



**THE EFFECTS OF RELAXATION TRAINING ON PRE AND
POSTOPERATIVE ANXIETY OF PATIENTS
UNDERGOING A TOTAL ABDOMINAL
HYSTERECTOMY**

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF
SCIENCE(HUMAN REPRODUCTION AND POPULATION
PLANNING) FACULTY OF GRADUATE STUDIES**

MAHIDOL UNIVERSITY

2000

ISBN 974-664-058-5

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entitled

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Abdominal Hysterectomy**

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was submitted to Faculty of Graduate Studies, Mahidol University for the degree of
Master of Science (Human Reproduction and Population Planning)

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ACKNOWLEDGMENT

“Ajarns” and students are similar to house and roof, I mean that if there is an “Ajarn” it also has to have a student. These two people cannot be separated. This thesis could not have been accomplished without stimulation from “Ajarns”. Therefore, knowledge and experience that I have received from my major advisors, Associate Professor Dr. Somsak Suthatvoravut, is gratefully acknowledged for all what he did with greatest patience at all time. Although he was very busy at that time, he gave clear guidance and intellectual direction to my thesis.

I would like to express my great thanks and gratitude to Professor Dr. Pratak O-Prasertsawat, Assistant Professor Dr.Sanya Patrachai, and Ms. Ammarin Takkinstein, my co-advisors, for their valuable times that they had spent to help me and their valuable suggestions while I was working on my thesis. I would also like to express my great thanks and sincere appreciation to Professor Dr. Kamhaeng Chaturachinda who polished my English writing, suggestion and encouragement.

Further thanks go to Associate Professor Dr.Chalerm Sri Thanantaseat and Assistant Professor Ornanong Pumarporn who have offered suggestions to my thesis. Special thanks for patients who cooperated in this thesis. I am particularly appreciative of my classmates for their help, cooperation, kindness, and friendship. My sincere appreciation goes to Head of Obstetrics and Gynaecology Ward and staff nurses for their warmest welcome. My appreciation also goes to Nursing Department, Ramathibodi Hospital for providing me with the opportunity to enter this program.

Last but not least, special love and thanks to my mother, Khun Tippaya Poolsawat and my husband, Mr. Vuttichai Butsrupoom, for their sacrifice, patience, and understanding during my study.

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4136150 RAHP/M : MAJOR: HUMAN REPRODUCTION AND POPULATION PLANNING; M.Sc.(HUMAN REPRODUCTION AND POPULATION PLANNING)

KEY WORDS : ANXIETY/ RELAXATION TRAINING/ HYSTERECTOMY

BENJAMAPORN POOLSAWAT: THE EFFECTS OF RELAXATION TRAINING ON PRE AND POSTOPERATIVE ANXIETY OF PATIENTS UNDERGOING A TOTAL ABDOMINAL HYSTERECTOMY. THESIS ADVISORS. SOMSAK SUTHUTVORAVUT, M.D. (THAI BOARD OF OB.&GYN.), PRATAK O-PRASERTSAWAT, M.D. (THAI BOARD OF OB.&GYN.), SANYA PATRACHAI, M.D. (THAI BOARD OF OB.&GYN.), AND AMMARIN THAKKINSTIAN, M. MED. STAT. 69 P. ISBN 974-664-058-5

The purpose of this randomized controlled trial (RCT) was to determine the effect of relaxation training on reducing anxiety during the pre and postoperative periods for patients who underwent a total abdominal hysterectomy (TAH). The subjects consisted of 89 patients who were non cancerous and underwent TAH at the Gynaecology Ward, Ramathibodi Hospital. The patients were randomly allocated to 2 groups, experiment (n=45) and control (n=44). Patients who were allocated to the experimental group would receive Benson's Respiratory One Method relaxation technique one day prior to the operation while the control group did not receive any relaxation training the relaxation technique. The Thai Hospital Anxiety and Depression Scale, which has good reliability and validity, was used for the anxiety assessment. General characteristics of patients were analyzed by using mean, standard deviation. Chi-square, t-test and ANOVA with repeated measurement were used for hypothesis testing.

Results of this study reveal that the anxiety scores of patients who received relaxation training were significantly decreased when compared to those of patients who did not receive the training ($p < 0.0001$). Although after admission, the anxiety scores of the experimental group were significantly higher than of the control group, the scores of the experimental group after intervention at pre and postoperation were significantly lower than the control group. The significant differences were also shown when comparing the differential anxiety scores between stages of both groups.

In conclusion relaxation training should be given to patients who undergo TAH in order to reduce anxiety during both the pre and postoperative periods. It is effective even though it is given only once on the day before operation. The patients were advised to practice by themselves whenever convenient.

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เบญจมาภรณ์ พูลสวัสดิ์ : ผลการฝึกการผ่อนคลายต่อความวิตกกังวลก่อนและหลังผ่าตัดของผู้ป่วยที่เข้ารับการผ่าตัดมดลูก (THE EFFECTS OF RELAXATION TRAINING ON PRE AND POSTOPERATIVE ANXIETY OF PATIENTS UNDERGOING A TOTAL ABDOMINAL HYSTERECTOMY) คณะกรรมการควบคุมวิทยานิพนธ์ : สมศักดิ์ สุทัศนวีรวิมล, พ.บ. (Thai Board of Ob&Gyn), ประทีกย์ โอประเสริฐสวัสดิ์, พ.บ. (Thai Board of Ob&Gyn), สัตยญา ภัทรราชย์, พ.บ. (Thai Board of Ob&Gyn), อัมรินทร์ ทักษิณเสถียร, วท.ม. (ชีวสถิติ, M. Med. Stat) 69 หน้า. ISBN 974-664-058-5

การวิจัยแบบทดลองนี้มีวัตถุประสงค์เพื่อศึกษาผลการฝึกการผ่อนคลายต่อการลดความวิตกกังวลก่อนและหลังผ่าตัดในผู้ป่วยที่เข้ารับการผ่าตัดมดลูก กลุ่มตัวอย่างประกอบด้วยผู้ป่วยที่เข้ารับการผ่าตัดมดลูกที่ไม่ได้รับการวินิจฉัยว่าเป็นมะเร็งจำนวน 89 ราย โดยได้รับการสุ่มเข้ากลุ่มทดลอง 45 คนและกลุ่มควบคุม 44 คน กลุ่มทดลองจะได้รับการฝึกการผ่อนคลายแบบเบนสัน 1 ครั้งในวันก่อนที่จะเข้ารับการผ่าตัด 1 วันและให้ปฏิบัติด้วยตัวเองก่อนและหลังผ่าตัด กลุ่มควบคุมไม่ได้รับการฝึกการผ่อนคลาย ในการประเมินผลความวิตกกังวลได้ใช้แบบประเมิน Hospital Anxiety and Depression ฉบับภาษาไทย ซึ่งได้ผ่านการทดสอบความเที่ยงและความตรงตามโครงสร้างอยู่ในเกณฑ์ ลักษณะทั่วไปของกลุ่มตัวอย่างวิเคราะห์โดยใช้ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน สำหรับการทดสอบสมมติฐานใช้ไคว์สแควร์ ทดสอบทีและ ANOVA with repeated measurement

ผลการวิจัยพบว่าภายหลังรับไว้ในโรงพยาบาล ความวิตกกังวลของผู้ป่วยในกลุ่มทดลองมีระดับสูงกว่ากลุ่มควบคุม แต่ภายหลังได้รับการฝึกการผ่อนคลาย ปรากฏว่า ความวิตกกังวลในกลุ่มทดลองลดลงกว่ากลุ่มควบคุม อย่างมีนัยสำคัญทางสถิติทั้งก่อนและหลังผ่าตัด ขณะที่กลุ่มควบคุมมีความวิตกกังวลสูงขึ้นทั้งก่อนและหลังผ่าตัด ($p < 0.0001$) ถึงแม้ว่าความวิตกกังวลหลังรับไว้ในโรงพยาบาลของกลุ่มทดลองจะสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ

การฝึกการผ่อนคลายสามารถนำไปใช้เพื่อลดความวิตกกังวลในผู้ป่วยที่เข้ารับการผ่าตัดมดลูกทั้งก่อนและหลังการผ่าตัดได้ผลดี แม้ว่าจะสอนการฝึกการผ่อนคลายเพียง 1 ครั้งก่อนผ่าตัด 1 วัน และให้ผู้ป่วยฝึกฝนด้วยตัวเอง

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CHAPTER I

INTRODUCTION

Significance of the problem

Anxiety is defined as a vague, uneasy feeling, scare or danger. The source of anxiety is often unspecific and unknown to the individual. It occurs with stress or threat at the time or situation of unpredictable event. Apart from that, anxiety is the sign to alert individual for coping or fighting the perceived threat.(1,2)

The presence of anxiety is almost universal in the preoperative patient especially or women who are set to undergo a total abdominal hysterectomy(TAH). They will lose their uterus. They may feel great loss to their womanhood particularly in women who wish to retain her childbearing ability, and thus relating her uterus to her self-image, and femininity. In addition, they may wonder whether their sexual function related to uterus function and the loss of which may result in decrease in their sexual function . Besides uncertainty about the impending procedure, separation from the family, facing a different and may be hostile environment, restriction of activities from hospital rules may increase anxiety levels.(3)

As the degree of anxiety increases, the ability to perceive, function, learning, solving problems and making decisions become increasingly difficult. This may also result in an unfavorable effects, especially if the anxiety is prolonged. Because the emotionally disturbed patient may experience a greater problem with vomiting, urinary retention, pain and restlessness during the postoperative period.(4,5)

Furthermore, effects of infection, increase in postoperative narcotic requirements, prolongation of wound healing which is caused by collagen synthesis inhibition and leading to possible prolonged hospital stay.(6)

One important role of the perioperative nurse is to decrease the anxiety of the patient as much as possible. Preoperative visiting is also carried out to reduce the anxiety.(7-10) Relaxation technique may be an alternative choice that can be used for decreasing anxiety base on the concept that stress with anxiety does not and can not exist when the muscles of the body relax.(11)

There are many techniques of relaxation but one technique known as “Benson’s Respiratory One Method” is suitable to apply in nursing. A major reason of choosing this method is that it is based on the principle of meditation which is familiar with Thai’s culture, easy to practice, short in time spending (about 15 minutes) and easily utilized by perioperative nurses. The relaxation response is reported to result in decreasing oxygen consumption, carbon dioxide production, respiratory rate and heart rate.(12)

Miller and Perry (13) suggested that relaxation training should be taken several days before operation. From that suggestion, arises the question when will be the suitable time for relaxation training to efficiently decrease anxiety? It is with this background that this method was adopted in this research as the way to relax patients destined to have total abdominal hysterectomy.

However, Wongpiriyayothar (14) had reported that short time relaxation training before operation worked as well. With limited time that the perioperative nurse has, we, therefore would apply this method to patients who have total abdominal hysterectomy and determine the effects in decreasing preoperative anxiety.

General Objective

To determine the effects of the relaxation training on reducing anxiety during pre and postoperative periods for patients who are set to undergo total abdominal hysterectomy (TAH).

Specific objective

To compare pre and postoperative anxiety scores between patients undergoing TAH who received and did not receive relaxation training.

Hypothesis

The anxiety scores of patients who received relaxation training are different from patients who did not.

Scope of the Study

Preoperative women who are admitted for total abdominal hysterectomy for benign conditions at Gynaecology Ward, Ramathibodi Hospital Bangkok between 19th November 1999 to 29th February 2000.

Variables

- 1.The dependent variable is anxiety score.
- 2.The independent variable is relaxation training.

3. Other related variables are age, education, income, previous operation, private case, married status, number of children and life adversities in the 3 months prior admission.

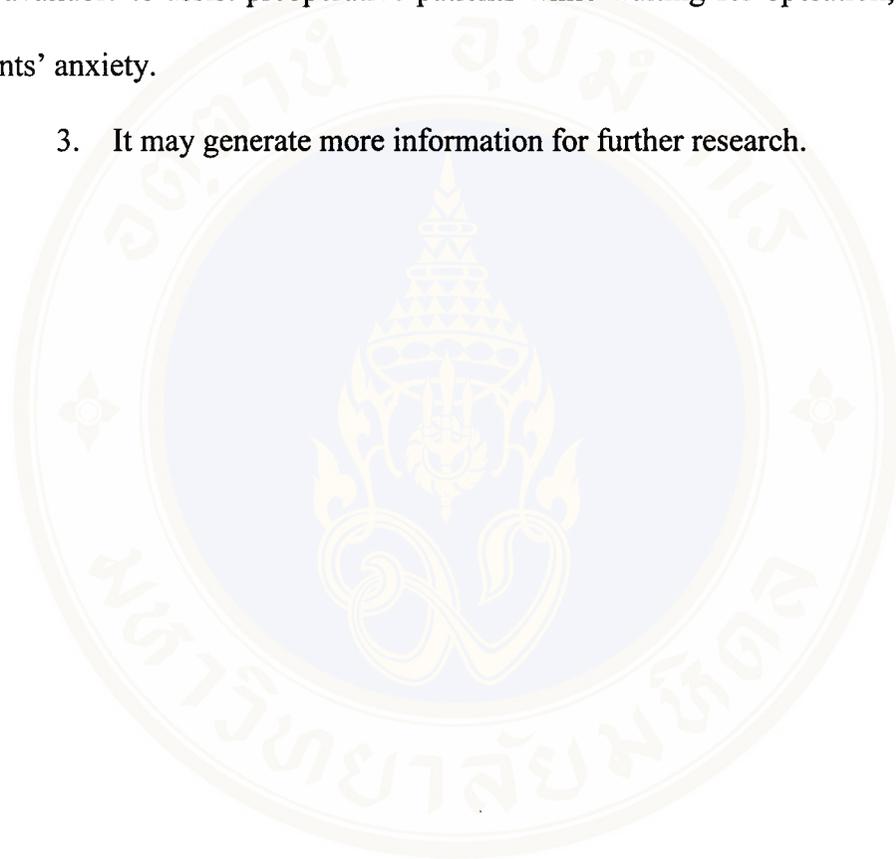
Definition of Terms

Anxiety refers to emotion that person feels threat, risk, danger, insecurity or uncertainty. This feeling makes unpleasant, restless or strained with response to physical and mental anxiety. This is evaluated by the Hospital Anxiety and Depression Scale (HADS)(15).

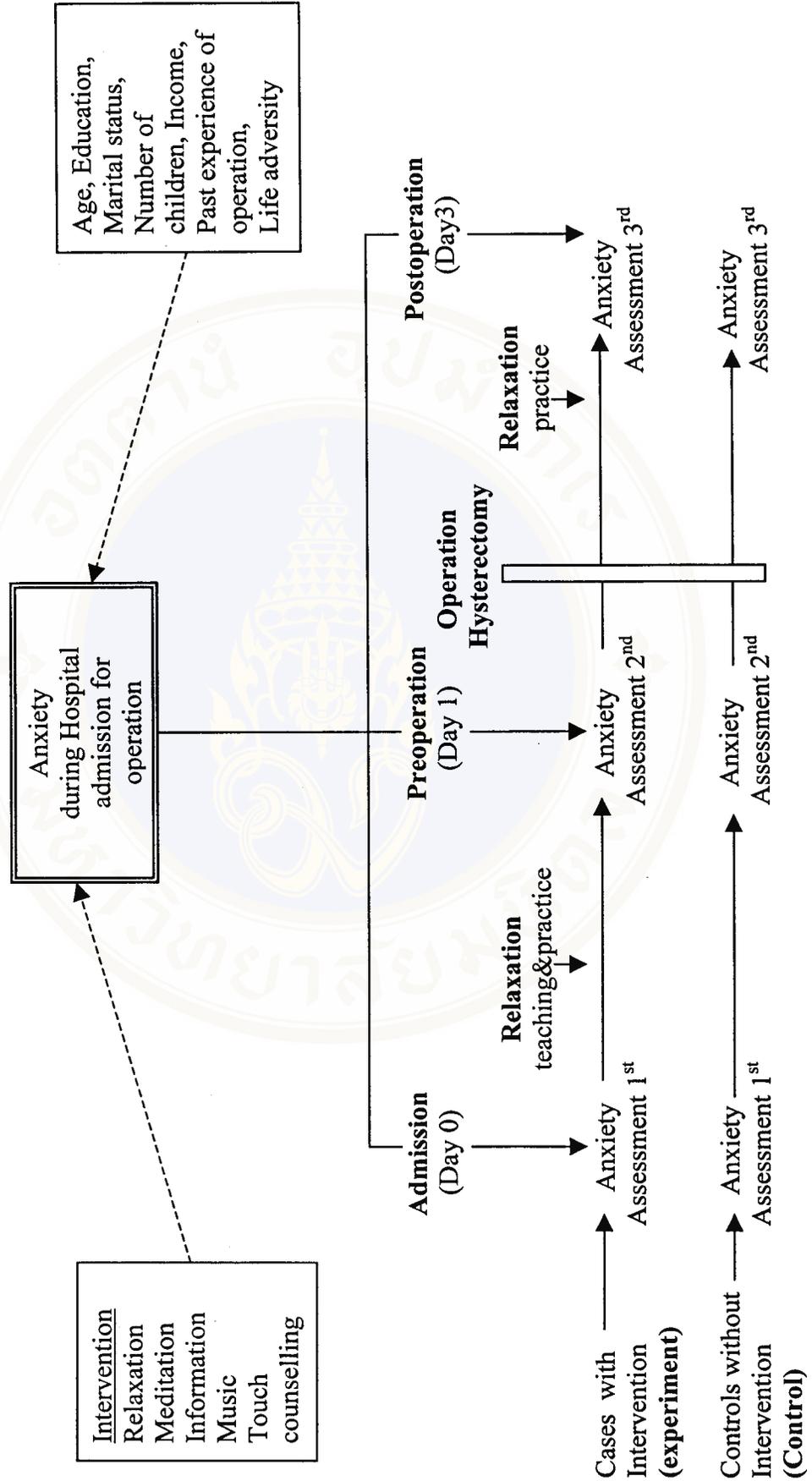
Relaxation training refers to practice Benson's Respiratory One Method (16). Its origin came from meditation which decreases sympathetic system. Recorded in cassette tape in Thai (see appendix C). The patient practiced relaxation technique by listening to cassette tape recorder for about 15 – 20 minutes. After which time the patient practiced by themselves about 10 minutes at 20.30 hour the same day, 06.00 hour the next morning and postoperation.

Expected Outcome and Benefits

1. Results of this study will be useful for reducing pre and postoperative anxiety of patients.
2. It may be an alternative choice for perioperative nurses, who have limited time available to assist preoperative patients while waiting for operation, to decrease patients' anxiety.
3. It may generate more information for further research.



Conceptual Framework



CHAPTER 2

LITERATURE REVIEW

Anxiety

The origin of the term “anxiety” has been traced in detail by Lewis. It derives from a Greek root denoting “to press tight” or “to strangle”. The Latin term “anxious” and its derivatives all has the notion of narrowness or constriction, usually with discomfort (17)

Anxiety is an emotion which is unpleasant. Subjectively it has the quality of fear or of closely related emotions. Implicit in anxiety is the feeling of impending danger, but there is either no recognizable threat or the threat is, by reasonable standards, disproportionate to the emotion it seemingly evokes (17)

Anxiety is an emotion that signifies the presence of a danger that can not be identified, or, if identified, is not sufficiently threatening to justify the intensity of the emotion and undesirable emotion.(18)

Anxiety occurs with stress or threat. According to Spielburger and his colleagues, stress refers to variations in environment conditions which observers regard as objectively dangerous to some degree, while threat refers to an individuals perception of a particular situation as dangerous. (19)

The meaning above can be summarized that the anxiety is subjective experience, emotion that feels danger, fear, stress or threat. It is undesirable emotion.

Type of anxiety (17)

There are two types of anxiety.

1. Trait anxiety refers to a habitual tendency to be anxious over a long period of time.

2. State anxiety refers to anxiety felt at a particular moment.

Level of anxiety

Individual anxiety may have different degrees. Although it happens from the same arousal, it depends on perception of person to arousal and subjective perception experience. Peplau (20) identified four levels of anxiety and described their effects on the individual.

1. Mild anxiety

This level is associated with the tension of day-to-day living. During this stage the person is alert and the perceptual field is increased. The person sees, hear, and grasps more than previously. This kind of anxiety can motivate learning and can produce growth and creativity.

2. Moderate anxiety

In this level of anxiety the person focuses only on immediate concerns. Moderate anxiety involves the narrowing of the perceptual field as the person sees, hears, and grasps less. The person blocks out selected areas but can attend to more if directed to do so.

3. Severe anxiety

This level is marked by a significant reduction in the perceptual field. The person tends to focus on a specific detail and not to think about anything else. All

behavior is aimed at relieving anxiety, and much direction is needed to focus on an other area.

4. Panic

This level is associated with awe, dread, and terror. At this stage details are blown out of proportion. Because of a complete loss of control, the person is unable to do things even with direction. Panic involves the disorganization of the personality. A person can no longer function as an organized human being. There is increased motor activity, decreased ability to relate to others, distorted perceptions, and loss of rational thought. Panic is a frightening and paralyzing experience. The person in panic is unable to communicate or function effectively. This level of anxiety cannot persist indefinitely because it is incompatible with life. A prolonged period of panic would result in exhaustion and death.

The characteristics of each level may overlap, and the person may reach a state of panic without ever having exhibit some of the manifestations of previous levels. In some cases, anxiety may not progress past the moderate stage.(21)

Anxiety affects person by changing his or her physiology, intellectual, and emotion. They are results of over production of catecholamines, and over stimulation of sympathetic and parasympathetic nervous system. Mild and moderate anxiety encourage positive results in driving to solve the threat or problem, but in severe and panic levels the responses are negative. Certain physiologic, cognitive, perceptual, emotional, and behavioral responses which occur in response to mild, moderate, severe, and panic level of anxiety are listed in Table(1) (20).

Table 1 Responses to anxiety (20)

Anxiety Level	Physiologic	Cognitive Perceptual	Emotional Behavioral
Mild	Vital sign normal. Minimal muscle tension. Pupils normal, constricted.	Perceptual field is broad, Awareness of multiple environmental and internal stimuli. Thoughts may be random but controlled	Felling of relative comfort and safety. Relaxed, calm appearance and voice. Performance is automatic; habitual behavior occur here.
Moderate	Vital signs normal or slightly elevated. Tension experience ; labeled as tense or excited.	Alert; perception narrowed focused. Optimum state for problem solving and learning. Attentive.	Feeling of readiness and challenge, energized. Engage in competitive activity and learn new skills. Voice, facial expression interested or concerned
Severe	Fight or flight response. Autonomic nervous system excessively stimulated (vital sign ↑, Diaphoresis ↑, urinary urgency and frequency, diarrhea, dry mount, appetite ↓, pupil dilated). Muscle rigid, tense. Senses affected; hearing & pain ↓.	Perceptual field greatly narrowed. Problem solving difficult. Focus on one detail. Elective inattention. Distortion of time. Dissociative tendencies; automatic behavior.	Feels threatened; startles with new stimuli; feels on "over load" Activity may increase or decrease. May seem and feel depressed. Demonstrate denial; may complain of aches or pain; may be agitated or irritable increased. Eyes may dart around room, may be fixed. May close eyes to shut out environment.
Panic	Above symptoms escalate until sympathetic nervous system release occurs. Person may pale, blood pressure decreased Muscle coordination poor.	Perception totally scattered or closed. Unable to take in stimuli. Problem solving and logical thinking highly improbable. Perception of unreality about self, environment.	Feel helpless with total loss of control. May be angry, terrified; may become combative or totally withdrawn, cry, run. Completely disorganized. Behavior is usually extremely active or in active.

Assessment of Anxiety

1. Physiological assessment of anxiety (20)

The physiological responses associated with anxiety are primarily mediated through the autonomic nervous system. This involves the internal adjustment of the body without a conscious or voluntary effort. Two types of autonomic responses exist:

- 1) The sympathetic, which activate body process
- 2) The parasympathetic, which conserve body responses

Studies support the predominance of the sympathetic reaction. This reaction prepares the body to deal with an emergency situation by either a “fight” or a “flight” reaction. When the cortex of the brain perceive a threat, it send a stimulus down the sympathetic branch of the autonomic nervous system to the adrenal glands. Because of a release of epinephrine, respiration deepens, the heart beat more rapidly, and arterial pressure rises. Blood is shifted away from the stomach and intestines to the heart, central nervous system, and muscle. Glycogenolysis is accelerated, and the blood glucose level rises. For some individuals, however, the parasympathetic reaction may coexist or predominate and produce somewhat opposite effects.(20)

It is too difficult to evaluate anxiety from these signs because the anxiety level does not always correlate with clinical signs. In addition to that the individual physiological changes are different.(21)

2. Behavioral assessment of anxiety (20,23)

The external behaviors are internal emotion reflecting reaction that other person can observe. Behavioral responses are observed in the anxious patients. Their effects have both personal and interpersonal aspects. High level of anxiety affects

coordination, involuntary movements, and responsiveness and can also act as disruptive forces in human relationship. In an interpersonal situation anxiety can warn a person to withdraw from a situation where discomfort is anticipated. The anxious patient typically withdraws and decreases interpersonal involvement. The possible behavioral responses might observe from this: restlessness, physical tension, tremors, startle reaction, rapid speech, lack of coordination, interpersonal withdrawal, inhibition, flight, avoidance or hyperventilation.

3. Self report assessment of anxiety

Many inventories and scales have been used to measure various aspects of psychological functioning including levels of anxiety. The most important attribute of a rating scale is validity.

3.1 The Minnesota Multiphasic Personality Inventory (MMPI)(24)

It was originally developed as a clinical instrument to measure the characteristic traits of disabling psychological disorders. It consists of 550 statements which the patients answer "true" or "false". The statement cover many areas from physical health to neurological disorders and political and social attitudes. MMPI is cumbersome and time-consuming. There is no single MMPI scale to assess anxiety.

3.2 The Taylor Manifest Anxiety Inventory (MAS)(24)

This is the most widely used of all the self report scales of trait anxiety in the late 1950. It developed from MMPI. The original Taylor MAS consisted of 50 items. It estimates habitual response rather than feeling at the time of completion of the scale. In the later studies, it was shown to be an imperfect instrument which is poorly validated and with the construct it purports to measure diffusely defined. So The Manifest Anxiety Scale is not a good measure of manifest state anxiety.

3.3 The State-Trait Anxiety Inventory (24)

This is a brief self report measure of both state and trait anxiety. The “A-state scale” consists of 20 statements that pertain to the subject’s feelings at a particular moment in time. The “A-trait scale” comprises 20 statements which refer to how the subjects generally feel. Each statement is rated on a 4 point scale. Scores on the “A-state scale” increase in response to stress, decrease after relaxation training.

3.4 The Hospital Anxiety and Depression Scale (HADS) (25)

A self assessment scale has been developed and found to be a reliable instrument for detecting state of depression and anxiety in the setting of an hospital medical out patient clinic. It is modified from General Health Questionnaire to assess mood scale specifically. The patient can complete the questionnaire in a short period of time.

In this study The Hospital Anxiety and Depression Scale (HADS)(25) was selected to evaluate anxiety. The anxiety and depressive subscales are also valid measures of severity of the emotional disorder. It is suggested that the introduction of the scales into general hospital practice would facilitate the last task of detection and management of emotional disorder in patients under investigation and treatment in medical and surgical department.

In 1996 HADS was translated into Thai and administered to a sample of 60 in-patients with cancer to test the validity and reliability of Thai version of HADS (Thai HADS)(15). Semistructured clinical psychiatric interview was used as a gold standard. The result of the study showed that the Thai HADS had good reliability and validity for both anxiety and depression sub-scales. At the cut-off point of > 11, which was the best cut-off point, the sensitivity of anxiety and depression sub-scales of Thai

HADS were 100% and 85.71% respectively, while the specificity were 86.0% for anxiety and 91.3% for depression. Both sub-scales also showed good internal consistencies with Cronbach's alpha coefficient of 0.8551 for anxiety sub-scale and 0.8259 for depression sub-scale. In conclusion, the study showed that Thai HADS is a reliable and valid instrument for the screening of anxiety and depression in Thai patients.

Preoperative Anxiety (17)

Surgical operation are performed on a large section of the population each year. Over 75 per cent of these people indicate moderate or marked preoperative anxiety. The number expressing anxiety increase as the hour for surgery approaches and is maximum in the operating room (the state anxiety). Of people, 80–90 per cent are at least moderately anxious immediately preoperatively, whether for minor or major surgery(17).

Preoperative level of anxiety relates to postoperative behavior. Patients with moderate preoperative anxiety developed fewer postoperative emotional symptoms like acute anxiety, depression and hostility than did patients with low or high preoperative anxiety. A moderate degree of anxiety appears optimal for adjustment and occurs in stable subjects who face up to their difficulties. In contrast, unusually low anxiety is often associated with a denial of real problems. When suffering occurs, therefore, it is not regarded as an unavoidable consequence of surgery but it is instead blamed on the caring staff who are perceived as unhelpful insufficient or inefficient.

Feelings of patients who are about to undergo surgery(6)

Few patients face surgery without some degree of anxiety. The concerns and fear vary from one person to another, some may be anxious about the pain and discomfort, other fear possible disfigurement and incapacity, loss of self control , or death. They may be worried because of absence from work, lack of support for dependants, lack of care of family or disruption of plan. Many are disturbed because they don't simply know what to expect; the unknown tends to be more threatening than the known.

Feelings of the patient who are about to undergo hysterectomy(26,27)

Anxiety is widely accepted as an expected response of preoperative patients. There are many women who undergo, total abdominal hysterectomy (TAH). The reasons for operation include, myoma uteri, adenomyosis, dysfunctional uterine bleeding, endometriosis, and malignant condition such as carcinomas of cervix, ovaries etc.

Uterus and ovary are regarded as symbol of womanhood because they are reproductive organs, release sex hormones. So removal of these organs (with removal ovary or not) affects not only physiological and psychological response but also and sexual feeling of the patient.

Physiological changes

- No menstruation
- No more children
- In case of TAH with bilateral salpingo-oophorectomy: menopausal symptoms and its sequelae (e.g. hot flashes, sexual dysfunction, osteoporosis, etc.)

Psychological changes

- Postoperative outcome
- Feeling of loss
- Self image and femininity
- Misconception about the effects of TAH such as masculinization, weight gain
- Fear of rejection by their husband or sexual partner

Sexual changes

- Decreased libido (from TAH with BSO)
- Postoperative Sexuality : Does it hurt when I have intercourse?

Can I respond to sexual intercourse like before surgery ? Will I be happy and excited with sexual intercourse ? Will my husband (partner) be satisfied sexually after the removal of my sex organs? These are typical questions that are asked by patients.

In conclusion, surgery is a potential or actual threat to a person's integrity and thus may produce both physiologic and psychological anxiety reaction. Particularly the patients who undergo TAH have greater anxiety. This is because of the implications and perceived values attached to the uterus by the society.

Ineffective neuroendocrinologic response (6)

The neuroendocrine response assists the person in coping with stress of surgery. Anxiety occurs with stress or threat. If this response is ineffective, postoperative complications such as shock and delayed wound healing may occur. In addition, anesthesia may be tolerated poorly, and fluid and electrolyte imbalances are

more likely to occur because of insufficient adrenocortical activity. Persons with a great deal of stress before surgery may do less well postoperatively because of inability to retain sodium.

Role of Nurse to Decrease Preoperative Anxiety

Preoperative visiting (28)

Over the past several years, the belief in the necessity of preoperative visitation has gained popularity. Not only do perioperative nurses wish to “break the operating room (OR) barrier” but they are also striving to put the patient back into “OR” picture.

Historically, the term operating room nursing may have contribute to stereotypic images of a nurse who took care of the operating room and had little interaction with patients in the surgical theatre. OR nurses have long been accused of choosing the operating room to escape from the patient. The trend is to change the thinking in terms of patient care rather than surgical procedure only. Using the term perioperative nursing in the patient will help in changing the nurses’ attitude from procedure oriented to patient care centered.

Perioperative nursing, a term describing the scope and practice of nursing in surgical settings, has gained wide acceptance. Emanating from the work and influence of the Association of Operating Room Nurses (AORN), the term has helped to define and elucidate the activities of the professional nurse during three patient care phases: preoperative, intraoperative, and postoperative.

Perioperative nursing practice revolves around an individual patient who is undergoing a surgical intervention. The role of the perioperative nurse in preoperative

visits is to decrease anxiety of the patient. By offering advantages for both the patient and the nurse, seeing patients, we are not going to take over the preoperative teaching role of the primary nurse on the unit. We are not going to only describe the surgical procedure to the patient, but we are going to attempt to establish a relationship with them, as well as to serve as information source for them, and listen to what they want to say.

The research studies on the role of perioperative nurse

In 1993, Vuoresheimo and Leino-Kilpi (29) studied by interviewing of 30 patients yielded information about satisfaction with care during preoperative, intraoperative and postoperative phases of care. Data indicated that patients had a strong need for information regarding the surgery, its risks and prognosis, and anesthesia.

In 1996, Martino (8) studied the effects of preoperative visits by perioperative nurses on pre and postoperative levels of anxiety. The group received preoperative visits showed a significant decrease in anxiety levels.

In 1997, Sansiribhun (10) studied the effects of pre-caesarean section visits by perioperative nurse on anxiety of pregnant women. The results of this study revealed that the anxiety of subjects who were visited preoperatively, either being at the ward, a day prior to operation or being in the operating room just before the operation, was significantly lower than that of the group who were not visited.

Because anxiety can be so deterring, many study have searched for ways to decrease its effects. Relaxation is one of many method for decreasing anxiety.

Relaxation

Benson in his book stated that “The relaxation is an integrated hypothalamic response accompanied by a decrease in sympathetic arousal, and characterized primarily by decrease muscle tonus.” (12)

While Sweeney said that “Relaxation is a positively perceived state or response in which a person feels relief of tension or strain.” (30)

Mc Caffery stated that “ Relaxation is the mental and physical freedom from tension or stress.” (31)

In summary, Relaxation is the mental and physical relief from tension or stress by decreasing the sympathetic arousal and muscle tonus.

Theoretical models of relaxation

1. Progressive Relaxation (Edmund Jacobson) (32)

The history of relaxation training began with the pioneering work of Edmund Jacobson, who started his work at Harvard University in 1908. Jacobson concluded that tension affects in shortening of muscle fibers. Removing the tension can eliminate the anxiety. Anxiety and tension are not limited to skeletal neuromuscular system, but are associated with over activity of the nervous system, thereby involving cardiac and smooth muscle. He believes that the impulse can originate in either the brain or the muscle, causing the individual to experience tension when muscle relaxed, brain also relaxed together.

2. The Relaxation Respond (Herbert Benson)(12,32)

Benson describes the relaxation response as an integrated hypothalamic response accompanied by a decrease in sympathetic arousal, and characterized primarily by decrease muscle tonus. It is the body’s natural and innate protective

mechanism to counter the potential body effects of the stress response. These include an increase in blood pressure, pulse rate, respiratory rate, blood flow to muscles, and secretion of adrenalin.

He also believes that the more often the stress response is stimulated, the greater is the possibility for hypertension, headaches, peptic ulcers, arthritis, colitis, diarrhea, asthma, cardiac arrhythmia, sexual problems and circulation problems. The relaxation response results in a decrease in oxygen consumption, carbon dioxide production, respiratory rate, heart rate, arterial blood lactate, pH and base excess levels, and an increase of electroencephalographic alpha and theta waves and skin resistance. To summarize, there is generalized decrease in sympathetic nervous system activity and a possible increase in parasympathetic activity.

The major physiological change associated with meditation is a decreased metabolic rate. Oxygen consumption decreases in both sleep and meditation, but during sleep decrease gradually to 8 per cent. During meditation the oxygen consumption decrease averages 10 to 20 per cent and occurs during the first 3 minutes of meditating. Blood lactate levels have been shown to decrease rapidly in the first 10 minutes of meditation. Benson therefore developed his own simple form of meditation.

3. *The General Adaptation Syndrome (Hans Selye)(32)*

Selye's theoretical model indicates the relationship between stress and relaxation. The term of general adaptation syndrome comprises three stages, namely alarm, resistance, and exhaustion. He believe that adaptation energy are limited, therefore, sleep and rest can restore resistance and adaptability. Selye recommended a

daily period of complete rest with eyes closed and muscle relaxed, using available relaxation techniques.

Clinical applications for relaxation training (32)

Relaxation training can be used for reducing anxiety, hypertension treatment, insomnia prevention, decreasing pain, reducing pain and anxiety in cancer patients, bronchial asthma treatment and treatment of depressed patients.

Relaxation techniques

There are several relaxation techniques, most of which are used as relaxation therapy, which evoke the same physiological changes as Relaxation Response. They are briefly explained in some techniques.

1. *Progressive relaxation* was developed by Jacobson. The procedure involves tightening and relaxation the muscle groups of the body. The client is instructed to tighten a specific muscle group, hold the tension for 5 to 7 seconds, and then release all the tension. After 30 to 40 seconds of relaxation, the instruction is repeated. Each muscle group is tightened twice. During the tensing of muscles, the therapist helps the client focus on the feelings with statements like “feel the tightness in your muscles.” Excessive tightening may cause muscle cramping. (21,32)

2. *Autogenic training* originated with research on hypnosis conducted by Oskar Vogt, a physiologist working at Berlin Institute during the 1890s. It refers to voluntary self-regulation. A method of silent repetition of phrases is designed to teach the body and mind to relax. Subjects reported feeling warm and heavy when their tension lifted. (21,32)

3. *Guided Imagery* assists the client to take an inner journey to a peaceful, quite, relaxing place. A helping person can say, “close your eyes take yourself in that

place, smelling the smells, hearing the sounds, seeing what there is to see, feeling all the sensations available to you there.” The client is then not interrupted for 3 to 5 minutes. The client imagine a peaceful scene that help them get relaxed. (32,33)

4. Meditation had its origin in the Eastern religions. Meditation is defined as a contemplation or reflection with seeking inner peace and harmony. Although often considered a religious practice, meditation can be practiced independently by anyone as a means of reducing inner discord and increasing self- knowledge. With practice, the discipline of meditation has been shown to increase concentration, enhance effectiveness in setting and achieving goals, and improve self esteem. Moreover, meditation can effectively create a state of deep relaxation in a relatively short time (due to the narrow focus and decrease internal and external stimuli). Metabolic changes during meditation include decreased oxygen consumption, carbon dioxide production, respiratory rate, heart rate, blood pressure, and lactic acid production. (32)

The four basic elements of meditation (12)

1. A quiet environment

Practitioner must “turn off” not only internal stimuli but also external distractions. A quiet room or a place of worship may be suitable. The nature mystics meditated outdoors.

2. An object to dwell upon

This object may be word or sound repetition, gazing a symbol, concentrating on a particular feeling. For example, directing one’s attention to the repetition of a syllable will help clear the mind. When distracting thoughts do occur, one can return to this repetition of the syllable to help eliminate other thoughts.

3. A passive attitude

It is an emptying of all thoughts and distractions from one's mind. A passive attitude appears to be the most essential factor in eliciting the relaxation response. A person should not be concerned with how well he or she is doing.

4. A comfortable position

Practitioner should be in a comfortable position that will allow an individual to remain in the same position. The sitting, kneeling, squatting postures assumed in various forms of prayer have evolved to keep the practitioner from falling asleep. The desired altered state of consciousness is not sleep, but the same four elements will lead to sleep if the practitioner is lying down.

Benson's Relaxation Response (13,32)

This is based on the principle of meditation. The technique developed by Benson's group at Harvard's Thorndike Memorial Laboratory includes the following set of instructions:

1. Sit quietly in a comfortable position.
2. Close your eyes.
3. Deeply relaxation all your muscles, beginning at your feet and progressing up to your face. Keep them relax.
4. Breathe through your nose. Become aware of your breathing. As you breathe out, say the word, "ONE," silently to yourself. For example, breathe IN.....OUT, "ONE", IN..... OUT, "ONE" etc. Breathe easily and naturally.
5. Continue for 10 to 20 minutes. You may open your eyes to check the time, but do not use an alarm. When you finish, sit quietly for several minutes, at first with your eyes closed and later your eyes opened. Do not stand up for a few minutes.

6. Do not worry about whether you are successful in achieving a deep level of relaxation. Maintain a passive attitude and permit relaxation to occur at its own pace. When distracting thoughts occur, try to ignore them by not dwelling upon them and return to repeat "ONE." Practice the technique once or twice daily, but not within two hours after any meal, since the digestive process seem to interfere with the elicitation of the relaxation response.

The subjective feelings that accompany the elicitation of the relaxation response vary among individuals. The majority of people feel a sense of calm and feel very relaxed. A small percentage of people immediately experience ecstatic feelings. Other descriptions that have been related involved feelings of pleasure, refreshment, and well-being.

There are many research study about relaxation technique. Most of them can decrease anxiety level. To choose one of them, depend on condition of the subject, duration of practicing that is appropriate for the client and trainer. Researcher is interested in Benson Respiratory One method by tape recorder, because it is easy to use for both the trainer and the client. Take a little time to practice that method which is suitable for preoperative patients. The remaining question may be "how long is the appropriate duration of practice for the preoperative patient?".

Table2 Research study related to relaxation technique

Year	Researcher & Study design	Samples	Relaxation Technique	Results
1992	Wongpiriyayotha (14) Experimental design	Open heart surgery Patients 30 subjects For 2 groups $n_1 = 15, n_2 = 15$	Benson's Respiratory One Method 4 days	↓ postoperative anxiety in the experimental group ($p < 0.05$)
1992	Sudhipitak (34)	Cervical cancer patients 52 subjects for 2 groups $n_1 = 26, n_2 = 26$	Progressive relaxation 4 weeks	↓ anxiety scores in the experimental group ($p < 0.05$)
1992	Kabat-Zinn, Massio, Kristeller, Peterson, Fletcher, Pbert et al (35) Experimental design	Patients with anxiety disorder 22 subjects for 2 groups $n_1 = 11, n_2 = 11$	Meditation 3 months	↓ anxiety scores in the experimental group ($p < 0.05$)
1993	Tsai, Crockett (36) Experimental design	Chinese registered nurses 137 subjects from 3 hospitals divided in 2 groups for each hospitals $n_1 = 23, n_2 = 23$	Smith's cognitive behavioral model of relaxation 5 weeks	↓ anxiety scores in the experimental group ($p < 0.05$)
1993	Leung-amornlert, Chutangthon (16) Experimental design	Nursing students both male and female who were selected from 130 second-year nurse. 11 students were randomly assigned equally into the experimental and control group $n_1 = 11, n_2 = 11$	Benson Respiratory One Method 1 month	Not statistically significant between the experimental and control group

Table2 Research study related to relaxation technique (continue)

Year	Researcher & Study design	Samples	Relaxation technique	Results
1996	Phukrongkin (37) Experimental group One group pretest posttest design	Breast cancer women 30 subjects	Progressive muscle relaxation 2 weeks	Not statistically significant between pretest and post-test
1996	Junwijit (38) Experimental design	Renal surgical patients 30 subjects $n_1 = 10$ (control) $n_2 = 10$ (education), $n_3 = 11$ (education + relaxation)	Deep breathing exercise 9 days (2 days prior to operation to 7 days postoperation)	↑ physical recovery scores in the experimental group ($p < 0.05$)
1996	Weber (39) Experimental One group pretest and posttest	The inpatient general psychiatric unit 39 subjects	-Progressive muscle relaxation -Meditation -Guided imagery -Soft music 5 months	↓ anxiety scores in the experimental group ($p < 0.05$)
1996	Ma, Qin, Han (40) Experimental design	Patients with abdominal surgery 51 subjects $n_1 = 25$ $n_2 = 26$	Relaxation training 6 days (-3 days prior to operation -Operation day -The first and the fourth postoperative days)	↓ psychological anxiety response in the experimental group ($p < 0.05$)
1997	Chutachindakaet (41) Experimental design	Cervical cancer patients receiving radiotherapy 40 subjects for 2 groups $n_1 = 20$ $n_2 = 20$	Benson's Respiratory One Method 24 days	↓ anxiety scores in the experimental group ($p < 0.05$)

Table 2 Research study related to relaxation technique (continue)

Year	Researcher& Study design	Samples	Relaxation technique	Results
1997	Krachaengdan (42) Experimental design	Hypertensive patients 20 subjects for 2 groups $n_1 = 10, n_2 = 10$	Meditation 8 weeks	↓ anxiety scores in the experimental group($p < 0.05$)
1997	Sra-ubon(43) Experimental design	HIV infected drafted men in the military prison who are free from physical and psychiatric symptom 30 subjects $n_1 = 15, n_2 = 15$	Muscle relaxation 6 weeks	↓ anxiety scores in the experimental group($p < 0.05$)
1997	Teeyapan (44) Single subject research design	Diagnosed by cardiologist as palpitation caused by anxiety 2 subjects	Muscle relaxation 1 month	↓ anxiety palpitation in the experimental group($p < 0.05$)
1997	Chauwajarean (45) Experimental design	The outpatient chronic obstruction pulmonary disease 30 subjects for 2 groups $n_1 = 15, n_2 = 15$	Deep breath relaxation training 4 weeks	↓ anxiety scores in the experimental group($p < 0.05$)

CHAPTER III

MATERIALS AND METHODS

Research Design

This study is a randomized controlled trial (RCT) which is known as the best design that can evaluate the effectiveness of intervention and eradicate or minimize selection bias. (46)

Population and Sample

The target population were the patients who were to undergo total abdominal hysterectomy(TAH). The study population were patients who had not been diagnosed as having cancer, were to undergo TAH and were admitted into Gynaecology ward, Ramathibodi Hospital during 19th November 1999 to 29th February 2000. These patients were routinely hospitalized 1 day prior to their operation. The operation schedule was released by the Department of Obstetric&Gynaecology in the late afternoon on the admission day. Patients would be eligible if they met the following inclusion criteria.

Inclusion criteria

1. Aged 30 – 59 years
2. No hearing problem
3. No mental retardation or disorder
4. Non -private cases
5. Non-emergency cases

6. Willingness to participate

Exclusion criteria

Having difficulty in answering or not answering the questionnaire e.g. patients who were sedated by drug on the operative day.

Data Collection

The patients who met with inclusion criteria were explained the purpose of this study. The patients were randomly allocated into 2 groups, experimental and control group. The methods of randomization were described in more details in the statistical analysis parts. The randomization number were sealed in envelopes and were opened after meeting with eligible patients. Data including personal data and clinical data were extracted from medical records using the standard data recording forms. (see appendix B)

Variables and Measurements

Independent variable

Independent variable was relaxation training. Patients who were allocated to the experimental group would receive relaxation training while the control group did not. The procedures we had done for each group were as follows:

The experimental group

The patients were instructed by gynaecologic nurses about operational preparation in the evening of the day before operation. Other instruction was received from the researcher as the following protocol.

In the afternoon of the day before operation

1. Establishing relationship
2. Explain the aim of the study about the advantage of relaxation training. For example decreasing muscular tension, anxiety, blood pressure and postoperative pain.
3. Informed consent form was signed.
4. Patient answered the questionnaire about the personal data and the anxiety she felt. Thai version of the Hospital Anxiety and Depression Scale (Thai HADS) was used.
5. Patient asked to empty her bladder before the starting of training. Curtain are pulled around the bedside for privacy. Tight clothing were loosened. Patient were advised to be in a comfortable position. Legs not be crossed.
6. Keeping eyes closed while meditating. Focus on mind and concentrate on the instruction in the tape recorder and practice along with the tape.
7. Put on headphone
8. Practicing relaxation. Researcher stayed with the patient until all the process was complete.
9. After completing the practice patient remained in bed for 1 – 2 minutes before doing other activity.
10. The alarm clock were left at bedside cupboard. Patient was advised to practice relaxation by themselves at 20.30 hour, and the next morning at 06.00 hour then post- operation when consciousness was completely regained.

In the morning of the operation day

11. Before taking premedication drug, the patient was advised to practice

relaxation about 10 minutes by themselves.

12. Following the practice the patient was asked to answer the second anxiety questionnaire (Thai HADS). Handed out by researcher or assistant.

48 hours after operation

13. The patient should now fully gain consciousness and freely become mobile. She was advised to practice relaxation about 10 minutes as required by the patient.

14. After practicing the third anxiety questionnaire (Thai HADS) was filled in by the patient.

The control group

The patients were instructed by gynaecologic nurses about operational preparation in the evening of the preoperation day. The procedure was similar to the experimental group except relaxation's instruction and relaxation training. Answering the questionnaires advised in the same pattern and about the same time as in the experimental group

Outcome variables

The outcome variable was the anxiety score, which was measured using the Hospital Anxiety and Depression Scale (HADS) (25) Nilchaikovit (15) had translated and depression sub-scales of Thai HADS were 100% and 85.71 respectively, while the specificity were 86.0% for anxiety and 91.3% for depression. Both sub-scales also showed good internal consistencies with Cronbach's alpha coefficient sub-scales. The study showed that Thai HADS is a reliable and valid instrument for the screening of anxiety and depression in Thai patients.(15)

Thai HADS was a set of questionnaires, answered by patients, consisting 7 items for anxiety (items 1,3,5,7,9,11,13, and15), and another 7 items for depression (items 2,4,6,8,10,12, and14). Likert scale was used for grading and levels of grading were as follow;

0 = no symptom

1 = mild symptom

2 = less than moderate symptom

3 = moderate to severe symptom

Total score 0 – 21, Scale score as following:

0 – 7 = no symptom

8 – 10 = mild to moderate symptom

11 –21 = moderate to severe symptom

Materials (see appendix D)

1. Tape recorder(AIWA GL-511 mini cassette recorder player)
2. Benson's Respiratory One Method cassette tape (47) Leung-amornlert et al.(16) translated into Thai and recorded in Thai (see appendix C)
3. Headphone (AIWA stereo dynamic headphones HP-WV305)
4. Alarm clock

Statistical Methods

Sample size estimation : Information using in sample size estimation was based on Petcharaburanin 's study(48), who studied well planned information to

anxiety in previous caesarean section mother at Ramathibodi Hospital in 1992. From this study, the following was extracted.

μ_0 = mean of the control group's anxiety scores = 55.40

σ^2 = pooled variance = 47.28

Set $\alpha = 0.05$

$\beta = 0.10$

Define delta ($\mu_1 - \mu_0$) = 5

Sample size formula (49) was

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 2\sigma^2}{(\mu_1 - \mu_0)^2}$$

$Z_{\alpha/2} = 1.96$

$Z_{\beta} = 1.282$

$\sigma^2 = 47.28$

Hence

$$n = \frac{(1.96 + 1.282)^2 (2) (47.28)}{5^2}$$

$$= 40$$

Sample size need to be used was 40 patients for each group.

Concerning for incomplete data or unwilling patients after randomization, we needed at least 44 patients to be included in each group.

Random allocation

We used STATA version 5 (50) to generate block randomization. The procedure were as follow;

1. Randomization scheme created on 5 November 1999 at 16.49 hr. using



lloc.ado v1.1.2 (statistic package for STATA)

2. Seed used = 888
3. There were 2 treatments defined.
4. The treatment were allocated in the ratio 1:1
5. There were 16 blocks of 5 different sizes generated.
6. The minimum block size is 2, maximum is 10.
7. Block sizes were allocated proportional to elements of Pascal's triangle.
8. There were 90 allocations requested.
9. Original allocation order is stored in the variable "order".
10. A = relaxation, B = No relaxation

Statistical Analysis

Data was analysis by using SPSS for window version 9.0(51) The steps of data analysis were as follow;

1. General characteristics of patients between experimental and control groups were described using mean and standard deviation for continuous variables, frequency and percentage for categorical variables. Those characteristic were compared between groups using t-test for continuous variables and chi-square test for categorical variables.

2. Independent t-test was applied to compare anxiety scores at different stages between groups

3. For differential anxiety scores between stages, independent t-test was applied.

4. ANOVA with repeated measurement was applied to determine the effect of relaxation training during pre and postoperative periods.

CHAPTER IV

RESULTS

The purpose of this experimental research was to study the effect of the relaxation training on pre and postoperative anxiety of patients undergoing a total abdominal hysterectomy. Random allocation was used for selecting 90 patients. They were divided into two groups, experimental group (n=45) and control group (n=45). In the control group one patient could not answer the second questionnaire to assess anxiety level due to sleepiness by sedative drugs during preoperative period. Therefore only 44 patients remained in this control group. Data was analyzed by using SPSS for window. Finding from this study are presented in this chapter as followings.

1. General characteristics, past experience and meditation practice among patients
2. Comparison of anxiety scores after admission, preoperation and post-operation among groups

1. General Characteristics and Past Experience among Patients

General characteristics of patients before receiving intervention between groups are shown in Table 3. There was no statistically significant difference between groups for age, education, marital status, number of living children, social welfare and income. Most of patients were 40-49 years, average age in the experimental group

was 44.38 ± 6.10 and the control was 44.02 ± 5.64 . Concerning the educational level, most of patients received 1 - 6 years of education, 57.8 % of the experimental group and 56.8 % of the control respectively. Seventeen per cent of the experimental group and 15.9% in the control had educational level of 7-12 years respectively. Regarding marital status, most patients were married, 68.9% of the experimental group and 77.3% of the control respectively. Seventeen per cent in the experimental group and 11.4% in the control group were single, while patients who were divorced or widowed or separated were 13.3% of the experimental group and 11.4% of the control. For the number of living children, 64.4% of the experimental group and 70.5% of the control group had more than 1 living children. Thirty-five per cent of the experimental group and 29.5% of the control had no children.

More than 40% of both experimental and control group had no social welfare and had to pay the hospital bill by themselves. Most of the patients in both groups had average family income more than 12000 Baht per month, 46.7 % of the experimental group and 47.7% of the control group respectively. About 25-26% of patients in both groups had income between 3000 to 6000 Baht per month. When asked whether the income was enough for normal living, more than 50% of patients of both groups said yes. Only 17.8% and 13.6% of patients admitted that the income was not enough in the experimental group and the control group respectively. Twenty-four per cent of the experimental group and 22.7% of the control had income enough for saving. However, there are no statistically significant difference ($p > .05$) between these variables of the two groups.

Table 3 General characteristics of patients

Variables	Experiment (n = 45)	Control (n = 44)	p-value*
Age, (years)			0.121
30-39	9 (20.0%)	6 (13.6%)	
40-49	26 (57.8%)	34 (77.3%)	
50-59	10 (22.2%)	4 (9.1%)	
Education (years)			0.94
1 – 6	26 (57.8%)	25 (56.8%)	
7 – 12	8 (17.8%)	7 (15.9%)	
≥ 13	11 (24.4%)	12 (27.3%)	
Marital Status			0.63
Single	8 (17.8%)	5 (11.4%)	
Married	31 (68.9%)	34 (77.3%)	
Divorced, widowed and separated	6 (13.3%)	5 (11.4%)	
Number of living children			0.65
0	16 (35.6%)	13 (29.5%)	
≥1	29 (64.4%)	31 (70.5%)	
Social Welfare			0.67
No	21 (46.7%)	18 (40.9%)	
Yes	24 (53.3%)	26 (59.1%)	

Table3 General characteristics of patients (continue)

Variables	Experiment (n = 45)	Control (n = 44)	p-value *
Income, Baht/month			0.98
3000-6000	12 (26.7%)	11 (25%)	
6001-12000	12 (26.7%)	12 (27.3%)	
≥12001	21 (46.7%)	21 (47.7%)	
Income Enough for Normal Living			0.82
No	8 (17.8%)	6 (13.6%)	
Yes	26 (57.8%)	28 (63.6%)	
Yes \bar{c} Saving	11 (24.4%)	10 (22.7%)	

* Chi-square test

Past experiences of patient in both group are shown in Table 4. Most patients had never undergone any kind of operation before (53.3 % of the experimental group and 52.3 % of the control group). When asked whether the meditation about 93 % of the both groups had never practiced meditation regularly. There are no statistically significant difference between the two groups($p>0.05$).

Table 4 Past experience and meditation practice of patients

Variables	Experiment (n = 45)	Control (n = 44)	p-value*
Ever undergone operation			1.00
Never	24 (53.3%)	23 (52.3%)	
Ever	21 (46.7%)	21 (47.7%)	
Ever practiced meditation regularly			1.00
Never	42 (93.3%)	41 (93.2%)	
Ever	3 (6.7%)	3 (6.8%)	

* Chi-square test

2. Comparison of Anxiety Scores After Admission. Preoperation and Post-operation between Groups

2.1 Anxiety score at different stages

2.1.1 Anxiety after admission (before intervention)

Before intervention a mean of anxiety scores in the experimental group were significantly higher than that of the control group (Table 5). The mean anxiety scores in the experimental group were 8.13 ± 3.42 compared to 6.36 ± 2.90 in the control. The differences was statistically significant ($p < 0.01$).

2.1.2 Anxiety scores after intervention

2.1.2.1 Preoperative scores

After intervention a mean of anxiety scores of the experimental group decreased greater than that of in the control group. The mean anxiety score at this stage of the experimental group were 5.67 ± 3.25 compared to 7.45 ± 4.41 in the control group. They were significantly different ($p < 0.05$).

2.1.2.2 Post operative score

About 48 hours after operation mean of anxiety scores of the experimental group were lower than the control. The anxiety scores of the experimental group were 5.24 ± 3.77 compared to 8.09 ± 4.39 in the control. They were significantly different ($p < 0.05$).

Table 5 Anxiety scores at different stages in both groups

Group	Anxiety Scores		
	Pre-intervention	Post-intervention	
	Admission $\bar{x} \pm SD$	Pre-operation $\bar{x} \pm SD$	Postoperation $\bar{x} \pm SD$
Experiment	8.13 ± 3.42^a	5.67 ± 3.25^b	5.24 ± 3.77^c
Control	6.36 ± 2.90^a	7.45 ± 4.41^b	8.09 ± 4.39^c

a. $p < 0.01$ t-test

b. $p < 0.05$ t-test

c. $p < 0.001$ t-test

2.2 Differential anxiety scores between stages

We compared the differences between scores at different stages in both groups. (Table 6) Firstly, the difference of anxiety scores between admission and

pre-operation were compared. In experimental group anxiety score decrease from 8.13 to 5.67 ($\bar{d} = -2.47 \pm 2.74$) compared to that of the control group in which the anxiety scores increased from 6.36 to 7.45 ($\bar{d} = 1.09 \pm 2.64$). The result was significant different statistically ($p < 0.0001$) Secondly, we compared postoperation with admission anxiety scores.(Table6) In the experimental group decreased from 8.13 to 5.24($\bar{d} = -2.89 \pm 4.16$) compared to the control in which the scores increased from 6.36 to 8.09($\bar{d} = 1.73 \pm 3.16$) There were statistically significant difference at $p < 0.001$. Lastly, we compared different anxiety scores between pre and post-operation. The anxiety scores decreased from 5.67 to 5.24 ($\bar{d} = -0.42 \pm 3.33$) in the experimental group when compare to the control group which the scores increased from 7.45 to 8.09 ($\bar{d} = 0.64 \pm 3.32$). There were no statistically significant difference($p=0.137$) (Table6).

Table6 Differential anxiety scores between stages

Differential anxiety scores	Experiment	Control	t	df	p-value
Preop VS Admission	-2.47±2.74	1.09±2.64	-6.23	87	.0001
Postop VS Admission	-2.89±4.16	1.73±3.16	-5.89	87	.0001
Postop VS Preop	-0.42±3.33	0.64±3.32	-1.50	87	.137

2.3 ANOVA analysis

To analyze the mean of anxiety scores at different stages between both groups, repeated measurement ANOVA was applied (Table7). Setting the admission (pre-intervention) anxiety score as covariate variable, the results showed statistically difference among the anxiety scores between groups($p<.0001$).

Table 7 Comparison of anxiety scores after intervention in pre and postoperative periods between the experimental and control group by ANOVA with repeated measurement

Source	df	SS*	MS**	F	p-value
Between					
Group	1	278.12	278.12	38.46	0.0001
Error	86	621.83	7.23		
Within					
Time	1	22.72	22.72	4.28	0.042
Time × score1	1	23.87	23.87	4.49	0.037
Time × group	1	4.30	4.30	0.81	0.37

* Sum square

** Mean square

CHAPTER V

DISCUSSION

The purpose of this study was to determine the effects of the practice of relaxation technique on reducing anxiety during pre and postoperative periods for patients who underwent total abdominal hysterectomy. This discussion will be presented in two parts: First the methodology of this study and second, the result and implication of this study according to the objectives of the study.

1. Research Methodology

The study is designed as an experimental one. Clinical trial has advantage over uncontrolled clinical observation that a clinical trial offers the possibility of such judgment because there exists a control group. (52) There are at least three advantages of randomization. Firstly, randomization removes the potential of bias in the allocation of subjects to the intervention group or to the control group. Secondly, somewhat related to the first, is that randomization tends to produce comparable groups; that is, the measured or unknown prognostic factors and other characteristics of the subjects at the time of randomization will be, on the average, evenly balanced between the intervention and control group. This does not mean that in any single experiment all such characteristics, sometimes called baseline variables or covariates, will be perfectly balanced between the two groups. The third advantage of randomization is that the validity of statistical test of significance is guaranteed. The

validity of the statistical tests of significance is not dependent on the balance of the prognostic factor between the two groups. (52) However this study also has some disadvantages. Firstly, this study is not feasible to blind due to limitation of time, personnel and characteristic of intervention. It is possible that some bias may occur during the assessment of anxiety level. This bias was partially reduced by patient self report on questionnaire. Secondly, the problem about randomization is evident in this study. The difference between the two groups does not mean that randomization did not work. Random allocation of participants to experimental and control group is the method used to avoid any bias in selection. However, it does not guarantee their equivalence. (53,54). It would need large sample size ($n > 120$) to ensure the equivalence between groups. (55) Thirdly, The measurement of anxiety in this study may not be a perfect one. Anxiety is a condition which has some difficulty to assessment. In this study we use the Hospital Anxiety and Depression Scales in Thai version developed by Nilchaikovit et al(15) which is modified from Zigmond et al. (24) HADS was a set of questionnaires. They consisted 7 items for anxiety assessment and another 7 items for depression evaluation. The whole of items were answered by the subjects, even though only anxiety evaluation was used in this study. Thai HADS were tested in cancer patients not only for reliability but also for validity. Semistructure clinical psychiatric interview was used as the gold standard. The result of the study showed that the Thai HADS had good reliability and validity for both anxiety sub-scales. The sensitivity of anxiety sub-scales in Thai HADS was 100%, while the specificity was 86.0%. The other anxiety questionnaires, although, were translated in Thai but reliability and construct validity were not tested for Thai people. Because of repeated measurement in this study, the subject may remember the

questions without knowing the answers. They may complete the questionnaire more readily but no effect on anxiety scores is expected.

2. Results of the Study

2.1 Anxiety scores at different stages

The results of this study demonstrate that practice of relaxation techniques had a significant impact on anxiety. Although at baseline after admission the experimental group had significantly higher anxiety scores than the control, after receiving relaxation training and practice, anxiety scores in the experimental group significantly decreased to a lower level than that in the control group, not only during the pre-operative period but also at postoperative stage. These results support the relaxation response theory of Herbert Benson which stated that the relaxation response is an integrated hypothalamic response accompanied by a decrease in sympathetic arousal, and muscle tone.(12) The results of this study are in accordance with Guzzetta CE.(47) which studied anxiety level in patients with presumptive acute myocardial infarction and focused on the relaxation in one effective method in reducing stress in this patients. Guzzetta stated that relaxation is an acquired skill. The more individuals practice the techniques, the more effective they become in producing therapeutic changes in their psychophysiology. It is not surprising to discover, therefore, that patients in the intervention groups became more proficient in the art of relaxation over time. These data also support other research to document that cumulative practice improves outcomes. Practicing these techniques over a longer period of time (days, weeks, or month) undoubtedly might have been even more effective in producing the desired outcomes.(47) The most beneficial psychological

interventions in decreasing operative anxiety and enhancing recovery are those that provide patients with emotional support, positive expectancy and coping strategies. (38,56) The success of Benson's relaxation technique may have been related to the fact that they contained all these components. The reason why anxiety scores went down after receiving relaxation training and practice is most likely a function of an integrated hypothalamic response which results in generalized decreased sympathetic nervous system activity.(12)

The result of this study showed that one training session of relaxation technique reduced the anxiety score significantly. On the contrary, anxiety in the control group increased during different stages of the study. Anxiety scores were highest during post-operation period. It may be due to the component of pain contributed in anxiety evaluation. Moreover, it may be the result of the significant increment of anxiety with pain during the postoperative period, the relaxation practice did not decrease anxiety scores during this period significantly when compare to that in the preoperative ones.

2.2 Differential anxiety scores between stages

Concerning the differential anxiety scores between stages, the results showed statistically significant differences in differential scores of pre-operation VS admission and postoperation VS admission comparing between the experimental and control group. This result again confirms the effectiveness of Benson's relaxation technique. However there were no statistically significant difference in differential scores of preoperation VS postoperation.

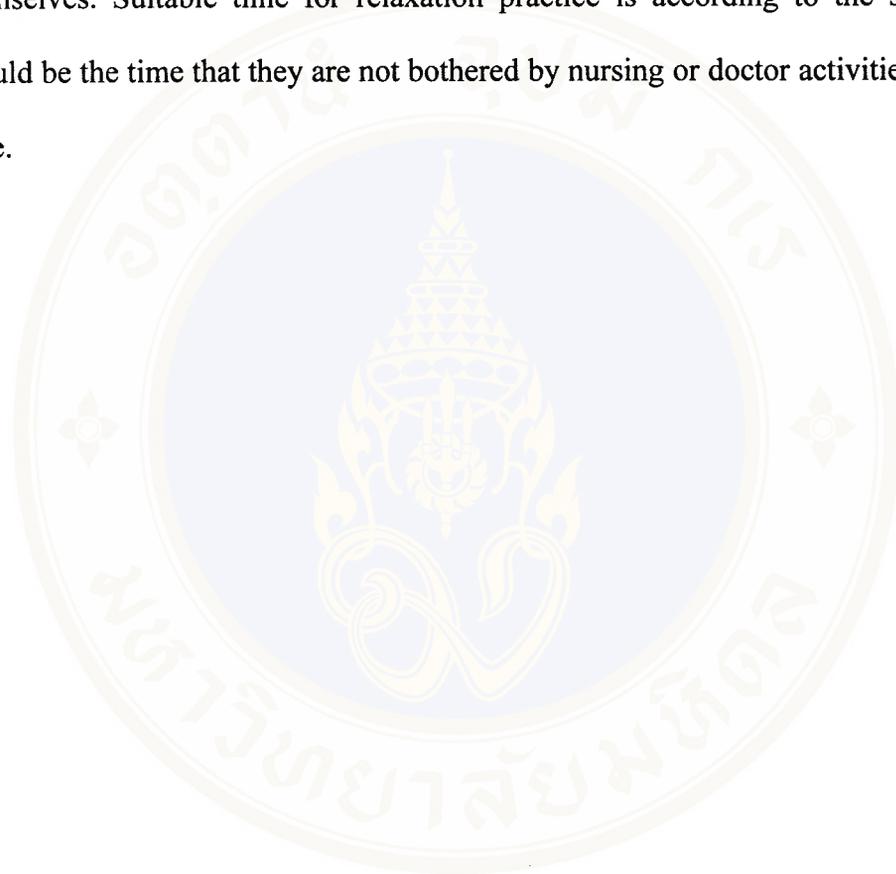
This study supports Wongpiriyayotha's (14) and Ma's (40) studies which found that the anxiety scores and psychological anxiety response were significantly

lower after receiving relaxation training. On the contrary, Learn-amornlert et al.(16) found no significant difference when they studied anxiety among student in secondary school Khon-Khaen. This may be due to small sample size (11 in each group). In our study the subjects were trained once on 1 day prior operation to practice the relaxation technique. The training session was conducted individually by the author. At the beginning the subjects were informed about the process and the advantages of relaxation technique eg. decreasing muscular tension, anxiety, blood pressure and post-operative pain. They were asked also for cooperation and then given a tape to listen and practice relaxation procedure along while listening. After the training, The subjects were advised to practice relaxation by themselves at 20.30 hour the night before operation, the next morning at 06.00 hour, and then during post-operation when they gained complete consciousness and at their convenience.

Comparing to other studies, Wongpiriyayotha (14) gave 3 relaxation training in preoperative open heart surgery patients while Ma et al.(40) gave 6 relaxation training to abdominal surgery patients, this study gave only once. Miller et al.(13) suggested that relaxation training should be conducted several times for some days before operation. Our study showed that the number of relaxation training program might not be the significant factor but subject's cooperation and compliance are more important. In this study, the relaxation training was given for once but the subjects could practiced as many time by themselves, which increase the patient's feeling of self-reliance and control.

Some extraneous factor like environmental noise at ward, space for practice are hard to control and provided. However, significant finding from Guzzetta (47) revealed that relaxation training can be accomplished in a busy ward. One of the

elements in achieving relaxation is a quiet environment. The use of comfortable sponge headsets for listening was undoubtedly an important factor in blocking out distracting noise. This study also applied this technique. This study also confirmed that the effectiveness of relaxation training relied primarily on the subjects themselves. Suitable time for relaxation practice is according to the subjects and should be the time that they are not bothered by nursing or doctor activities or visiting time.



CHAPTER VI

CONCLUSION

This randomized controlled trial is aimed to determine the effects of relaxation training on anxiety of patients undergoing a total abdominal hysterectomy (TAH). The study population were non-cancer patients who were undergoing TAH and were admitted at Gynaecology Ward, Faculty of Medicine Ramathibodi Hospital during 19th November 1999 to 29th February 2000. The patients sample size were 89 subjects, were randomly allocated to experimental group (n=45) and control group (n=44). The experimental group received relaxation training once after admission and practiced by themselves, the control group did not.

Results of this study reveal that the anxiety scores of patients who received relaxation training are significantly decreased when compared to those of patients who did not receive the training. Although after admission the anxiety scores of the experimental group were significantly higher than of the control, the scores after intervention at pre and postoperation; the anxiety scores of the experimental group were significantly lower ($p < 0.001$). The significant differences were also shown when compared the differential anxiety scores between stages of both groups. In the experimental groups, the anxiety scores decreased after intervention (both pre and postoperation) compared to the control group in which the scores increased. The differential scores at stages compared to the admission level were significantly different ($p < 0.0001$). By ANOVA analysis, the statistically significant differences between anxiety scores of both groups are confirmed. ($p < 0.0001$)

In summary, the effects of relaxation training on anxiety levels of pre and postoperative patients, undergoing a total abdominal hysterectomy were clearly demonstrated in this study that it could reduce anxiety of patients during these critical period of time. And this training should be incorporated into the patients' information and counseling whenever possible.

Recommendation for Application

1. Both general and perioperative nurses can apply the relaxation training for every case of surgical patients to reduce preoperative and postoperative anxiety.
2. If the patient did not received relaxation training at ward prior operation they could received while waiting for operation in the operating room.
3. Assessment of preoperative anxiety will enable the nurse to identify patients who may have difficulty in adjusting to hospitalization or coping with stress and anxiety during the postoperative period.

Recommendation for Further Research

1. Research on anxiety in other types of operation or in male patients.
2. Research on the effects of repeated training on reduction of anxiety.
3. Research on other measurable variables e.g. peripheral temperature on assessment of relaxation.
4. Research on timing eg. in operating room while waiting for operation.

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APPENDIX A

Human Rights for Research Population

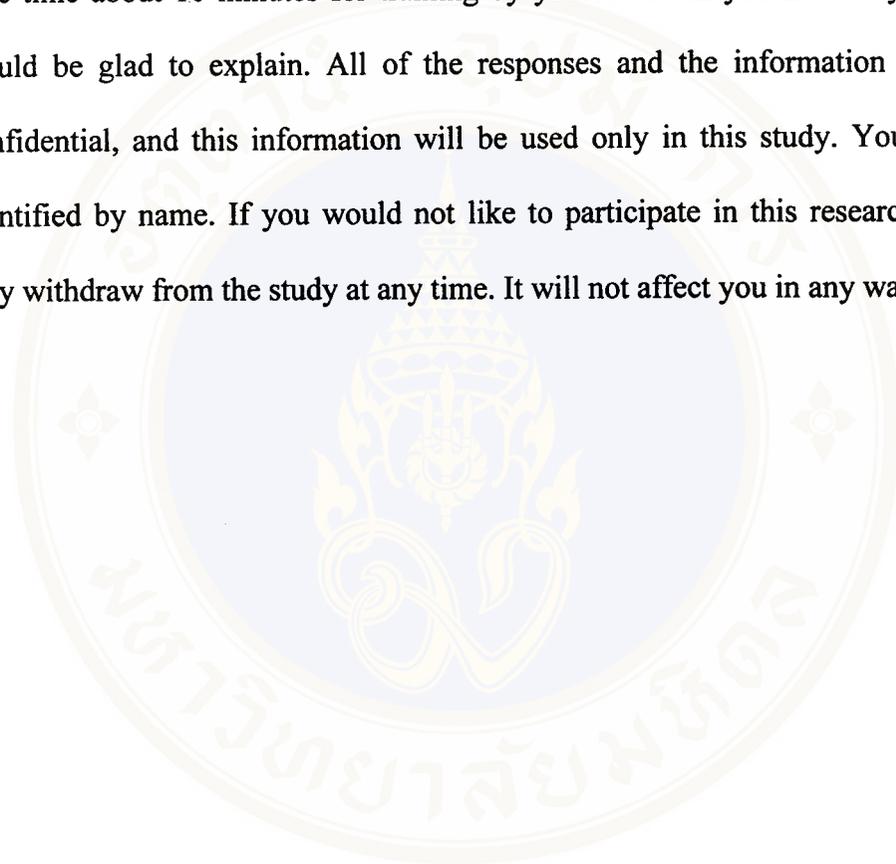
Verbal Explanation to Subjects in the Control group

I am Benjamaporn Poolsawat, a graduate Human Reproduction and Population Planning at the Department of Obstetric and Gynaecology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University. I am interested in research study about pre&postoperative anxiety on total abdominal hysterectomy patients. The research will be beneficial to improve the quality of pre&postoperative visiting. If you agree to participate, you will be asked to complete demographic data, and evaluated anxiety by yourself. It will take you about 10 minutes. All of the responses and the information will be kept confidential, and this information will be used only in this study. You will not be identified by name or code. If you would not like to participate in this research study, you may withdraw from the study at any time. It will not affect you in anyway.

Verbal Explanation to Subject in the Experimental Group

I am Benjamaporn Poolsawat, a graduate Human Reproduction and Population Planning at the Department of Obstetric and Gynecology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University. I am interested in research study about the relaxation training in the pre&postoperative total abdominal hysterectomy patient. The research will be beneficial to decrease pre&postoperative anxiety, muscle tension, blood pressure, post-operative pain. If you agree to participate, you will be asked to complete demographic data and evaluated anxiety by

yourself, and then I will give you the tape recorder about relaxation technique practicing for listening about 20 minutes at this time. After that the patient will be advised to practice relaxation by themselves at 20.30 hours, and the next morning at 06.00 hours then post-operation when consciousness was completely regained. It will take time about 10 minutes for training by yourselves. If you have any questions, I would be glad to explain. All of the responses and the information will be kept confidential, and this information will be used only in this study. You will not be identified by name. If you would not like to participate in this research study, you may withdraw from the study at any time. It will not affect you in any way.



APPENDIX B**PART I Personal Data Form**

Subject number.....

Date.....

1. Study group

- 1. Control group
- 2. Experimental group

2. Age years

3. Education

- 1. Primary school or lower
- 2. Secondary school
- 3. Technique school
- 4. University or Higher

4. Income, Baht/month

- 1. ≤ 3000 Baht/month
- 2. 3001 – 6000 Baht/month
- 3. 6001 – 9000 Bath/month
- 4. 9001 – 12000 Baht/month
- 5. ≥ 12001 Baht/month

5. Income / Expense

- 1. Not enough to
- 2. Enough
- 3. Enough and storage

6. Welfare

- 1. Receive
- 2. Not receive

7. Status

- 1. Single
- 2. Married
- 3. Divorce/ separated/ widowed

8. Presence of children

- 1. No
- 2. Yes

9. Ever operation

- 1. No
- 2. Yes

10. Ever routinely meditation

- 1. No
- 2. Yes

PART II**Hospital Anxiety and Depression Scale**

Emotions play an important part in most illnesses. If the health personal who taking care you know about these feeling, they will be able to help you more.

This questionnaire is designed to help your official in charge to know how you feel. Read each item and mark the reply which comes closest to how you have been feeling in the past week. Please answer all of the questions.

1. I feel tense or “wound up”:

<input type="radio"/> Most of the time	3
<input type="radio"/> A lot of the time	2
<input type="radio"/> From time to time, occasionally	1
<input type="radio"/> Not at all	0

2. I still enjoy the things I used to enjoy:

<input type="radio"/> Definitely as much	0
<input type="radio"/> Not quite so much	1
<input type="radio"/> Only a little	2
<input type="radio"/> Hardly at all	3

3. I get a sort of frightened feeling as if something awful I about to happen:

<input type="radio"/> Very definitely and quite badly	3
<input type="radio"/> Yes, but not too badly	2
<input type="radio"/> A little, but it doesn't worry me	1
<input type="radio"/> Not at all	0

4. I can laugh and see the funny side of things:

- As much as I always could 0
- Not quite so much now 1
- Definitely not so much now 2
- Not at all 3

5. Worrying thoughts go through my mind:

- A great deal of the time 3
- A lot of the time 2
- From time to time but not too often 1
- Only occasionally 0

6. I feel cheerful:

- Not at all 3
- Not often 2
- sometimes 1
- Most of the time 0

7. I can sit at ease and feel relaxed:

- Definitely 0
- Usually 1
- Not often 2
- Not at all 3

8. I feel as if I am slow down:

- Nearly all the time 3
- Very often 2
- Sometimes 1

- () Not at all 0
9. I get a sort of frightened feeling like “butterflies” in the stomach:
- () Not at all 0
- () Occasionally 1
- () Quite often 2
- () Very often 3
10. I have lost interest in my appearance:
- () Definitely 3
- () I don't take so much care as I should 2
- () I may not take quite as much care 1
- () I take just as much care as ever 0
11. I feel restless as if I have to be on the move:
- () Very much in deed 3
- () Quite a lot 2
- () Not very much 1
- () Not at all 0
12. I look forward with enjoyment to things:
- () As much as ever I did 0
- () Rather less than I used to 1
- () Definitely less than I used to 2
- () Hardly at all 3
13. I get sudden feelings of panic:
- () Very often indeed 3

- () Quite often 2
- () Not very often 1
- () Not at all 0

14. I can enjoy a good book or radio or TV program:

- () Often 0
- () Sometimes 1
- () Not often 2
- () very seldom 3

Scoring

Anxiety = Item 1,3,5,7,9,11,13 (altogether)

Depression = Item 2,4,6,8,10,12,14 (altogether)

เนื้อหาในเทปการฝึกการผ่อนคลาย

ผู้วิจัยได้นำเทปวิธีการฝึกการผ่อนคลายแบบ Benson's Respiratory One Method ของ Guzzetta ซึ่งสุจิตรา เหลืองอมรเลิศและปัญญากรณ์ ชูตั้งกร นำมาแปลและบันทึกเทปเป็นภาษาไทย โดยมีวิธีในการฝึกดังนี้

ปฏิบัติการผ่อนคลาย ให้ท่านทำจิตใจและร่างกายให้สบาย ลมหายใจเข้าออกซ้ำๆ 3 ครั้ง ลมหายใจเข้าให้เต็มปอด โดยกำหนดว่าหายใจเข้าท้องจะโป่ง หายใจออกท้องจะแฟบ ให้ท่านเริ่มทำ หายใจเข้า หายใจออก หายใจเข้า หายใจออก หายใจเข้า หายใจออก ท่านจะรู้สึกได้ว่าตัวท่านเบา และสบายขึ้น สบายขึ้น ต่อไปให้สนใจเฉพาะที่ศีรษะของท่าน ให้รู้สึกว่ามีบริเวณกระหม่อมศีรษะ นั้นเบา สบาย โลง ไม่มีความตึงเครียดเหลืออยู่ ถ้ายังรู้สึกมีมัน ทึบ ตึง ให้ท่านผ่อนคลายกล้ามเนื้อลง ให้มากที่สุด ให้ความรู้สึกเบา สบาย โลง เข้ามาแทนที่ ให้ความรู้สึกเบา สบาย โลงผ่านมายังบริเวณ หน้าผาก คิ้ว เปลือกตา และนัยน์ตาทั้งสองข้าง ให้อวัยวะนั้นอยู่ในท่าที่สบายที่สุด กล้ามเนื้อคลายตัวและความรู้สึกอบอุ่นแผ่ไปทั่วใบหน้าและรู้สึกเบา สบาย ให้ความรู้สึกเบา สบายผ่านไปยัง บริเวณแก้ม ริมฝีปากและคาง ให้อวัยวะส่วนนี้อยู่ในท่าที่สบายที่สุด กล้ามเนื้อคลายตัว รู้สึกว่าความอบอุ่นแผ่ไปทั่วใบหน้าและรู้สึกเบา สบาย ให้ความรู้สึกเบา สบาย โลงผ่านลงมาตามลำคอ ไหล่ ต้นแขน มือและนิ้ว ให้รู้สึกว่ามีกล้ามเนื้อบริเวณนี้คลายตัว ไม่รู้สึกปวดเมื่อยหรือล้า ให้รู้สึกปวดเมื่อยหรือล้าหายไป ให้รู้สึกอบอุ่นที่มือทั้งสองข้าง ซึ่งหมายถึงว่าท่านอยู่ในภาวะที่ผ่อนคลายแล้ว ต่อไปให้สนใจบริเวณหลัง เอว ก้น ให้ความรู้สึกว่าบริเวณที่ปวดเมื่อยหรือเครียดนั้นหายไป ให้รู้สึกเบา สบายและนอนอย่างมีความสุข ให้ความรู้สึกเบา สบายผ่านมายังหน้าอก ท้อง สะโพก ให้รู้สึกว่ามีกล้ามเนื้อบริเวณนี้คลายตัว รู้สึกเบาและสบาย ต่อไปให้สนใจที่ต้นขา เข่า น่อง ข้อเท้า ฝ่าเท้าและนิ้วเท้า ให้ความรู้สึกมีมือฝ่าเท้าผ่านไป ให้ความรู้สึกเบาและสบายเข้ามาแทนที่ ให้ความรู้สึกเบา

สบายตั้งแต่ศีรษะจรดปลายเท้า รู้สึกว่าร่างกายทุกส่วนเบา สบาย มีความสุขสงบ รู้สึกถึงความสุขแผ่
ไปทั่วร่างกาย ถ้ายังมีความรู้สึกไม่สุขสบายหลงเหลืออยู่บริเวณใดของร่างกาย ให้ยับยั้งบริเวณนั้น
แล้วให้ความรู้สึกเบาสบายเข้ามาแทนที่ ให้ความรู้สึกเบาสบายอยู่ที่ตัวท่าน ต่อไปให้สนใจที่การ
หายใจ ให้หายใจเข้าและออกช้าๆ ลองหายใจเข้า ออก โดยกำหนดว่าหายใจเข้าท้องจะโป่ง หายใจ
ออกท้องจะแฟบ ในขณะที่หายใจออกให้นับ “หนึ่ง” ในใจของท่าน ทำเช่นนี้ติดต่อกันประมาณ 10
นาที ถ้ามีเสียงรบกวนระหว่างนี้หรือมีความคิด ความรู้สึกอะไรผ่านเข้ามา ก็พยายามไม่สนใจ และ
ตั้งใจนับหนึ่งในขณะที่หายใจออก ต่อไปให้ท่านอยู่ในความสงบ สบาย สนใจเฉพาะลมหายใจของ
ท่านไปเรื่อยๆ หายใจเข้า....หายใจออก (หนึ่ง) หายใจเข้า....หายใจออก (หนึ่ง).....

ต่อไปนี้ข้าพเจ้าจะบอกให้ท่านลืมนับ โดยนับจากห้าไปถึงหนึ่ง เมื่อข้าพเจ้านับไปถึงหนึ่งท่าน
จะลืมนับได้ และหลังจากลืมนับแล้วให้ท่านพักสักครู่ ข้าพเจ้าจะเริ่มนับ ห้า สี่ สาม สอง หนึ่ง.

APPENDIX D





BIOGRAPHY

NAME Ms. Benjamaporn Poolsawat

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INSTITUTIONS ATTENDED Mahidol University, 1986-1990:
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