.056$).

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Recommendations

There were three aspects of recommendation as follow :

1. Management service

The leader of the organization should give the chance to an opportunity health care team to promote the knowledge and skill about meditation by organising the teaching about meditation and continuously practice them for they will bring the knowledge and skill that they were received to spread out it to the service.

2. Service aspect

Meditation should be to used with other aged groups in the community or in the health care service place by using it to appropriately with service f or them for it will be an alternative way to solve the sleep problem and decrease stress of people beside the use of drugs.

3. Education aspect

Meditation practice should be added to nursing lessons such as the self-meditation practice at home for the patients who are discharged from hospitals.

Recommendations for future research

1. Increasing the chapter of prayer will help for longer practicing of meditation.

2. The effect of meditation should be studied in an other health problem beside the sleep problem.

3. The other sleep promotion program should be studied for the alternative practice of the people.

4. The measurement of blood serotonin level before and after the experiment should be used to evaluate the efficiency of the program.

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APPENDIX

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APPENDIX A

- DEMOGRAPHY DATA FORM
- QUESTIONNAIRE
- SLEEP RECORD
- MEDITAION RECORD

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ส่วนที่ 1. แบบสอบถามที่ใช้ในการวิจัย

แบบสอบถาม

ส่วนที่ 1 ข้อมูลพื้นฐาน

คำชี้แจง โปรดทำเครื่องหมาย √ ในช่องหน้าข้อความที่เป็นคำตอบ และเติมข้อความลงในช่องว่างในข้อคำตอบแต่ละข้อความตามความเป็นจริง

1. เพศ

( ) 1. ชาย ( ) 2. หญิง

2. อายุเต็ม……..ปี

3. ศาสนา……..

4. สถานภาพสมรส

( ) 1. โสด ( ) 2. คู่

( ) 3. ม่าย ( ) 4. หย่า

( ) 5. แยกกันอยู่

5. ระดับการศึกษา

( ) 1. ไม่ได้รับการศึกษา ( ) 2. ประถมศึกษา

( ) 3. มัธยมศึกษาตอนต้น ( ) 4. มัธยมศึกษาตอนปลาย

( ) 5. อนุปริญญา ( ) 5. ปริญญาตรี ( ) 6. ปริญญาตรีขึ้นไป

6. อาชีพปัจจุบัน

( ) 1. ไม่มีอาชีพ (เช่นอยู่บ้านเฉยๆ ทำงานบ้าน) ( ) 2. ข้าราชการ

( ) 3. พนักงานรัฐวิสาหกิจ ( ) 4. ค้าขาย ระบุ……

( ) 5. รับจ้าง ระบุ……. ( ) 6. อื่นๆ ระบุ……

( ) 7. เกษตรกรรม ระบุ……

7. ปัจจุบันท่านมีรายได้เดือนละประมาณ…….บาท / เดือน

8. รายได้ของท่านเพียงพอกับรายจ่ายหรือไม่

( ) 1. เพียงพอมีเงินออม ( ) 2. เพียงพอไม่มีเงินออม

( ) 3.ไม่เพียงพอ

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9. ปัจจุบันท่านมีโรคประจำตัวหรือไม่

( ) 1. ไม่มี ( ) 2. มี ระบุ .....รักษาที่ใด.....

10. ยาที่ท่านใช้ทุกวัน

( ) 1.ไม่มี ( ) 2. มี ระบุ .....

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ส่วนที่ 2 พฤติกรรมการนอนหลับ (ในระยะเวลา 2 เดือนที่ผ่านมา)

คำชี้แจง โปรดขีดเครื่องหมาย √ ลงในช่องหน้าข้อความที่เป็นคำตอบตามความเป็นจริง

1 . ปกติท่านเข้านอนในตอนกลางคืนประมาณเวลา

( ) 20.00 นาฬิกา ( ) 21.00 นาฬิกา

( ) 22.00 นาฬิกา ( ) 23.00 นาฬิกา

( ) 24.00 นาฬิกา ( ) อื่น ๆ ระบุ …….

2. ปกติท่านตื่นนอนในตอนเช้าประมาณเวลา

( ) 04.00 นาฬิกา ( ) 05.00 นาฬิกา

( ) 06.00 นาฬิกา ( ) 07.00 นาฬิกา

( ) 08.00 นาฬิกา ( ) อื่นๆ ระบุ …….

3 . ท่านใช้เวลาในการนอนหลับตอนกลางคืนประมาณ

( ) 4 – 5 ชั่วโมง ( ) 5 - 6 ชั่วโมง

( ) 6 - 7 ชั่วโมง ( ) 7 – 8 ชั่วโมง

( ) มากกว่า 8 ชั่วโมงขึ้นไป ( ) อื่นๆ ระบุ……

4 . เวลานอนหลับในตอนกลางคืนท่านต้อง

( ) ปิดไฟ ( ) เปิดไฟ

( ) ปิดหรือเปิดไฟก็ได้ ( ) อื่นๆ ระบุ……

5 . ท่านต้องใช้เวลานานเท่าใดเริ่มตั้งแต่ขึ้นนอนบนเตียงจนนอนหลับ

( ) ½ ชั่วโมง ( ) 1 ชั่วโมง

( ) 2 ชั่วโมง ( ) 3 ชั่วโมง

( ) มากกว่า 3 ชั่วโมง ( ) อื่น ๆ ระบุ……..

6.ปัจจุบันท่านมีอาการหลับยากในตอนกลางคืน

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อยๆ ( ) เป็นประจำ

( ) อื่น ๆ ระบุ……

7.ท่านตื่นนอนในตอนกลางคืน

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อย ๆ ( ) เป็นประจำ

( ) อื่น ๆ ระบุ……..

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8.ท่านรู้สึกสดชื่นเสมอหลังจากนอนในตอนกลางคืนและตื่นขึ้นในตอนเช้า

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อย ๆ ( ) เป็นประจำ

( ) อื่น ๆ ระบุ……..

9.ท่านนอนงีบในเวลากลางวัน

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อย ๆ ( ) เป็นประจำ

( ) อื่น ๆ ระบุ…….

10.ท่านนอนงีบในเวลากลางวันแต่ละครั้งนาน

( ) 10 –15 นาที ( ) 15 – 30 นาที

( ) 30 นาทีขึ้นไป ( ) อื่น ๆ ระบุ…….

11.ท่านรู้สึกสดชื่นเสมอหลังจากได้นอนงีบหลับตอนกลางวัน

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อย ๆ ( ) เป็นประจำ

( ) อื่นๆ ระบุ……

12.ท่านนอนฝันในขณะนอนงีบในตอนกลางวัน

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อยๆ ( ) เป็นประจำ

( ) อื่นๆ ระบุ……..

13.ท่านเคยปัสสาวะรดที่นอน

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อยๆ ( ) เป็นประจำ

( ) อื่นๆ ระบุ…….

14.ท่านเคยนอนตกเตียง (ถามเฉพาะผู้ที่นอนเตียง)

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อยๆ ( ) เป็นประจำ

( ) อื่นๆ ระบุ…….

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15.ก่อนนอนพลิกตะแคงตัวบ่อย

( ) ไม่เคยเลย ( ) เป็นครั้งคราว

( ) เป็นบ่อยๆ ( ) เป็นประจำ

( ) อื่น ๆ ระบุ…….

16.ก่อนนอนท่านทำกิจกรรมใดบ้าง (ตอบได้มากกว่า 1 ข้อ)

( ) ดื่มเครื่องดื่มร้อนๆ ( ) อ่านหนังสือประเภทเบาสมอง

( ) เดินเล่นเล็กน้อย ( ) สวดมนต์ทำสมาธิ

( ) ดูโทรทัศน์ หรือฟังวิทยุ ( ) อื่น ๆ ระบุ……

17.สภาพแวดล้อมรอบบ้านมีสิ่งรบกวน (ตอบได้มากกว่า 1 ข้อ)

( ) ติดถนน ( ) ใกล้ตลอดโต้รุ่ง ( ) อยู่ย่านชุมชนค้าขาย ( ) อื่นๆระบุ……..

18.ปกติท่านนอนในห้องนอน

( ) คนเดียว ( ) หลายคน ( ) หลายครอบครัว ( ) เบียดกัน

( ) อื่น ๆ ระบุ …….

19.บรรยากาศในห้องนอน (ตอบได้มากกว่า 1 ข้อ)

( ) อากาศถ่ายเทได้ดี ( ) เหม็นอับชื้น ( ) มืดสลัวๆ

( ) อื่นๆ ระบุ …….

20.อุณหภูมิในห้องนอน

( ) เย็นสบาย ( ) หนาวเกินไป ( ) ร้อนเกินไป ( ) ร้อนอบอ้าว

( ) อื่น ๆ ระบุ …….

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ส่วนที่ 3 ปัญหาการนอนหลับและแนวทางแก้ไข

คำชี้แจง โปรดขีดเครื่องหมาย √ ลงในช่องว่างข้อความที่เป็นคำตอบตามความจริง และเติมข้อความลงในช่องว่างในข้อคำตอบแต่ละข้อที่มีปัญหา

ปัญหา	ระดับอาการ				วิธีการแก้ไขของท่าน
	ไม่เคยเลย (0)	เป็นครั้งคราว (1)	เป็นบ่อยๆ (2)	เป็นประจำ (3)	
1.นอนหลับยาก					
2.นอนหลับๆ ตื่นๆ					
3.เวลานอนหลับไม่เป็นเวลา					
4.ก่อนเข้านอนท่านมีเรื่องทำให้คิดมาก จนนอนไม่หลับ					
5.ตื่นนอนกลางดึกแล้ว นอนหลับต่อยาก หรือนอนไม่หลับ					
6.กล้ามเนื้อขากระตุกในขณะที่นอนหลับ					
7.มีอะไรมาทับที่หน้าอกในขณะนอนหลับ					
8.เหงื่อออกมากในขณะ นอนหลับ					
9.นอนกรน					
10.หยุดหายใจบางครั้งในขณะนอนหลับ					
11.นอนมากกว่าคนอื่นในวัยเดียวกัน					
12.รู้สึกหายใจไม่ค่อยออกในขณะนอนหลับ					

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ปัญหา	ระดับอาการ				วิธีการแก้ไขของท่าน
	ไม่เคยเลย (0)	เป็นครั้งคราว (1)	เป็นบ่อยๆ (2)	เป็นประจำ (3)	
13.เป็นตะคริวที่ขาขณะนอนหลับ					
14.นอนกัดฟัน					
15.เดินละเมอ					
16.นอนฝันทุกคืน					
17. นอนฝันร้ายทุกคืน					
18.นอนละเมอ					
19.ตื่นละเมอ(จากการบอกเล่าของผู้ใกล้ชิด)					
20.มีโรคประจำตัวทำให้นอนไม่หลับ					
21.ปัญหาด้านการเงินของท่านทำให้คิดมากจนนอนไม่หลับ					
22.บุคคลในครอบครัวทำให้ท่านคิดมากจนนอนไม่หลับ					

23. ปัญหาการนอนหลับอื่นๆที่ท่านมีนอกเหนือจากข้อ 1 – 22

1. …….

2. …….

3. …….

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ส่วนที่ 4. แบบประเมินและวิเคราะห์ความเครียด

คำชี้แจง โปรดขีดเครื่องหมาย √ ลงในช่องแสดงระดับอาการที่เกิดขึ้นกับท่านตามความเป็นจริงมากที่สุดในระยะเวลา 2 เดือนที่ผ่านมานี้ ท่านมีอาการ พฤติกรรมหรือความรู้สึกต่อไปนี้มากน้อยเพียงใด

อาการหรือพฤติกรรม	ระดับ อาการ / พฤติกรรม / ความรู้สึก				วิธีแก้ไขของท่าน
	ไม่เคยเลย (0)	เป็นครั้งคราว	เป็นบ่อย (2)	เป็นประจำ (3)	
1. นอนไม่หลับเพราะคิดมากหรือกังวล					
2 .รู้สึกหงุดหงิดรำคาญใจ					
3. ทำอะไรไม่ได้เลยเพราะประสาทตึงเครียด					
4. มีความวุ่นวายใจ					
5. ไม่อยากพบปะผู้คน					
6. ปวดหัวข้างเดียว หรือปวดบริเวณขมับทั้ง 2 ข้าง					
7. รู้สึกไม่มีความสุขและเศร้าหมอง					
8. รู้สึกหมดหวังในชีวิต					
9. รู้สึกว่าชีวิตตนเองไม่มีคุณค่า					
10 . กระวนกระวายตลอดเวลา					
11 . รู้สึกว่าตนเองไม่มีสมาธิ					
12 . รู้สึกเพลียจนไม่มีแรง					

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อาการหรือพฤติกรรม	ระดับ อาการ / พฤติกรรม / ความรู้สึก				วิธีแก้ไขของท่าน
	ไม่เคยเลย (0)	เป็นครั้งคราว (1)	เป็นบ่อย ๆ (2)	เป็นประจำ (3)	
13. รู้สึกเหนื่อยหน่ายจนไม่อยากทำอะไร					
14. มีอาการหัวใจเต้นแรง					
15. เสียงสั่น ปากสั่น หรือมือสั่นเวลาไม่พอใจ					
16. รู้สึกกลัวผิดพลาดในการทำสิ่งต่าง ๆ					
17. ปวดหรือเกร็งกล้ามเนื้อบริเวณท้ายทอยหลังไหล่					
18. ตื่นเต้นง่ายกับเหตุการณ์ไม่คุ้นเคย					
19. มึนงงหรือเวียนศีรษะ					
20. ความสุขทางเพศลดลง					

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No……

ส่วนที่ 2.แบบสอบถามที่ใช้เก็บข้อมูลเพิ่มเติม

แบบบันทึกการนอนหลับ

ว.ด.ป	เวลาเข้านอน	เวลาตื่นนอน	ลักษณะการนอนหลับ			ความรู้สึกสดชื่นหลังตื่นนอน		จำนวนชั่วโมงการนอนหลับ / คืน
			นอนหลับสนิท	นอนหลับๆตื่นๆ	นอนไม่หลับ	สดชื่น	ไม่สดชื่น	

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No. ……..

แบบบันทึกการฝึกสมาธิ

ความดันโลหิต ชีพจร การหายใจและอุณหภูมิปลายนิ้ว

ว.ด.ป.	ความดันโลหิต (มม.ปรอท)		ชีพจร (ครั้ง/นาที)		การหายใจ(ครั้ง/นาที)		อุณหภูมิปลายนิ้ว (องศาฟาเรนไฮน์)	
	ก่อนทดลอง	หลังทดลอง	ก่อนทดลอง	หลังทดลอง	ก่อนทดลอง	หลังทดลอง	ก่อนทดลอง	หลังทดลอง

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เรียน ผู้ตอบแบบสอบถาม

เรื่อง ขอความร่วมมือในการตอบแบบสอบถาม

ด้วยดิฉัน นางสาว ศิริรัตน์ ศิริเลิศ นักศึกษาหลักสูตรวิทยาศาสตรมหาบัณฑิต สาขาการพยาบาลสาธารณสุข มหาวิทยาลัยมหิดล ได้เห็นถึงปัญหาการนอนหลับและความเครียดในวัยกลางคน ทำให้ดิฉันสนใจศึกษาวิจัยเรื่อง ผลของโปรแกรมส่งเสริมการนอนหลับโดยการปฏิบัติสมาธิต่อความเครียดและคุณภาพการนอนหลับของวัยกลางคน

ดังนั้นดิฉันขอความกรุณาจากท่าน โปรดกรุณาสละเวลาให้ความร่วมมือในการตอบแบบสอบถามตามสภาพความเป็นจริง ความรู้สึกและการกระทำที่แท้จริงของท่าน ซึ่งคำตอบที่ได้จะไม่มีถูกหรือผิด และไม่มีผลกระทบต่อท่านแต่อย่างใด เพราะจะเก็บข้อมูลเป็นความลับและสรุปคำตอบที่ได้เป็นภาพรวม เพื่อใช้เป็นประโยชน์ในการวางแผนส่งเสริมสุขภาพของวัยกลางคนต่อไป

ท้ายที่สุดนี้ขอขอบคุณในความร่วมมือของท่านเป็นอย่างดี

นางสาว ศิริรัตน์ ศิริเลิศ
นักศึกษาหลักสูตรวิทยาศาสตรมหาบัณฑิต
คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล

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แบบฟอร์มใบยินยอมให้ทำการวิจัยในมนุษย์

การวิจัยเรื่อง ผลของโปรแกรมส่งเสริมการนอนหลับโดยการปฏิบัติสมาธิต่อความเครียดและคุณภาพการนอนหลับในวัยกลางคน

วันที่ให้คำยินยอม วันที่……เดือน……พ.ศ. ……

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย อันตราย หรืออาการที่อาจเกิดขึ้นจากการวิจัยหรือจากยาที่ใช้ รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด และมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่าง ๆที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบัง ซ่อนเร้น จนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิจะบอกเลิกการเข้าร่วมในโครงการวิจัยนี้เมื่อใดก็ได้ และการบอกเลิกการเข้าร่วมการวิจัยนี้ จะไม่มีผลต่อข้าพเจ้า

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปที่เป็นผลสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้องกระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ผู้วิจัยรับรองว่าหากเกิดอันตรายใดๆ อันเนื่องจากการวิจัยดังกล่าว ข้าพเจ้าจะได้รับการรักษาพยาบาลโดยไม่คิดมูลค่าตามมาตรฐานวิชาชีพ และจะได้รับการชดเชยรายได้ที่สูญเสียไประหว่างการรักษาพยาบาลดังกล่าว ตลอดจนเงินทดแทนความพิการที่เกิดขึ้น

ผู้วิจัยรับรองว่าหากว่ามีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการวิจัย ข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบัง ซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม……..ผู้ยินยอม

ลงนาม……..พยาน

ลงนาม……..พยาน

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ข้าพเจ้าไม่สามารถอ่านหนังสือได้ แต่ผู้วิจัยได้อ่านข้อความในใบยินยอมนี้ให้แก่ข้าพเจ้าฟังจนเข้าใจดีแล้ว และข้าพเจ้าจึงลงนามหรือประทับลายนิ้วหัวแม่มือขวาของข้าพเจ้าในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม..... ผู้ยินยอม

ลงนาม..... พยาน

ลงนาม.....พยาน

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APPENDIX B

- COMPARISON BIOFEEDBACK

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ตาราง 10 ผลการทดสอบความแตกต่างค่าเฉลี่ยอุณหภูมิปลายนิ้วของกลุ่มทดลองก่อนและหลังการทดลอง

การทดสอบ	ก่อนการทดลอง		หลังการทดลอง		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
อุณหภูมิปลายนิ้ว	90.9	0.78	94.1	0.86	40.7	0.000*

* $p < 0.001$

ตาราง 11 ผลการทดสอบความแตกต่างค่าเฉลี่ยชีพจรของกลุ่มทดลองก่อนและหลังการทดลองในสัปดาห์ที่ 1 - 8

สัปดาห์ที่	ก่อนการทดลอง		หลังการทดลอง		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
1	77.53	8.35	78.27	6.90	1.14	0.26
2	82.00	4.23	80.13	5.20	4.47	0.000*
3	82.4	6.29	80.93	5.89	2.58	0.015
4	83.20	4.74	80.33	5.15	13.81	0.000*
5	83.13	5.23	79.93	6.63	12.10	0.000*
6	83.60	4.77	80.33	4.87	13.37	0.000*
7	83.13	5.62	79.73	5.62	14.29	0.000*
8	83.13	5.19	79.80	5.05	16.69	0.000*

* $p < 0.001$

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ผลตาราง 12 ผลการทดสอบความแตกต่างของความดันโลหิตก่อนและหลังการทดลอง

การทดสอบ	ก่อนการทดลอง		หลังการทดลอง		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
ซีสโตลิค	121.5	11.61	115.1	11.74	15.13	0.000*
ไดแอสโตลิค	70	4.19	65.8	9.01	2.70	0.01

* $p < 0.001$

ตาราง 13 ผลการทดสอบความแตกต่างคะแนนเฉลี่ย ระดับความดันโลหิตของกลุ่มทดลองก่อนและหลังการทดลองในสัปดาห์ที่ 1 – 8

ความดันโลหิต	ก่อนปฏิบัติสมาธิ		หลังปฏิบัติสมาธิ		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
สัปดาห์ที่ 1						
ซีสโตลิค (Systolic)	129.33	16.80	124.00	19.40	3.11	0.004
ไดแอสโตลิค(Diastolic)	74.33	11.65	68.67	9.00	4.26	0.000*
สัปดาห์ที่ 2						
ซีสโตลิค (Systolic)	125.00	14.56	119.67	12.17	5.75	0.000*
ไดแอสโตลิค(Diastolic)	72.67	8.28	70.67	12.85	0.90	0.37
สัปดาห์ที่ 3						
ซีสโตลิค (Systolic)	125.67	16.33	130.33	13.65	0.99	0.326
ไดแอสโตลิค(Diastolic)	70.00	7.88	66.00	13.29	1.75	0.09
สัปดาห์ที่ 4						
ซีสโตลิค (Systolic)	119.00	14.70	110.06	9.00	20.13	0.000*
ไดแอสโตลิค(Diastolic)	70.67	7.85	64.67	9.00	3.84	0.001

* $p < 0.001$

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ตาราง 13 ผลการทดสอบความแตกต่างคะแนนเฉลี่ย ระดับความดันโลหิตของกลุ่มทดลองก่อนและหลังการทดลองในสัปดาห์ที่ 1 – 8 (ต่อ)

ความดันโลหิต	ก่อนปฏิบัติสมาธิ		หลังปฏิบัติสมาธิ		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
สัปดาห์ที่ 5						
ซีสโตลิค (Systolic)	118.33	11.77	111.33	12.79	8.22	0.000*
ไดแอสโตลิค(Diastolic)	70.67	6.91	64.67	10.08	2.98	0.006
สัปดาห์ที่ 6						
ซีสโตลิค (Systolic)	119.33	11.12	111.67	12.89	9.76	0.000*
ไดแอสโตลิค(Diastolic)	67.67	6.79	64.00	8.55	2.36	0.025
สัปดาห์ที่ 7						
ซีสโตลิค (Systolic)	117.67	9.35	109.33	11.43	2.09	0.000*
ไดแอสโตลิค(Diastolic)	69.67	6.69	65.00	1.78	2.53	0.017
สัปดาห์ที่ 8						
ซีสโตลิค (Systolic)	118.00	9.61	109.00	10.94	10.25	0.000*
ไดแอสโตลิค(Diastolic)	67.33	6.40	62.00	7.61	2.89	0.007

* $p < 0.001$

ตาราง 14 ผลการทดสอบความแตกต่างค่าเฉลี่ยอุณหภูมิปลายนิ้วของกลุ่มทดลองในสัปดาห์ที่ 1 - 8

สัปดาห์ที่	ก่อนการทดลอง		หลังการทดลอง		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
1	92.20	2.12	94.60	2.69	7.76	0.000*
2	91.27	1.62	94.07	1.78	12.33	0.000*
3	91.00	1.36	94.00	1.58	14.35	0.000*
4	91.20	1.63	95.13	1.80	16.10	0.000*
5	90.73	1.11	94.37	1.90	12.21	0.000*
6	90.33	1.30	93.87	2.03	13.29	0.000*
7	90.53	1.17	94.40	1.69	16.55	0.000*
8	90.53	1.04	94.00	1.82	12.09	0.000*

* $p < 0.001$

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ตาราง 15 ผลการทดสอบความแตกต่างค่าเฉลี่ยอัตราการหายใจของกลุ่มทดลองก่อนและหลังการทดลอง

การทดสอบ	ก่อนการทดลอง		หลังการทดลอง		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
การหายใจ	20.78	0.73	19.34	0.53	16.8	0.000*

* $p < 0.001$

ตาราง 16 ผลการทดสอบความแตกต่างค่าเฉลี่ยอัตราการหายใจของกลุ่มทดลองก่อนและหลังการทดลองในสัปดาห์ที่ 1 - 8

สัปดาห์ที่	ก่อนการทดลอง		หลังการทดลอง		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
1	20.53	1.57	19.73	1.36	3.24	0.003
2	20.80	1.13	19.93	0.37	4.17	0.000*
3	20.87	1.25	19.80	0.96	5.75	0.000*
4	20.87	1.14	19.27	1.11	7.59	0.000*
5	21.07	1.46	19.27	1.34	9.00	0.000*
6	21.20	1.45	18.87	1.01	9.86	0.000*
7	21.13	1.36	18.80	1.35	13.85	0.000*
8	20.87	1.25	18.73	0.98	10.01	0.000*

* $p < 0.001$

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ตาราง 17 ผลการทดสอบความแตกต่างค่าเฉลี่ยชีพจรของกลุ่มทดลองก่อนและหลังการทดลอง

การทดสอบ	ก่อนการทดลอง		หลังการทดลอง		t	p- value
	$\overline{X}$	SD	$\overline{X}$	SD		
ชีพจร	82.31	5.26	79.65	5.57	17.58	0.000*

* $p < 0.001$

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APPENDIX C

- TEACHING PLAN OF SLEEP
- TEACHING PLAN OF SLEEP PROMOTING BY MEDITATION

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เนื้อหาการให้ความรู้เรื่องการนอนหลับ

สุขภาพ หรือภาวะแห่งความสุข ทั้งทางกาย ทางใจ และสังคม (ซึ่งรวมถึงสิ่งแวดล้อม) ของคนใดย่อมเกิดขึ้นกับความสามารถพื้นฐานอย่างน้อย 4 ประการ คือ กินได้ นอนได้ ถ่ายได้ และทำได้ ทั้ง 4 ประการนี้เป็นอย่างน้อย คนคนนั้นจึงจะมีสุขภาพดีได้

การนอน โดยเฉพาะการนอนหลับให้ดีจึงเป็นปัจจัยสำคัญที่สุดอย่างหนึ่งสำหรับสุขภาพ ผู้ที่นอนหลับไม่พอหรือนอนหลับเกินพอ จะทำให้สุขภาพทรุดโทรมลงและเกิดโรคต่างๆ ตามมา

การนอนหลับ หมายถึง การหยุดพักของร่างกาย ชั่วครั้งชั่วคราวโดยไม่รู้สึกตัวและมักร่วมด้วย การนอนราบ การงีบ หลับตา กรน หรืออากัปกริยาใดๆที่แสดงว่าหลับแล้ว

การนอนหลับแต่ละคืนของมนุษย์มีรูปแบบการนอนที่เป็นธรรมชาติประจำหรือลักษณะเฉพาะ อย่างไรก็ตาม มีปัจจัยหลายอย่างที่มีผลกระทบต่อแบบแผนและปริมาณการนอนหลับ ได้แก่ การเจ็บป่วยด้วยโรคบางโรค ปัญหาด้าน จิตใจ การได้รับยาบางชนิด การอดนอนคืนก่อนๆ สิ่งแวดล้อมในการนอน รวมทั้งอายุด้วย โดยธรรมชาติแล้วการนอนหลับของ คนเราจะลดลงตามอายุที่เพิ่มขึ้น ในวัยทารกแรกเกิด จะใช้เวลานาน 16 – 17 ชั่วโมง / วัน และลดลงเหลือประมาณ 8.5 ชั่วโมง / วัน เมื่ออายุ 16 ปี จะเหลือประมาณ 7 – 8 ชั่วโมง / วัน ในคนสูงอายุ จะเหลือประมาณ 6.5 ชั่วโมง / วัน

คนที่หลับได้เต็มอิ่ม จะรู้สึกแจ่มใส สดชื่น โดยที่ความต้องการของแต่ละคนไม่เหมือนกัน บางคนนอนเพียงวันละ 4 ชั่วโมง ก็เต็มอิ่ม แต่บางคนอาจต้องนอน นาน 7ชั่วโมง ถึงจะกระปรี้กระเปร่า

ลักษณะการนอนหลับของคนปกติ

โดยปกติ การนอนหลับของคนเราแบ่งเป็น 2 ลักษณะ คือ

1. หลับแบบตาไม่กระตุก non – rapid eye movement sleep (NREM)
2. หลับแบบตากระตุก rapid eye movement sleep (REM)

เมื่อคนเราเริ่มหลับ การหลับจะเริ่มด้วยแบบแรก ประมาณ 60 – 90 นาที แล้วจะเปลี่ยนเป็นแบบที่ 2 ประมาณ 5 – 10 นาที แล้วสลับกันไปเป็นแบบแรกใหม่ กลับไปกลับมา เรื่อยไป โดยช่วงแบบที่ 1 จะสั้นลงๆ และแบบที่ 2 จะยาวขึ้นๆ เมื่อใกล้ตื่น

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การนอนหลับแบบตาไม่กระตุก

แบ่งออกเป็น 4 ลักษณะ ตามลักษณะคลื่นไฟฟ้าสมอง

- ระยะที่ 1 ซึ่งกินเวลาประมาณ 7 นาที คลื่นไฟฟ้าสมอง เริ่มช้าลง ระยะนี้ปลุกให้ตื่นง่ายแค่เรียกชื่อเบา ๆ ก็ตื่นแล้ว

- ระยะที่ 2 กินเวลาประมาณ 10 - 25 นาที คลื่นไฟฟ้าสมอง ช้าลงไปอีก เป็นลักษณะคลื่นหลับ (Sleep spindles) ปลุกยากขึ้น

*** คนที่อยู่ในระยะที่ 1 – 2 นี้คือคนที่กำลังจะหลับ หรือหลับๆ ตื่นๆ ตาจะกลอกไปมาช้า ๆ ใต้หนังตาที่ปิดอยู่ การหายใจไม่สม่ำเสมอ และอาจหยุดหายใจเป็นพักๆ

- ระยะที่ 3 กินเวลาเพียงไม่กี่นาที คลื่นไฟฟ้าสมองช้าลง และกว้างขึ้นมาก

- ระยะที่ 4 กินเวลาประมาณ 20 - 40 นาทีคลื่นไฟฟ้าสมองช้าลง และกว้างมากขึ้น

***ในระยะที่ 3 –4 เป็นระยะหลับสนิท (Deep sleep) ตาทั้งสองข้างหยุดการเคลื่อนไหว หายใจเปลี่ยนเป็นสม่ำเสมอและช้าลงๆ หัวใจ (ชีพจร) เต้นช้าลงๆ ความดันเลือดลดลงกล้ามเนื้ออ่อนตัวลง ปลุกให้ตื่นได้ยาก หรืออาจปลุกไม่ตื่น จนกว่าจะผ่านพ้น การหลับในระยะที่ 4 แล้วคนที่ถูกปลุกแรง ๆ ให้ตื่นในระยะนี้ จะสับสน หลง เลอะเลือน หรือละเมอเพ้อพกหรือจำสิ่งที่ตนทำไม่ได้เลย เช่น เดินละเมอ ปัสสาวะรดที่นอน หรือขบเคี้ยวฟันขณะหลับ พอพ้นระยะหลับสนิท ก็จะถอยกลับมาสู่ระยะที่ 2 และ 1 โดยช่วงถอยนี้ จะสั้นกว่าตอนแรกกิน เวลาเพียง 5 – 10 นาที จากนั้นจะเปลี่ยนเป็นช่วงหลับแบบตากระตุก โดยคนที่หลับอาจจะพลิกตัว ขยับตัว เปลี่ยนท่านอน แล้วหลับต่อ คืนหนึ่ง ๆ อาจจะมีการพลิกตัว ขยับตัว อย่างน้อย 8 – 9 ครั้ง ซึ่งบางคน อาจเข้าใจว่าเขานอนไม่หลับทั้ง ๆ ที่หลับสนิท

การนอนหลับแบบตากระตุก

เป็นการหลับที่ คลื่นไฟฟ้าในสมอง มีลักษณะเหมือนกับ ขณะตื่นอยู่ แต่กล้ามเนื้อทั่วตัวอ่อนแรงลงมาก เหมือนเป็นอัมพาต ยกเว้นกล้ามเนื้อที่กระตุกเป็นพักๆ จึงเรียกว่า สมองตื่นในร่างที่เป็นอัมพาต ช่วงนี้การหายใจไม่สม่ำเสมอและช้าลงกว่าแบบที่ 1 การเต้นของหัวใจ ชีพจร เร็วขึ้น ความดันเลือดสูงขึ้น โดยเฉพาะในขณะที่ตากระตุกเป็นพักๆ ช่วงนี้ ปลุกให้ตื่นง่าย หรืออาจตื่นเองและมักจำความฝันต่าง ๆในช่วงก่อนตื่นได้ การหลับแบบตากระตุกกินเวลา 1 –5 นาทีในครั้งแรก และจะนานขึ้นๆ นานถึง 20 –40นาทีได้เมื่อใกล้ตื่น

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อาการหลับที่ไม่ปกติ

แบ่งออกเป็น ดังนี้

ก . อาการนอนไม่หลับ หรือหลับไม่พอ (insommia) ซึ่งอาจเกิดจาก

1. ปัญหาทางจิตใจ เช่น ความเครียด ความห่วงกังวล เป็นต้น
2. โรคจิตโรคประสาท เช่น โรคซึมเศร้า โรคจิตเภท โรคประสาทต่าง ๆ รวมทั้งการที่คิดว่าตนเองนอนไม่หลับทั้งที่หลับได้ดี เป็นต้น
3. ยาหรือสิ่งมีฤทธิ์ต่อจิตประสาท เช่นการกิน ยาบ้า การดื่มชา กาแฟ โรคพิษสุรา เรื้อรัง การหยุดยากล่อมประสาทหรือยานอนหลับ เป็นต้น
4. การหายใจผิดปกติ เช่นหยุดหายใจขณะหลับ การหายใจไม่พอขณะหลับ เป็นต้น
5. การกระตุกของขาหรือส่วนอื่น เช่น อาการขากระตุกขณะหลับ อาการกล้ามเนื้อกระตุกขณะหลับ เป็นต้น
6. การเจ็บป่วยด้วยโรคที่ทำให้เกิดอาการตลอดเวลา หรือมีอาการมากขณะหลับ เช่น โรคข้ออักเสบ หอบหืด เป็นต้น
7. การรบกวนจากภายนอก เช่น คู่นอน แสง เสียง ความร้อน ความเย็น เป็นต้น
8. อื่น ๆ เช่น หลับยาก หรือหลับน้อยตั้งแต่เด็ก นอนผิดเวลา หรือผิดสถานที่บินข้ามทวีป เป็นต้น

ข. อาการหลับมาก หรือง่วงเหงาหาวนอนมาก (hypersomia) ซึ่งอาจเกิดจาก

1. ปัญหาทางจิตใจ เช่น เบื่อหน่าย เซ็ง ท้อถอย ซึมเศร้า เกียจคร้าน เป็นต้น
2. โรคจิตโรคประสาท เช่น โรค ซึมเศร้า โรคจิตเภท
3. ยาหรือสิ่งมีฤทธิ์ต่อจิตประสาท เช่น กินยากล่อมประสาทหรือยานอนหลับ การดื่มสุรา การหยุดกินยาบ้า หรือ ยาบ้าหมดฤทธิ์ เป็นต้น
4. การหายใจผิดปกติ ทำให้หลับไม่สนิทเวลากลางคืน จึงง่วงเหงาหาวนอน และหลับเวลากลางวันมาก
5. การกระตุกของขาหรือส่วนอื่น ทำให้หลับไม่สนิทเวลากลางคืน จึงง่วงเหงา หาวนอน และหลับเวลากลางวันมาก
6. โรคลมหลับ (narcolepsy)
7. การเจ็บป่วยอื่นๆ โดยเฉพาะโรคที่ทำให้สมองและระบบประสาททำงานน้อยลง เช่น โรคสมองเสื่อม โรคธัยรอยด์ โรคตับ โรคไตบางระยะ เป็นต้น
8. สิ่งแวดล้อม เช่นบรรยากาศชวนนอน การทำงานที่น่าเบื่อหน่าย เป็นต้น

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9. การอดนอน
10. อื่นๆ เช่น โรคขี้เซา ง่วง เป็นต้น

ค. อาการในขณะหลับ (parasomnia) เช่น

1. เดินละเมอ
2. ละเมอ
3. ฝันร้าย
4. ปัสสาวะขณะหลับ
5. ขบเขี้ยวเคี้ยวฟันขณะหลับ
6. โขกศีรษะขณะหลับ
7. ผีอำ
8. ปวดศีรษะ
9. อื่น ๆ เช่นหอบเหนื่อยกลางคืน เจ็บแน่นหน้าอกกลางคืน ขย้อนขณะหลับ เป็นต้น

ทำอย่างไร....ให้นอนหลับ

1. เลิกเครียด ปัญหาทางจิตใจ เช่น ความวิตกกังวล ห่วงใย ตื่นเต้น ดีใจ เสียใจ รัก โลภ โกรธ หลง ล้วนทำให้นอนไม่หลับ ได้ทั้งนั้น
2. ห้ามนอนกลางวัน โดยเฉพาะคนที่ชอบงีบกลางวัน และนอนไม่หลับกลางคืน ยกเว้นผู้สูงอายุ เกิน 60 ปี ขึ้นไป การนอนหลับตอนกลางคืนอาจลดลงเหลือเพียง 3 – 4 ชั่วโมง

แต่จะมีการนอนหลับในตอนกลางวัน เพิ่มขึ้น บางคนอาจหลับ กลางวันมากกว่ากลางคืน และเมื่ออายุมากขึ้น ๆ ก็อาจจะนอนหลับนาน ๆ ทั้งกลางวันและกลางคืน

3. ออกกำลังกาย ตามควร แก่อัตตภาพ ในตอนเย็น จะทำให้หลับได้ดี ในตอนกลางคืน
4. ระวังอาหารเย็น กล่าวกันว่า ยากล่อมประสาทที่ดีที่สุดในโลก คือ อาหารที่ถูกปาก

ข้อควรจำ คือ กินอาหารเย็นแต่พอให้หายหิว อย่าอิ่มมาก หลีกเลี่ยงอาหารย่อยยากและอาหารรสจัด ไม่ควรดื่มชา กาแฟ หรือเครื่องดื่มที่มีสารกระตุ้นประสาท จะทำให้หลับยาก

ถ้านอนดึกและรู้สึกหิว ให้ดื่มนมสด หรือน้ำเต้าหู้สักถ้วย ก่อนนอนจะทำให้หลับ สบายขึ้น

5. ห้ามเข้านอนและห้ามขึ้นเตียงจนกว่าจะง่วง
6. อย่านอนผิดเวลา และเข้านอนทันทีที่ง่วง

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7. ใช้ความเบื่อหน่ายให้เป็นประโยชน์ เชื่อกันว่า สิ่งใดที่มีจังหวะสม่ำเสมอ จะก่อให้เกิดความเบื่อหน่าย และก่อความง่วงเหงาหาวนอนได้ หนังสือก็เป็นอีกอย่างหนึ่งที่ช่วยได้โดยต้องหาหนังสือที่ชวนง่วง คือ เริ่มต้นดีเร้าความสนใจ แล้วเริ่มเชื่องช้าหน้าเบื่อ จนหลับได้ในที่สุด

8. ให้คนบีบนวดเบา ๆ หรือกดจุด จะรู้สึกสบาย ช่วยให้นอนหลับ

9. สร้างความคุ้นเคยและสร้างบรรยากาศในห้องนอน จะทำให้หลับดีขึ้น

10. สงบจิตใจ ถ้าจิตใจไม่สงบง่ายๆ ก็อาจใช้วิธี นับแกะกระโดดข้ามรั้ว ห้ามนับพลาดหรือนับเลขต่อไปเรื่อยๆ 1-2-3-4-5 เรียงไปเรื่อยๆ ถ้าพลาดก็กลับมานับใหม่เริ่มต้นที่ 1 บางคนอาจเลือก ทำสมาธิ รู้ลมหายใจ เข้าออกไปเรื่อยๆ บางคนใช้วิธีสวดมนต์ หรือท่องบ่นคาถาที่ถนัดซ้ำไปซ้ำมาก็ได้

เนื้อหาการให้ความรู้เรื่อง การปฏิบัติสมาธิเพื่อส่งเสริมการนอนหลับ

การทำสมาธิ และการสวดมนต์ เป็นวิธี หนึ่ง ที่ช่วยให้นอนหลับได้ง่ายและหลับสบาย เนื่องจาก ได้ผ่อนคลายทั้งร่างกายและจิตใจ

สมาธิ หมาย ถึงความตั้งมั่นแห่งจิต ตามปกติมนุษย์นั้นมีสมาธิโดยธรรมชาติอยู่ในตัวอยู่แล้วหากจะดียิ่งขึ้นหากได้รับการฝึกฝนทำบ่อย ๆจนเกิดความเคยชินจนรู้สึกเป็นอัตโนมัติ

การทำสมาธิเป็นเรื่องสากลไม่ใช้เรื่องของศาสนาใดศาสนาหนึ่ง ปัจจุบันชาวคริสเตียนและคาธอลิกก็มีการทำสมาธิเช่นกันซึ่งปฏิบัติได้หลายทางไม่ว่าจะกำหนดลมหายใจหรืออะไรก็ได้ที่เป็นอุบายทำให้จิตใจสงบ สำหรับผู้ที่ไม่เคยทำสมาธิและมีความเคร่งเครียดอยู่มาก การสวดมนต์อาจจะช่วยได้เนื่องจากภาษาที่สวดเป็นคำยาก การจะสวดได้ต้องอาศัยสมาธิเป็นที่ตั้งจึงเหมาะกับผู้ที่ต้องการเริ่มต้นทำสมาธิ

การสวดมนต์บทพุทธคุณเป็นวิธีหนึ่งที่ใช้ในการทำสมาธิเพื่อช่วยให้จิตใจสงบนิ่งผ่อนคลาย ดังนั้นผู้จัดทำจึงนำบทสวดมนต์พุทธคุณมาใช้รวมกับอานาปานสติ (การมีสติรับรู้ตามการหายใจเข้าออก) เพื่อช่วยให้ผู้ฝึกจิตเป็นสมาธิได้เร็วขึ้น

วัตถุประสงค์ของการฝึกสมาธิภายหลังปฏิบัติ มีดังนี้

1. เพื่อให้ผู้ฝึกมีจิตใจสงบและผ่อนคลาย
2. เพื่อให้ผู้ฝึกนอนหลับสนิท

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การปฏิบัติสมาธิโดยการสวดมนต์

การสวดมนต์ทบทพุทธคุณ ธรรมคุณ สังฆคุณ ร่วมกับอานาปานสติ

การสวดมนต์บทพุทธคุณ หมายถึง การระลึกอยู่ในลมหายใจเข้าและออก (อาน+ปาน หรืออปาน+สติ) คือ หายใจเข้า ปาน หรือ อาปาน คือ หายใจออก สติ คือ ความระลึกได้ รวมแล้วคือการระลึกอยู่ในลมหายใจเข้าออก

ก. เงื่อนไขการปฏิบัติ

- เวลา : ให้ทำสมาธิทุกวันก่อนเข้านอนเป็นเวลา 45 นาที

ข. การปฏิบัติ

- ก่อนปฏิบัติสมาธิ

- ให้ไหว้พระและสวดมนต์บทปุพพภาคนมการ (3 ครั้ง)

นะโม ตัสสะ ภะคะวะโต อะระหะโต สัมมาสัมพุทธัสสะ

* ขณะปฏิบัติสมาธิโดยการสวดมนต์ : ให้ปฏิบัติดังนี้

1. ท่าที่ใช้ในการปฏิบัติสมาธิ

- ท่านั่ง : นั่งตัวตรงบนเก้าอี้ ให้ต้นขาและเข่าทำมุม 90 องศา เข่าสองข้างแยกออกจากกัน เท่าๆกับช่วงหัวไหล่ เท้าวาง บนพื้นให้พอดี ตัวตรง ศีรษะตรง ปล่อยไหล่ตามสบาย มือทั้งสองวางซ้อนทับกัน โดยหันฝ่ามือเข้าหาลำตัววางมือแนบไว้บริเวณใต้สะดือ

- ท่านอน : นอนหงายราบบนที่นอนปล่อยตัวตามสบาย มือทั้งสองข้างวางซ้อนทับกัน โดยหันฝ่ามือวางแนบบริเวณใต้สะดือ

2. สูดลมหายใจเข้าออกช้าๆ โดยการใช้การขยายตัวของกระบังลมเมื่อหายใจเข้าท้องจะป่องออก

3. ผ่อนลมหายใจช้าๆ ขณะหายใจออกท้องจะแฟบ มือที่วางบนหน้าท้องจะช่วยตรวจสอบ การเคลื่อนไหวของท้องว่าพองและยุบตามที่ต้องการหรือไม่

**** หายใจทั้งสิ้น 50 ครั้ง ใช้เวลาประมาณ 15 นาที (การหายใจ 1 ครั้ง หมายถึง การหายใจเข้า 1 ครั้งและ การหายใจออก 1 ครั้ง)

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**** สวดมนต์ตามบทสวดพุทธคุณ ธรรมคุณ สังฆคุณ (30 จบ)
อิติปิ โส ภะคะวา อะระหัง สัมมาสัมพุทโธ วิชชาจะระณะสัมปปันโน สุคะโต โลกะวิทู อะนุตตะโร ปุริสะทัมมะสาระถิ สัตถา เทวะมะนุสานัง พุทโธ ภะคะวาติ สะวากขาโต ภะคะวะตา ธัมโม สันทิฏฐิโก อะกาลิโกเอหิปัสสิโก โอปะนะยิโก โฆ สามีจิปะฏิปันโน ภะคะวะโต สาวะกะสังโฆ ยะทิทัง จัตตาริ ปุริสะยุคานิ อัฏฐะ ปุริสะปุคคะลา เอสะ ภะคะวะโต สาวะกะสังโฆ อาหุเนยโย ทักขิเณยโย อัญชะปัจจัตตัง เวทิตัพโพ วิญญูหีติ สุปะฏิปันโน ภะคะวะโต สาวะกะสังโฆ อุชุปะฏิปันโน ภะคะวะโต สาวะกะสังลีกะระณีโย อะนุตตะรัง ปุญญักเขตตัง โลกัสสาติ

**** สวดมนต์ครบ 30 จบใช้เวลาประมาณ 30 นาที หลังการสวดมนต์หายใจเข้าออกลึก ๆ 10 ครั้ง ค่อย ๆ ลืมตาเป็นอันสิ้นสุดการปฏิบัติสมาธิโดยการสวดมนต์

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APPENDIX D

- HANDBOOK FOR PRACTICING MEDITATION TO PROMOTE SLEEPING

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ภาคผนวก ง

ตัวอย่างแบบสอบถามที่ใช้ในการเก็บข้อมูลวิจัย

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อนุมัติหน้าเหมาะเหตุอนุเหมาะเหตุให้หาดหนะเนนหญิงเหตุเหตุอนุเหตุ ลำดับ	1
ยินยอมให้ผู้ป่วยเข้าร่วมการวิจัย	
ประวัติการศึกษาและการทำงานของผู้วิจัย	
อย่างไรก็ตามในการวิจัยครั้งนี้	6
ในการวิจัยครั้งนี้	7 - 8
ผลการวิจัยครั้งนี้	3 – 6
ผลการวิจัยครั้งนี้	1 - 2
ผลการวิจัยครั้งนี้	
ผลการวิจัยครั้งนี้	
ผลการวิจัยครั้งนี้

ให้เกิดปัญหา การทำจิตใจให้สงบผ่อนคลายด้วยการปฏิบัติสมาธิ เป็นวิธีหนึ่งที่จะช่วยแก้ปัญหาการนอนไม่หลับ

การทำสมาธิเป็นเรื่องสากลไม่ใช่เรื่องของศาสนาใดศาสนาหนึ่งซึ่งปัจจุบันชาวคริสเตียนและคาธอลิกก็มีการทำสมาธิกเช่นกัน ซึ่งปฏิบัติได้หลายทางไม่ว่าจะกำหนดลมหายใจ หรืออะไรก็ได้ที่เป็นอุบายทำให้จิตใจสงบ สำหรับผู้ที่ไม่เคยทำสมาธิและมีความเคร่งเครียดอยู่มาก การสวดมนต์ อาจจะช่วยได้เนื่องจากภาษาที่สวดเป็นคำยากการจะสวดได้ต้องอาศัยสมาธิเป็นที่ตั้ง จึงเหมาะกับผู้ที่ต้องการเริ่มต้นทำสมาธิ

การสวดมนต์บทพุทธคุณ ธรรมคุณ สังฆคุณ เป็นอีกวิธีที่ใช้ในการทำสมาธิ ดังนั้นผู้จัดทำจึงนำบทสวดมนต์นี้มาใช้ร่วมกับอานาปานสติ (การมมีสติรับรู้ตามการหายใจเข้าออก) เพื่อให้ผู้ฝึกจิตเป็นสมาธิได้เร็วขึ้น

วัตถุประสงค์ของการฝึกสมาธิภายหลังปฏิบัติ มีดังนี้

1. เพื่อให้ผู้ปฏิบัติมีจิตใจสงบและผ่อนคลาย
2. เพื่อให้ผู้ปฏิบัตินอนหลับสนิท

การปฏิสมาธิโดยการสวดมนต์

หมายถึง การสวดมนต์บทพุทธคุณ ธรรมคุณ สังฆคุณ ร่วมกับอานาปานสติ (อาน + ปาน หรือ อปาน + สติ) คือ หายใจเข้าปาน ,อาปาน คือหายใจออก สติ คือ ความระลึกได้ รวมแล้วคือการระลึกอยู่ในลมหายใจเข้าออก

ก. เงื่อนไขการปฏิบัติ

- เวลา : ให้ทำสมาธิก่อนนอนเป็นเวลา 45 นาที

ข. การปฏิบัติ

- ก่อนปฏิบัติสมาธิ
  - ให้ไหว้พระและสวดมนต์ บทปุพพภาคนมการ (3 ครั้ง)

    นะโม ตัสสะ ภะคะวะโต

    อะระหะโต สัมมาสัมพุทธัสสะ

Sirirat Sirilert
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* ขณะปฏิบัติสมาธิโดยการสวดมนต์ : ให้ปฏิบัติดังนี้

1. ท่าที่ใช้ในการปฏิบัติสมาธิ

- **ท่านั่ง** : นั่งตัวตรงบนเก้าอี้ ให้ต้นขาและเข่าทำมุม 90องศา เข่าสองข้างแยกออกจากกัน เท่า ๆ กับช่วงไหล่ เท้าวางบนพื้นให้พอดี ตัวตรง ศีรษะตรง ปล่อยไหล่ตามสบาย มือทั้งสองวางซ้อนทับกัน โดยหันฝ่ามือเข้าหาลำตัววางมือแนบไว้บริเวณใต้สะดือ

(ภาพประกอบ : ท่านั่งสมาธิ)

- **ท่านอน** : นอนหงายราบบนที่นอนปล่อยตัวตามสบาย มือสองข้างวางซ้อนทับกัน โดยหันฝ่ามือวางแนบบริเวณใต้สะดือ

(ภาพประกอบ : ท่านอนสมาธิ)

หมายเหตุ : เลือกปฏิบัติท่าใดท่าหนึ่งหรือใช้ทั้งสองท่าก็ได้

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2. สูดลมหายใจเข้าออกช้า ๆ โดยการใช้การขยายตัวของกระ-บังลม เมื่อหายใจเข้าท้องจะป่องออก

3. ผ่อนลมหายใจช้า ๆ ขณะหายใจออกท้องจะแฟบ มือที่วางบนหน้าท้องจะช่วยตรวจสอบการเคลื่อนไหวของท้องว่าพองและยุบตามที่ต้องการหรือไม่

* หายใจทั้งสิ้น 50 ครั้ง ใช้เวลาประมาณ 30 นาที
(การหายใจ 1 ครั้ง หมายถึง การหายใจเข้า 1 ครั้ง และ หายใจออก 1 ครั้ง)

* สวดมนต์ตามบทสวดมนต์ พุทธคุณ ธรรมคุณ สังฆคุณ (30 จบ)

บทสวดมนต์ พุทธคุณ ธรรมคุณ สังฆคุณ

อิติปิ โส ภะคะวา อะระหัง สัมมาสัมพุทโธ วิชชา
จะระณะสัมปปันโน สุคะโต โลกะวิทู อะนุตตะโร
ปุริสะทัมมะสาระถิ สัตถา เทวะมะนุ สานัง พุทโธ ภะคะวาติ

สะวากขาโต ภะคะวะตา ธัมโม สันทิติโก อะกาลิโก
เอหิปัสสิโก โอปะนะยิโก ปัจจัตตัง เวทิตะโพ วิญญูหีติ

สุปะฏิปันโน ภะคะวะโต สาวะกะสังโฆ อุชุปะฏิปันโน
ภะคะวะโ สาวะกะสังโฆ สามีจิปฏิปันโน ภะคะวะโต
สาวะกะสังโฆ ยะทิทังจัตตาริ ปริสะยุคานิอัฏฐะ
ปุริสะปุคคะลา เอสะ ภะคะวะโต สาวะกะสังโฆ
อาหุเณยโย ทักขิเณยโย อัญชะลีกะระณีโย
อะนุตตะรัง ปุญญักเขตตัง โลกัสสาติ

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* * สวดมนต์ครบ 30 จบ ใช้เวลาประมาณ 30 นาทีหลังจบการสวดมนต์หายใจเข้าออกลึก ๆ ค่อย ๆ ลืมตา เป็นอันสิ้นสุดการปฏิบัติสมาธิโดยการสวดมนต์

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INSTITUTION ATTENDED	Boromarajonani College of Nursing Ratchaburi, 1990 – 1994 : Diploma in Nursing Science (Nursing) Mahidol University , 1999 – 2004 : Master of Public Health Nursing
RESEARCH GRANT	This Research is supported in part by Lok Thip Foundation
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