

**THE EFFECT OF CONCRETE–OBJECTIVE INFORMATION
ON MATERNAL ANXIETY OF CHILDREN
UNDERGOING CARDIAC CATHETERIZATION**

The seal of Mahidol University is a circular emblem. It features a central blue circle containing a golden stupa-like structure. The entire emblem is surrounded by a golden border with Thai script. The name 'SOPAH PISSAJARN' is printed in black capital letters across the center of the seal.

SOPAH PISSAJARN

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR
THE DEGREE OF MASTER OF NURSING SCIENCE
(PEDIATRIC NURSING)
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MAHIDOL UNIVERSITY**

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Thesis
Entitled

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ON MATERNAL ANXIETY OF CHILDREN
UNDERGOING CARDIAC CATHETERIZATION**

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ABSTRACT

The purpose of this experimental study was to investigate the effect of concrete – objective information on maternal anxiety of children undergoing cardiac catheterization. The conceptual framework of this study is based on the self–regulation theory of Johnson (1999). Fifty-four mothers were recruited from Queen Sirikit National Institute of Child Health and randomly assigned into experimental and control groups of 27 each. The experimental group received concrete–objective information via multimedia computer which included explanations about the physical sensations and symptoms that occur, temporal characteristics, environmental features, and cause of sensations, symptoms and experiences of the mothers before and after cardiac catheterization in children. The control group received routine nursing care. The Spielberger State Anxiety Inventory Form Y-I was used for data collection to assess maternal anxiety before the experiment (pre-test) on the first admission day, 1-2 hours before the cardiac catheterization (post-test-I), and 3-4 hours after the cardiac catheterization (post-test-II). Data were analyzed by using descriptive statistics, independent t–test, and ANCOVA with pretest anxiety scores as a covariate.

The results revealed that the mean anxiety score of mothers in the experimental group at 1-2 hours prior to the cardiac catheterization was significantly lower than that in the control group ($p < .01$) and the mean anxiety score of mothers in the experimental group at 3-4 hours after the cardiac catheterization was lower than that in the control group with no statistical significance ($p > .05$).

These findings suggest that providing concrete–objective information via multimedia computer can reduce maternal anxiety of children prior to cardiac catheterization.

KEY WORDS: CONCRETE-OBJECTIVE INFORMATION /

CARDIAC CATHETERIZATION / MATERNAL ANXIETY

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ผลของการให้ข้อมูลแบบรูปธรรม-ปรนัย ต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ (THE EFFECT OF CONCRETE-OBJECTIVE INFORMATION ON MATERNAL ANXIETY OF CHILDREN UNDERGOING CARDIAC CATHETERIZATION)

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บทคัดย่อ

การวิจัยเชิงทดลองนี้มีวัตถุประสงค์เพื่อศึกษาผลของการให้ข้อมูลแบบรูปธรรม-ปรนัย ต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ โดยใช้ทฤษฎีการควบคุมตนเองของ จอนห์สัน (1999) กลุ่มตัวอย่างเป็นมารดาที่มีบุตรจะเข้ารับการสวนหัวใจเพื่อการวินิจฉัยเป็นครั้งแรก จำนวน 54 ราย จากสถาบันสุขภาพเด็กแห่งชาติมหาราชินี สุ่มเข้ากลุ่มทดลอง และกลุ่มควบคุมโดยวิธีการจับสลากได้กลุ่มละ 27 ราย กลุ่มทดลองได้รับข้อมูลแบบรูปธรรม-ปรนัยผ่านสื่อคอมพิวเตอร์ เป็นข้อมูลเพื่ออธิบายเกี่ยวกับความรู้สึทางประสาทสัมผัส อาการแสดงที่เกิดขึ้น เรียงตามลำดับ เหตุการณ์ ลักษณะของสภาพแวดล้อม และสาเหตุของความรู้สึทางประสาทสัมผัส อาการ และประสบการณ์ ก่อนและหลังการสวนหัวใจของมารดาที่จะต้องเผชิญ ส่วนกลุ่มควบคุมได้รับการพยาบาลตามปกติ ผู้วิจัยใช้แบบวัดความวิตกกังวลขณะเผชิญของสปีลเบอร์เกอร์ ประเมินความวิตกกังวลของกลุ่มตัวอย่างก่อนการทดลองในวันแรกที่บุตรเข้ารับการรักษารักษาในโรงพยาบาล, 1-2 ชั่วโมง ก่อนการสวนหัวใจ และ 3-4 ชั่วโมงหลังการสวนหัวใจ วิเคราะห์ข้อมูลโดยใช้สถิติบรรยาย, independent t – test, และ ANCOVA ใช้คะแนนความวิตกกังวลก่อนการทดลองเป็นตัวแปรร่วม

ผลการวิจัยพบว่า 1. คะแนนความวิตกกังวลของมารดากลุ่มทดลอง 1-2 ชั่วโมงก่อนการสวนหัวใจ ต่ำกว่าคะแนนความวิตกกังวลของมารดากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ($p < .01$) 2. คะแนนความวิตกกังวลของมารดากลุ่มทดลอง 3-4 ชั่วโมงหลังการสวนหัวใจต่ำกว่าคะแนนความวิตกกังวลของมารดากลุ่มควบคุมอย่างไม่มีนัยสำคัญทางสถิติ ($p > .05$)

ผลการวิจัยครั้งนี้มีข้อเสนอแนะว่าการให้ข้อมูลแบบรูปธรรม-ปรนัย ผ่านสื่อคอมพิวเตอร์ สามารถลดความวิตกกังวลของมารดาที่บุตรจะเข้ารับการสวนหัวใจได้

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CHAPTER I

INTRODUCTION

Background and Significance of the Study

Heart disease is one of the most common chronic illnesses in children. The overall incidence is about 6–8 per 1,000 live births (Brien, 2005; Tungkoolboriboon, 1996; Wunasilapin, 1994). Data from the Queen Sirikit National Institute of Child Health, Bangkok, Thailand, during 2002–2004 revealed that the number of children with heart disease increased steadily (Seeda, 2005). Although most of the diagnosis can be accomplished with echocardiogram alone, cardiac catheterization is essential for some. With 4,116 new cases at Queen Sirikit National Institute of Child Health in 2002, 188 cases underwent cardiac catheterization with increasing to 211 cases in 2004 (Kirawittaya, Sangtawesin, & Layangool, 2005).

Cardiac catheterization is a procedure that causes anxiety for mothers of children with cardiac catheterization (Leroy, et. al, 2003; Miracle, 1994; Naylor, Coates, & Kan, 1984; Pederson & Harbaugh, 1995) because they view cardiac catheterization as a life-threatening procedure. Common areas of maternal concern include: 1) concern about the possibility of physical harm or bodily injury resulting in discomfort, pain, mutilation, or death, 2) alterations in the parenting role, 3) lack of information, 4) the intensive care unit environment, and 5) postoperative or procedure changes in the children's behavior (Leroy, et. al, 2003). This anxiety arose from the first day the children were admitted for their treatment and continued until the children were discharged. Furthermore, the maternal anxiety of children undergoing cardiac catheterization could affect both the physical and mental health of these mothers. Physically, they may vomit or lose appetite. Mentally, they may experience insomnia, bad dreams, anxiety and fear (Benner, 1999; Pederson & Harbaugh, 1995) which negatively affect their perception, cognition, decision making and ability to

effectively perform maternal roles. The maternal anxiety can also be conveyed to their children (Benner, 1999).

A few studies have shown that the anxiety of parents affected their children. The study of Lamontagne, Hepworth, Johnson, & Cohen (1996) found that high parental anxiety was associated with high preoperative anxiety in their children. However, there were no studies regarding the anxiety of Thai mothers or parents with children undergoing cardiac catheterization. From interviewing 5 mothers prior to their children's cardiac catheterization, the researcher found that all of the mothers were anxious that their children could be harmed by cardiac catheterization. This anxiety resulted in insomnia and worry while waiting for their children to undergo cardiac catheterization. Most of the mothers wanted to see how the cardiac catheterization was performed in order to get rid of their imaginations and perceptions that the procedure was life-threatening or that their children were having surgery for cardiac catheterization. This anxiety had a significant impact on maternal moods, especially if the mothers had not been prepared prior to their children's cardiac catheterization.

In several studies, preparations were performed with mothers, fathers and children but there were only few studies regarding reduction of maternal anxiety. Uzark (1982) studied the effects of information via videotapes on stress of mothers and children undergoing cardiac catheterization and revealed that mothers and children in the experimental group had lower stress scores than those in the control group. Naylor, et al (1984) studied the efficacy of rehearsal in reducing parental anxiety and distress in children undergoing diagnostic cardiac catheterization and found that parents in the rehearsal group had lower anxiety than parents in the control group. Campbell (1986) studied stress management training for parents and their children undergoing cardiac catheterization. The participants were provided with a combination of interventions including providing information, supportive counseling and stress management training. The findings revealed that parental anxiety of the experimental group was reduced and parental cooperation in the care of children increased both during hospitalization and after discharge. Although the preparatory information in all of the above studies was found to reduce anxiety in parents and

their children both before and after cardiac catheterization, it may not be applicable with Thai mothers due to social and cultural differences.

In Thailand, there were a few studies regarding the preparation of parents or caregivers of children for admission to the hospital or prior to a surgery. Sangkhamal (2002) studied the effects of the preoperative preparation program on anxiety of caregivers of 1-month to 6-year-old children undergoing open-heart surgery. Petsorn (2003) studied the effect of preparatory information on fear, pain, suffering of adult patients who received cardiac catheterization. Rattanasiri (2004) studied the effects of an admission program on anxiety of mothers of hospitalized children with respiratory disorders. There were no such studies in Thailand regarding the preparation of mothers whose children were undergoing cardiac catheterization.

Personnel of Queen Sirikit National Institute of Child Health usually provides an unstructured preparation to mothers of children who undergo cardiac catheterization. Most of the preparation is concerned with providing information regarding the appointment for cardiac catheterization and the nursing care for children before and after cardiac catheterization. This preparation may not be enough to reduce maternal anxiety. The researcher wants to evaluate if the concrete-objective information via the multimedia computer with an opportunity to ask questions about cardiac catheterization can reduce maternal anxiety. This information is based on self-regulation theory of Johnson (1999) and previous studies on preparation of children and mothers for cardiac catheterization. If the intervention is effective as expected, it can be helpful in preparation of the mothers before their children undergo cardiac catheterization.

Research Question

Can the concrete-objective information help reduce the maternal anxiety of children undergoing cardiac catheterization?

Purposes of the Study

1. To study the effect of concrete-objective information on maternal anxiety at 1-2 hours prior to the cardiac catheterization.
2. To study the effect of concrete-objective information on maternal anxiety at 3-4 hours after the cardiac catheterization.

Research Hypotheses

1. The anxiety scores of mothers in the experimental group at 1-2 hours prior to the cardiac catheterization will be lower than those of the control group.
2. The anxiety scores of mothers in the experimental group at 3-4 hours after the cardiac catheterization will be lower than those of the control group.

Conceptual Framework

Anxiety is an emotional response when a person perceives harm to mental or physical health and appraises an event as threatening. Anxiety is a state in which an individual has feeling of uneasiness, tension, insecurity, and apprehension manifested by arousal of the autonomic nervous system. When children undergo cardiac catheterization, their mothers will perceive this event as potentially harmful or dangerous to their children and they may have stress or anxiety (Leroy, et al, 2003; Miracle, 1994; Naylor, et al, 1984; Pederson & Harbaugh, 1995).

The conceptual framework of this study is based on self-regulation theory of Johnson (1999). Self-regulation theory explains a coping process that patients use when undergoing health-related stressful events. It is based on the assumption that patients can make decisions about coping and managing their experience and set their own standards for success based on what is important to them. According to self-regulation theory, a mental image (called a cognitive representation) of an impending experience shapes patients' expectations of the nature of the experience and is used to guide their coping. The content of the cognitive representation influences the coping process. Patients construct their cognitive representation from their past experiences and new information obtained from various sources such as family, the media, and care providers. Self-regulation theory proposes that concrete-objective information facilitates coping through the formation of a cognitive schema that is analogous to the

real-life experience. The processes by which this occurs include decreasing the discrepancy between what is expected and what actually occurs, increasing predictability, and enhancing one's ability to understand and interpret the experience.

The schema that is formed from concrete-objective information provides a structure for monitoring the stressful event. Subsequently, when the event matches the schema, less energy is expended in trying to classify and interpret the incoming information. Expected events are also less likely to simulate negative emotional reactions than events that are uncertain or unexpected. When events are predictable and reduced to concrete elements that may have been previously experienced, an individual can gain confidence in their already existent coping repertoire and use more problem-solving strategies. The concrete-objective features of an event include four dimensions: 1) the physical sensations and symptoms that occur, 2) temporal characteristics, 3) environmental features, and 4) cause of sensations, symptoms and experiences. When information contains descriptions of concrete-objective features of an impending experience, patients expect to experience the unambiguous concrete-objective features and they monitor their experience for the absence or presence of these features.

By applying self-regulation theory, the researcher expected this information to facilitate the formation of a clear, unambiguous schema that would guide mothers' attention to the objective parts of experience and help them understand and interpret cardiac catheterization's events as it occurred. Thus, mothers who received concrete-objective information could match these events with the schema that was created by information, thereby decreasing the discrepancy between their expectations and the reality of the events. Therefore, the concrete-objective information can be used to reduce maternal anxiety.

There are studies examining the effects of informational intervention based on self-regulation theory of Johnson (1999) as conceptual framework. Saisamut (2002) studied the effect of preoperative preparation for open heart surgery using cartoon modeling book with concrete-objective information and family participation on anxiety of school age patients. The findings showed that decreased scores of anxiety of the experimental group between the admission day and the day before surgery were greater than those of the control group, and increased scores of anxiety of the

experimental group between the admission day and the second postoperative day were smaller than those of the control group.

Melnyk (1994) studied the effects of informational interventions on anxiety of mothers and children with unplanned childhood hospitalization. The mothers were randomly assigned to one of four study groups. They received: 1) child behavioral information, 2) parental role information, 3) combined information contained both the child behavioral and parental role information, and 4) control group receiving general information about the hospital and its policies. Findings revealed that the mothers who received either type of information reported less anxiety and participated more in their children's physical and emotional care than the mothers in control group. In addition, the mothers who received the combined information supported their children through the intrusive procedure more than the mothers who received parental role information and those in control group. The mothers in all three intervention groups reported less anxiety than mothers in control group 10–14 days following hospitalization.

The effectiveness of providing information to the mothers of children undergoing cardiac catheterization depends on the communication technique used. Multimedia computer gives the opportunity for the mothers to learn about cardiac catheterization for their children. It is widely used (Laohajarussang, 1998) because it is the type of media which provides images and sounds at the same time. According to previous studies, it has been found that 83% of human learning is visual, 11% auditory, 3.5% olfactory, 1.5% sensory, and 1% through touch (Ruangsuan, 1983).

In this study, the multimedia computer represents the concrete-objective features which included the physical sensations and symptoms that occur, temporal characteristics, environmental features, and cause of sensations, symptoms and experiences of the mothers before and after cardiac catheterization in children. Its contents included the objectives of cardiac catheterization, the equipment, personnel and environment in the cardiac catheterization room, the steps involved in cardiac catheterization and the size of wound of the cardiac catheterization, maternal roles in caring for children before and after cardiac catheterization, complications of cardiac catheterization, duration of cardiac catheterization, the condition of children and the period of time required for children to be fully awake after cardiac catheterization,

nursing care for children in the cardiac catheterization room and in the ward, the length of hospitalization, care of the children at home and follow-up.

Furthermore, giving the opportunity for mothers to ask questions about the information in the multimedia computer can help them to better understand the information. This enabled the mothers to hold realistic expectations for the events they would encounter. When the actual events encountered correspond with the information received, the mothers will interpret the meaning of the information according to their accurate knowledge and understanding. They will feel that they are capable of controlling the events they encounter thus reducing their anxiety.

Thus, the researcher expects that providing concrete-objective information via the multimedia computer and giving the opportunity for mothers to ask questions about the information in the multimedia computer can help reduce maternal anxiety of children undergoing cardiac catheterization. The conceptual framework of this study is shown in Figure 1.

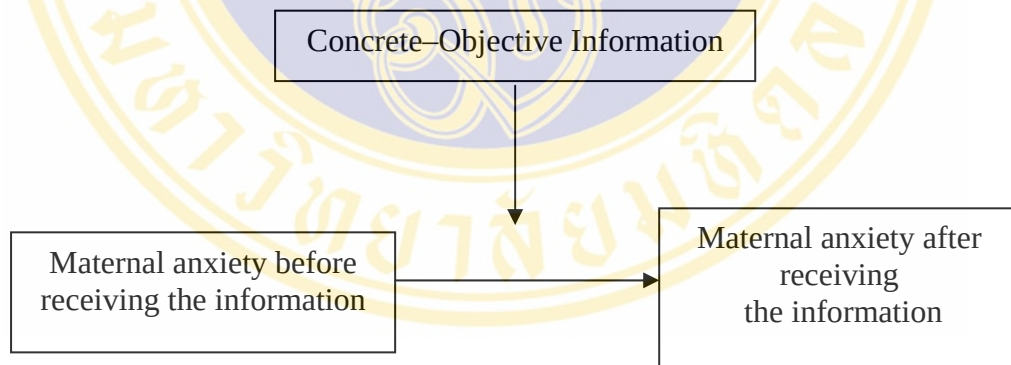


Figure 1 The Conceptual Framework of the Study

Scope of the Study

This study was conducted with the mothers of children undergoing cardiac catheterization, who were admitted at the S8-ward of Queen Sirikit National Institute of Child Health. This study was undertaken from July to November 2006.

Definition of Terms

The concrete-objective information refers to clear and accurate descriptions of the mothers' experience of their children's cardiac catheterization in concrete and objective terms. The information was developed by the researcher based on self-regulation theory (Johnson, 1999; Leventhal & Johnson, 1983). Concrete-objective features of the cardiac catheterization are presented to the mothers in a non-threatening or neutral manner and include four dimensions:

- 1) Physical sensations and symptoms that occur refer to what the mothers would see or experience when their children undergo cardiac catheterization. It includes images of preparation before cardiac catheterization and care for their children after cardiac catheterization.
- 2) Temporal characteristics are the steps involved in cardiac catheterization before, during and after cardiac catheterization, duration of cardiac catheterization, the length of hospitalization, the care of the children at home, and follow-up.
- 3) Environmental features include the equipment, personnel and environment in the cardiac catheterization room and the ward.
- 4) The causes of sensations, symptoms and experiences of the mothers both before and after cardiac catheterization of their children refer to descriptions of the objectives of cardiac catheterization, complications of cardiac catheterization, the condition of children and the period of time required for children to be fully awake after the cardiac catheterization.

Maternal anxiety refers to the unpleasant emotional state or response of the mothers towards the cardiac catheterization of their children that leads to feeling of apprehension. It can be measured by the State Anxiety Inventory form Y –I (SAI) developed by Spielberger, Gorsuch, Lushene, Vagg, & Jacobs (1983), which was translated into Thai by Chanwatana (2001). Higher scores indicate higher state anxiety of mothers.

Expected Outcomes and Benefits

1. Nurses can provide the concrete–objective information to reduce maternal anxiety of children undergoing cardiac catheterization.
2. Nurses can develop the concrete–objective information to reduce maternal anxiety of children undergoing other procedures.



CHAPTER II

LITERATURE REVIEW

This study investigates the effect of concrete-objective information on maternal anxiety of children undergoing cardiac catheterization. In this chapter, the review of the literature includes the following topics:

- Cardiac catheterization in children
- Concept of anxiety
- Maternal anxiety of children undergoing cardiac catheterization
- Nursing intervention for reducing maternal anxiety

Cardiac Catheterization in Children

Cardiac catheterization involves insertion of a radiopaque catheter through an artery or vein into the heart. The procedure is performed under fluoroscopy so that the location and movement of the catheter can be seen. Throughout the catheterization, pressure measurements are made and blood samples are drawn via the catheter to provide information about pressures and oxygen saturations within the heart chambers and great vessels. Pressure measurements can demonstrate the presence and severity of obstruction to blood flow and abnormal oxygen saturations confirm the presence and magnitude of intracardiac or intrapulmonary shunting (Wong, 2002).

Cardiac catheterization is necessary for patients with unusual anatomy, presentation of common anomalies, or inadequate echocardiography. The need to obtain important detailed anatomic studies for an operation is decided by the treating cardiologists and surgeons.

Indications for cardiac catheterization

The decision to undertake a diagnostic cardiac catheterization generally is based not only on available data but also on individual and institutional experiences and philosophies. In making these decisions, it should be kept in mind that the risk of

cardiac catheterization is low and usually less than the risk associated with inadequate diagnosis, particularly in preoperative patients.

Cardiac catheterization prior to cardiac surgery is indicated in cases in which a complete anatomic diagnosis or necessary hemodynamic measurements cannot be made by noninvasive procedure or when clinical signs and symptoms are not consistent with the patient's assigned diagnosis. Common indications for diagnostic cardiac catheterization are as follows: (Bridges, Laughlin, Mullins & Freed, 2000)

- Aortic stenosis is requirement for measurement of peak gradient, cardiac index, and left ventricular end diastolic pressure; angiographic assessment of aortic insufficiency, if present; exclusion by hemodynamic measurement and angiography of other sites of left-sided obstruction.

- Tetralogy of Fallot. A complete anatomic diagnosis is usually possible with echocardiography. Indications for catheterization include uncertainty regarding coronary artery anatomy, pulmonary artery anatomy, or presence of multiple ventricular septal defects, mitral stenosis, or aortopulmonary collateral vessels.

- Transposition of the great arteries. Diagnostic indications include uncertainty regarding coronary artery anatomy or presence of multiple ventricular septal defects.

Types of cardiac catheterizations

Types of cardiac catheterizations include (Brien, 2005)

1. Diagnostic catheterizations. These studies are used to diagnose congenital cardiac defects, particularly in symptomatic infants and before surgical repair. They are divided into right-sided catheterizations, in which the catheter is introduced through a vein (usually the femoral vein) and threaded to the right atrium (most common) and left-sided catheterizations, in which the catheter is threaded through an artery into the aorta and into the heart.

2. Interventional catheterizations (therapeutic catheterizations). A balloon catheter or other device is used to alter the cardiac anatomy. Examples include dilating stenotic valves or vessel or closing abnormal connections.

3. Electrophysiology studies. Catheters with tiny electrodes that record the impulses of the cardiac directly from the conduction system are used to evaluate

dysrhythmias and sometimes destroy accessory pathways that cause some tachydysrhythmias.

Complications of cardiac catheterization

The incidence of complications and number of deaths from cardiac catheterization have decreased sharply during the past 30 years (Mullins & Nihill, 2000). Recent studies of pediatric catheterization demonstrate that catheterization related mortality rates much less than 1 percent are achievable with mortality essentially confined to emergency case in neonates and high-risk interventional cases. In addition, an incidence of major complications (defined as potentially life-threatening events) less than 3 percent is also attainable (Rhodes, Asnes, Blaufox, & Sommer, 2000; Viltiello, McCrindle, Nykanen, Freedom, & Benson, 1998).

The common types of complications are as follows:

1. Ventricular tachycardia and fibrillation
2. Supraventricular tachycardia
3. Complete heart block
4. Cardiac perforation
5. Hypercyanotic spell (in children with tetralogy of fallot)
6. Hypotension
7. Bleeding
8. Cerebral embolus and stroke
9. Arterial pulse loss
10. Sepsis

Preparation for children undergo cardiac catheterization

Pre-cardiac catheterization: A complete nursing assessment is necessary to ensure a safe procedure with a minimum of complications. This assessment should include vital signs (temperature, heart rate, respiratory rate, and blood pressure), distal pulse, oxygen saturation, and accurate height (essential to correct catheter selection) and weight. Obtaining a history of allergic reactions is important, since some of the contrast agents are iodine-based (Brien, 2005).

The pediatric cardiologist performing the catheterization explains the procedure before procedure admission. Parents' written consent is usually required before cardiac catheterization in children. Nurses would inform children/parents about

nursing care unit, policies and personnel (as age appropriate). Pre-catheterization orders usually include other diagnostic studies such as chest radiograph, electrocardiogram, and blood test. Preparation for cardiac catheterization includes cleaning skin of both groins, maintaining nothing by mouth for a specific period of time before the procedure, starting peripheral intravenous fluids, reaching a bathroom for urine and pre-medicating patient.

Post-cardiac catheterization

After the procedure, the children continue to need reassurance that they performed well. The most important nursing responsibility is observation of the following for signs of complications.

- Pulses, especially below the catheterization site, for equality and symmetry
- Temperature and color of the affected extremity, since coolness or blanching may indicate arterial obstruction
- Vital signs, which are taken as frequently as every 15 minutes, with special emphasis on heart rate, which is counted for 1 full minute for evidence of dysrhythmias or bradycardia
- Blood pressure, especially for hypotension, which may indicate hemorrhage from cardiac perforation or bleeding at site of initial catheterization
- Dressing, for evidence of bleeding or hematoma formation in the femoral area
- Fluid intake, both intravenous and oral, to ensure adequate hydration

Dressing at the catheterization site may be maintained for 24 hours and pressure dressing may be used at arterial site. Children must be kept in bed with the affected extremity straight for 4 hours for venous puncture and 6 hours for arterial puncture. Children may be held by their parents to maintain a correct position. The dressing is left on until the next day. Nurses would maintain intake and output record and encourage oral fluids or foods when the children are fully awake and acetaminophen can be given for pain relief (Brien, 2005).

In addition, providing advice about post-cardiac catheterization to their mothers or parents is a major nursing responsibility before discharge. Nurses would

remove pressure dressing the day after catheterization and cover site with an adhesive bandage strip for several days. Parents are advised to keep the site clean and dry, avoid strenuous exercise for several days, use acetaminophen for pain, and keep follow-up appointments.

Concept of Anxiety

Engel (cited in Pasquali, Arnold & Debasio, 1989) described anxiety as the psychological response to great amounts of energy running unchanneled as a result of a stressful situation. It is often described as a feeling of apprehension. Anxiety is a subjective experience that results from a fear of an undetermined nature.

Anxiety is one type of feeling and emotion experienced by human beings. It is very complex since there are many factors related to anxiety. The meaning of anxiety varies depending upon perspectives and beliefs. Anxiety has been defined as a universal sense of uncertainty or as a feeling in which uncertainty is one component (Whitley, 1992; Williams & Power, 1991).

Anxiety is a state in which an individual feels uneasiness, tense, insecurity, and apprehension manifested by activation or arousal of the autonomic nervous system (Spielberger & Irwin, 1988). It is an unpleasant emotional state or condition. Spielberger, et al. (1983) explained that state anxiety is a situation-specific emotional response to an undesirable event that leads to feeling of apprehension.

Isaacs (1996) described that anxiety is an emotion of stress that arises from a threat with uncertain cause.

Stuart (2001) stated that anxiety is a responsive feeling which occurs as a result of threat to a person's self image, self esteem or identity. It results from a menace to something central to one's personality and essential to one's existence and security. It may be related to the fear of penalty, failure in love, interference in a relationship, solitude or loss of body function.

In summary, anxiety is an individual feeling of apprehension, uneasiness, worry and tension manifested by arousal of autonomic nervous system. It is an unpleasant emotional state.

Causes of anxiety

Anxiety is not due to a single cause but often the result of a matrix of interacting factors (Antai-Otong, 1995; Bourne, 1995; Shives, 1994). It is probably more accurate to say that biological, psychological, genetic and lifestyle factors are all involved in the causes of anxiety (Bourne, 1995). The source of anxiety is generally unknown or unrecognized, because anxiety has origins in a complex interaction of environmental, psychological, and biological events and processes (Shives, 1994). However, the general causes of anxiety have been classified into two major types of threats (Wilson & Kneisl, 1992):

1. Threats to biological integrity: actual or impending interference with basic human needs such as needs for food, drink, or warmth.
2. Threats to self security:
 - 2.1 Unmet expectations important to self integrity.
 - 2.2 Unmet needs for status and prestige.
 - 2.3 Anticipated disapproval by significant others.
 - 2.4 Inability to gain or reinforce self respect or to gain recognition from others.
 - 2.5 Guilt or discrepancies between self-image and actual behavior.

Types of anxiety

Spielberger, et al. (1983) divided anxiety into two types:

1. Trait Anxiety is a unique nature of each person. It shows when a person responds to a threatening situation and increases with stress. A person with high level of trait anxiety will be more uneasy than a person with low level of trait anxiety due to the sensitive perception of threat and danger.

2. State Anxiety is an emotion that happens for a short term. A person is aware of stress and fear while the autonomic nervous system is more active. The level of anxiety can change at any time.

Levels of anxiety

The level of anxiety is varied and affects people differently. Moderate anxiety can lead to motivation, whereas a high level of anxiety will decrease the efficacy of people (Stuart & Sundeen, 1983). Moreover, the levels of anxiety may be divided into three or four levels. Luckman & Sorensen (1981) divided anxiety into three levels: 1)

mild anxiety, 2) moderate anxiety, and 3) severe anxiety. Peplau (1963) divided anxiety into 4 levels and described their effects as follows:

1. Mild anxiety is associated with the tension of day to day living. During this stage, a person is alert and his or her perceptual field is increased. This kind of anxiety can motivate learning and produce growth and creativity.

2. Moderate 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's perceptual field is blocked in selected areas but can attend to more problem solving. Some parts in the body will respond more towards that anxiety such as strong breathing, uneasiness in the stomach, or headaches.

3. Severe anxiety is marked by a significant reduction in the perceptual field. The person tends to focus on a specific detail and does not think about anything else. All behavior is aimed at relieving anxiety, and much direction is needed to focus on another area.

4. Panic anxiety is the most intense and perversive level of anxiety. The perceptual field is so limited that the person is unable to process any stimuli from the environment.

Effects of anxiety

Anxiety is an emotional response to an uncertain or threatening situation for a person. Its effects to a person include physiologic, emotional, cognition and behavioral effects (Stuart, 1995):

1. Physiologic effects of anxiety. Anxiety causes certain physiologic responses. Initially, epinephrine and nor-epinephrine are released from the adrenal medulla and cortisol is secreted by the adrenal cortex. These hormones produce increased heart rate, elevated blood pressure, increased reflexes, weakness and increased rate and depth of respirations. Other physiologic effects accompanying anxiety include loss of appetite, revulsion towards food, nausea/vomiting, excessive perspiration, increased muscle tension, change in the menstrual cycle, and sexual dysfunction. The extent of these physiologic effects depends largely on the degree and duration of anxiety. Generally, mild and moderate anxiety enhances these physiologic responses, whereas severe and panic anxiety taxes the capacity for them.

2. Emotional effects of anxiety. Anxiety causes emotional change such as startle reaction, irritability, depression, paranoid, worry, crying, nightmare, and lack of interest in the environment.

3. Cognition effects of anxiety. Cognition, the ability to concentrate, learn and solve problems, is greatly influenced by anxiety. Mild and moderate anxiety levels are more conducive to concentration, learning, and problem solving. A person of average intelligence who is mildly to moderately anxious discerns relationships between and among concepts with relative ease and can concentrate and solve problem without undue difficulty. In contrast, severe anxiety hinders cognitive function. The severely anxious person has difficulty concentrating and may fail to discern even obvious relationship between and among concepts. The panic stricken person suffers even greater cognitive impairment, so concentration, learning and problem solving are virtually impossible during panic episodes.

4. Behavioral effects of anxiety. Anxiety causes behavioral change in order to reduce anxiety. It includes startle reaction, hypervigilance, restlessness, inhibition, fight, avoidance, withdrawal, depression, and regression.

Measurements of anxiety

Anxiety can be measured by three strategies (Lader & Mark, 1971):

1. Physiological measure of anxiety. Anxiety can be measured through physiological changes such as heart rate, respiratory rate, blood pressure, muscle strain, and electro-encephalogram.

2. Self-report measure of anxiety. Self-report measure of anxiety could be done by completing a questionnaire. There are many questionnaires measuring anxiety such as:

2.1 The state-trait anxiety inventory (STAI) (Spielberger, et al., 1983) comprises of two parts with 20 items in each. One part with 20 items is for measuring state anxiety (SAI Form Y-I) and another part with 20 items is for measuring trait anxiety (TAI Form Y-II). Scores range from 20 to 80 on both state and trait subscales. A four-level rating scale is used in each subscale, ranging from “almost never” to “almost always” on the trait subscale, and from “not at all” to “very much so” on the state subscale.

2.2 The Taylor Manifest Anxiety Scale (Taylor MAS). This is one of the most widely used self-report scales for trait anxiety. The scale arose out of the need to test ideas about anxiety as a drive state. The questionnaire consists of 50 items.

2.3 Hamilton Anxiety Scale. This scale is intended for use with patients already diagnosed as suffering from other disorders. Twelve groups of symptoms culled from clinical experience are used together with the patient's behavior in an interview.

3. Behavioral measure of anxiety. This measure can be done by observing behavior such as movement, speech, nonverbal communication, body coordination, memory, and learning ability. This measure is based on the belief that behavior resulted from internal emotion that can be observed by others, for example, restlessness, moodiness, shaking, crying, tempers, insomnia, low appetite, and sighing.

In conclusion, all of the above scales can be used to measure anxiety. However, numerous researchers used the SAI to evaluate process and outcome in counseling, psychotherapy, and relaxation training. Furthermore, SAI has been translated into Thai language and used to assess anxiety for clinical practices and research studies in Thailand. The SAI has been used in many studies such as studies of relatives of the critically ill patients admitted to the intensive care unit (Boonbarwornrattanakul, 1995; Bureetes, 1997; Tantitham, 1990) and in parents of the critically ill children admitted to the neonatal intensive care unit (Silprasert, 1999). It has also been used in the mothers of hospitalized children (Anrudee, 1993; Chanwatana, 2001; Rattanasiri, 2004). In this study, the researcher used the SAI Form Y- I (Spielberger, et al., 1983) which was translated and modified into Thai language by Chanwatana in 2001. The SAI is appropriate for this study because the purpose of this study is to study maternal anxiety of children undergoing cardiac catheterization.

Maternal Anxiety of Children Undergoing Cardiac Catheterization

Most mothers realize the importance of heart as being essential to life. The heart is an organ which is vital for sustaining life and cardiac catheterization for their children can be a stressful or anxious experience for the mothers or the caregivers (Leroy, et al, 2003; Miracle, 1994; Naylor, et al., 1984; Pederson & Harbaugh, 1995).

The level of anxiety depends on the stimulus, perception, interpretation of persons toward the situation. Cardiac catheterization in children is a situation that can be an anxiety-provoking event for the mothers. Healthcare personnel have to identify and meet the psychological needs of mothers whose children undergoing cardiac catheterization. Grazziano (2004) conducted an exploratory and quantitative study to identify the anxiety level of 40 caregivers and 40 adult patients, measured by the state anxiety inventory (SAI), before cardiac catheterization. The findings revealed that most patients had low anxiety levels, while most caregivers had medium levels of anxiety.

All children who need cardiac catheterization have to be hospitalized. Major sources of stress for mothers or caregivers may arise from the uncertainty of their role during hospitalization and uncertainty regarding their children's condition and outcomes (Hazinski, 1992). Fear and anxiety may be related to the seriousness of the illness and the type of medical procedures involved. Often great anxiety is related to the trauma and pain inflicted on the child. Feelings of frustration are often related to lack of information about procedures and treatment, unfamiliarity with hospital rules and regulations, a sense of unwelcomeness from the staff, or a reluctance to ask questions (Wong, 2002). Schepp (1991) studied factors influencing the coping effort of mothers of hospitalized children. The purpose of this study was to test a theoretical model predicting the relationships among four concepts: predictability of events, control, anxiety, and coping effort of mothers of children hospitalized with acute physical conditions. The sample consisted of 45 mothers of acutely ill, hospitalized children from 1–24 months of age. For each of the concepts, 16 events commonly associated with hospitalization of a child were proportionately ranked using magnitude estimation measurement technique. The psychometric properties of the instrument were estimated through reliability assessment and cross modality matching. The results indicated that 97 percent of the dependent variable, coping effort, was explained by two of the three predictor variables, predictability of events and anxiety. Mothers who knew what events to expect experienced less anxiety and reported expending lessened effort to cope with the stressful events.

Factors influencing maternal anxiety

The literature review has indicated that factors that have influence on anxiety of mothers are as follows:

1. Age of the mothers. Lazarus and Folkman (1984) have described that when a person is older, he or she has more experiences of the crisis situation. He or she will have more effective decision-making and coping than the younger. Similarly, the study of Miles, Carter, Hennessey, Eberly, and Riddle (1989) found that younger parents were more stressed than older parents.

2. Occupation. Kongpan (1990) studied the relationship among coping strategies and general well-being in mothers of hospitalized children. Her study found that there was a positive relationship between mothers' occupation and amount of coping strategies. She reported that mothers who were housewives had less effective coping than mothers who were employees, because housewives had limited opportunity in problem solving. In contrast, mothers who were working outside had more experiences in problem solving gained from their job. Furthermore, they may receive social support from their colleague, so they used more amount of coping strategies than mothers who were housewives.

3. Income. Family income is important, as parents need to spend a considerable sum of money during the child's illness. Parents who have low income will be more stressed than those who have higher income. Kongpan's study (1990) revealed that there was a positive relationship between mothers' income and confidence in family problems solving.

4. Education. A higher educational level may enable an individual to better realize whatever risk factors causing stress and anxiety (Jalowice & Powers, 1981). Moreover, Vrolarn (1992) studied perceptions of uncertainty in illness, coping and general well-being of parents whose children admitted in an intensive care unit. The results of the study showed that duration of education was negatively correlated with perceptions of uncertainty in illness. Thus, highly educated mothers will perceive less uncertainty of their child's illness. This is because educational level can help mothers to understand and form realistic perceptions of their child's illness.

5. Marital status. When mothers face stressful situations, spouse support becomes an effective resource. Intaravichai (1990) studied coping behavior of mothers

of chronically ill children and found that single mothers of chronically ill children have more stress than married mothers.

6. Number of children. Vulcan and Niculich-Barrett (1988) conducted a study on mothers of children hospitalized in a medical-surgical ward. The results indicated that mothers of only one child were more anxious than those of many children, so they may appraise that the child's illness is severe and that the child might die.

7. Age of the ill children. Development of children at different ages vary in many aspects: language, intellect, emotion and how to adjust themselves to the change of environments. For example, children at the age of 1 to 3 years old do not understand reason, so they express their feelings openly and cry if their needs are not fulfilled. If the mothers do not understand, they may become anxious. The results of the study of H.I. and M.A., McCubbin (1983) found that the age of children related to the stress of the parents.

8. Perception of mothers on severity of the child's illness. The fear and anxiety of mothers may be related to severity of illness and painful procedures performed on the child (Haines & Perger, 1995). The study of Kongpan (1990) showed that perceived severity was negatively related to the maternal well-being. Therefore, if the mothers of hospitalized child perceive the child's illness as very serious, they will have less maternal well-being. Moreover, most mothers determine the severity of the child's illness from the child's physical appearance such as bedside monitors and the number of intravenous lines (Youngblut & Shiao, 1993).

9. Duration of procedure. The duration of the procedure performed on children can affect their maternal anxiety. The waiting time for procedure is a period that the mothers think of and estimate the situations they are facing. They want the procedure to be finished as soon as possible. If the procedure lasts longer than they expect, the mothers might fear and have high anxiety. The study of Donnell (1984) suggested that the anxiety of the relatives would be increased if the waiting time for operation was longer. In contrast, Leske's study (1993) revealed that the waiting time for operation was not related with the relatives' anxiety.

In summary, anxiety is an emotional response that triggers behaviors. Effects of anxiety can be displayed in physiological, emotional, cognitive, and behavioral aspects. If the mothers have mild anxiety, they will be able to learn and solve

problems. Nurses should realize the importance of assessment of maternal anxiety and develop nursing intervention for the mothers when their children undergoing cardiac catheterization.

Nursing Intervention for Reducing Maternal Anxiety

Numerous studies have focused on reducing anxiety of mothers or patients' family members. The interventions used were rehearsal preparation procedure, stress management training, and informational intervention (Campbell, 1986; Melnyk, 1994; Naylor, et al., 1984). There are many studies regarding reduction of anxiety. Naylor, et al. (1984) studied the efficacy of rehearsal in reducing parental anxiety and distress in 3-to 6-year-old children undergoing diagnostic cardiac catheterization. Forty parents and children were assigned randomly to the rehearsal preparation procedure or to usual preparation. The rehearsal program involved the use of behavioral rehearsal in the catheterization laboratory, manuals to explain the procedure to the parents and coloring books to provide parents and children with a vicarious experience of catheterization. The findings showed that parents in the rehearsal group had low anxiety following the catheterization, and negative reactions in children were correlated significantly with parental anxiety and participants' reactions were uniformly more positive in the rehearsed than in the control group. Campbell (1986) studied stress management training for parents and their children undergoing cardiac catheterization. Subjects were provided with a combination of interventions including information, supportive counseling and stress management training. The findings revealed that the parental anxiety was reduced and parents increased cooperation in the care of children, both during hospitalization and after discharge.

Melnik (1994) studied effects of informational interventions on mothers and children. This study aimed to evaluate the effects of two types of information, separately and in combination, on the process and outcomes of maternal and child coping with unplanned childhood hospitalization. This study was guided by self regulation and control theory. One hundred and eight mothers of hospitalized children, aged 2–5 years old, were randomly assigned to one of four study groups who received: 1) child behavioral information, 2) parental role information, 3) combined information contained both the child behavioral and parental role information, and 4)

control group receiving general information about the hospital and its policies. Each of the information contained in the audiotape and all subjects in the intervention group listened to the assigned audiotape in a private room. Findings revealed that the mothers who received either type of information reported less anxiety and participated more in their children's physical and emotional care than the mothers in the control group. In addition, mother who received the combined information supported their children through the intrusive procedure more than mothers who received parental role information and those in the control group. Mothers in all three intervention groups reported less anxiety than mothers in the control group 10–14 days following hospitalization.

Melnik et al. (2004) studied the effects of a preventive educational–behavioral intervention program, the creating opportunities for parent empowerment program (COPE), initiated early in the intensive care unit on the mental health/psychosocial outcomes of critically ill young children and their mothers. Subjects at each of 2 study sites were randomly assigned to receive the COPE program in the experimental group or the control group. Subjects were 163 mothers with their 2–7 years old children who were unexpectedly hospitalized in the pediatric intensive care unit (PICU). Mothers in the COPE group received 1) audiotape information focused on increasing parents' knowledge and understanding of the range of behaviors and emotions of children during and after hospitalization and direct parent participation in their children's emotional and physical care and matching written information, 2) a parent–child activity workbook, and 3) a telephone call informed that children's typical post-discharge emotions and behaviors. The COPE program was based on self–regulation, control theory and emotional contagion hypothesis. The control group received audiotape and written information on the service and policies of the PICU and a parent–child activity workbook contained control activities and telephone call informed that they should contact their primary healthcare providers if their children have any problems after discharge. Results showed that COPE mothers reported significantly less parental stress and participated more in their children's physical and emotional care in the pediatric unit as compared with mothers in the control group.

In Thailand, there are also many studies on intervention for reducing anxiety. Kaewvetwong (1983) studied the effects of structured nursing care on the anxiety of

mothers of hospitalized children. Subjects were 30 mothers of ill children hospitalized in the PICU. The experimental group received the structured nursing care including giving aid, supporting for assurance and giving information. The control group received usual nursing care from healthcare providers. The findings revealed that mothers who received structured nursing care had less anxiety level than mothers who received usual nursing care. Anrudee (1993) studied the anxiety level of mothers of hospitalized children. Subjects were divided into 2 groups of 40 mothers for each group. The control group received standard treatment while the experimental group received nursing care focusing on relationship, listening to their problems, encouragement in performing self care activities, update on information of the patient's condition and information on the mother's role in providing care during the child's hospitalization. The findings showed that the maternal anxiety level in the experimental group was lower than that in the control group.

Lojanawongsakorn (1998) studied the effects of giving information on the maternal stress level and maternal–infant attachment. Subjects were 40 mothers who had preterm infants. The mothers in the experimental group received information by the booklet with pictures before visiting their child, while the mothers in the control group received routine nursing care. The findings revealed that the mothers in the experimental group had lower scores of stress than those in the control group. Prasert (1998) studied the effects of nursing care, based on goal attainment theory, on anxiety of parents of ill children. There were 40 fathers and 46 mothers whose children were admitted in the PICU. The parents in the experimental group received nursing care according to the goal attainment theory, while the parents in the control group received usual nursing care. The anxiety of parents was measured by the STAI. The findings showed that the parents in the experimental group had lower scores of anxiety than those in the control group.

Silpasert (1999) studied the effects of supportive nursing and giving information on the coping and anxiety of parents of newborns who were admitted in the neonatal intensive care unit (NICU). Subjects were 60 parents whose newborns were in the NICU and were divided into the control and the experimental group of 30 each. The control group received usual nursing care and the experimental group received supportive nursing and information. The STAI was used to assess parental

anxiety. The findings indicated that parents who received the supportive nursing and information had lower anxiety scores than those in the control group. Chanwatana (2001) studied the effects of information intervention on maternal anxiety levels during children's hospitalizations. Subjects of the study were 69 mothers of pre-school children who had unplanned hospitalization. Subjects were divided into an experimental group (40 cases) and a control group (29 cases). The experimental group received audiotapes and booklets containing information about children's behavior which may alter in response to unplanned hospitalization and how mothers can help, while the control group received only information about routine admission process. The findings showed that the mothers' levels of anxiety after receiving the information intervention were significantly reduced in both the experimental and control groups. The fact that the children's symptoms rapidly improved and that they were allowed to go home, thus the maternal anxiety reduced in both groups with statistical significance but when compared between groups, the difference was not statistically significant.

Sangkhamal (2002) studied the effects of the preoperative preparation program on anxiety of caregivers of 1-month to 6-year-old children undergoing open-heart surgery. Forty subjects were divided into the control group and the experimental group of 20 subjects. Caregivers in the experimental group received the preoperative preparation program contained of tangible support, emotional support and informational support, which was based on the concept of social support while the control group received conventional nursing care. The findings revealed that mean scores of anxiety in the experimental group were lower than those in the control group.

Rattanasiri (2004) studied the effects of an admission program on anxiety of mothers of hospitalized children with respiratory disorders. Sixty subjects were divided into the control group and the experimental group of 30 subjects. The mothers in the experimental group received an admission program contained of 3 steps: giving information via videotape, answering the mothers' questions, and giving pamphlets on how to care for children with respiratory disorders during hospitalization. The control group received usual nursing care. The findings revealed that the mean scores of anxiety in the experimental group were lower than those in the control group.

Many studies have highlighted benefits of informational intervention. There are different types of information that are necessary and helpful to all mothers of hospitalized children. In this study, the informational intervention is based on self-regulation theory (Johnson, 1999) which consists of a description of an impending event at the experiential level using concrete-objective term. The concrete-objective information includes: 1) the physical sensations and symptoms that occur, 2) temporal characteristics, 3) environmental features, and 4) cause of sensations, symptoms and experiences. Nurses have an important role to enhance a mother's self regulation and ability to confront the threatening event.

Self-regulation theory

The self-regulation theory of Johnson (1999) is a cognitive theory that is developed from information processing theory (Leventhal & Johnson, 1983) which describes the cognitive processes involved when individuals process information from their internal and external environment, incorporate that information with information stored in memory into a cognitive structure and use the cognitive structure to regulate their responses and behavior. The following four assumptions from information processing theory are basic to self-regulation theory of coping with physical illness (Johnson, 1999).

1. People use their perceptions and interpretations of their experience to regulate their responses and behavior to situation (Johnson, 1999).

2. Knowledge about concepts and information about how to use that knowledge is represented in cognitive structures called schemata. A schema of a concept contains the meaning of the concept for an individual. Schemata represent an individual's knowledge about and interpretation of all concepts stored in memory including those that underlie objects, social situations, events, sequence of events, actions and sequence of actions. A schema allows the person to anticipate what will happen and to make plans for how to manage the experience. A person's schema readies him/her to attend to selected aspects of an experience and to obtain more information as the experience unfolds. Information that cannot be made to fit a schema is discarded. A schema of an impending event includes expectations about sensations, emotional responses, actions to be taken, desired outcomes and other elements of the event. A schema provides a structure for making and altering

interpretations of the experience, retrieving information from memory, planning action, and determining desired outcomes or goals. When a schema is a good fit with what is experienced, it is used with confidence as a guide when going through an experience and to form expectations about similar experiences in the future. For example, we have schemata for such things as going home, eating in a restaurant and a day at work. We use these schemata to anticipate our experience, to select what we attend to, to plan what we will do and to guide our behavior (Johnson, 1999).

3. The information and goals in a schema are organized hierarchically (Johnson, 1999). The levels that make up the hierarchy range from the very specific through various levels of abstraction. To be able to carry out usual activities and to be emotionally comfortable are examples of lower level of goals.

4. A discrepancy between the person's goal or expected outcome and what exists motivates the person to take action to reduce the discrepancy (Johnson, 1999). Feedback of a discrepancy motivates a person to become actively engaged by attending to stimuli and putting effort into finding a way to overcome the discrepancy between what is expected or desired and the present state. Comparing effects of behavior with expected outcome at various levels of the hierarchically organized schema makes up a sequence of decision making and actions directed at achieving an abstract goal.

The model represents a schema of coping with health care event. There are two pathways in the model. The processes that make up self-regulation theory are illustrated in Figure 2. The process in one pathway is concerned with regulating functional response and achieving functional goals. The process in the other pathway is concerned with regulating emotional response and achieving emotional goals. The pathways represent the two functions of coping: 1) regulation of functional response to threatening or stressful situations and 2) regulation of emotional response (Johnson, 1999). The process in one pathway is not dependent on the process in the other; the processes in the pathways occur in a parallel fashion (Leventhal & Johnson, 1983). Both pathways are active during threatening experiences, patients can concentrate on one pathway at a time, even though they may switch back and forth between the pathways. Feedback between the pathways can also influence the processes. Thus, the self-regulation model represents a dynamic coping process. Self-regulation theory

proposes that patients will elect to cope in ways that are consistent with their understanding of the experience. Patients will use coping strategies that they feel are effective for them in the situation. The strategies may be newly acquired or ones used in the past. The strategies used will vary among patients and vary also as the experience changes over time. The goal for the emotional pathway in the model has been emotional comfort and for the functional pathway, minimization of disruption of usual life activities (Johnson, 1999).

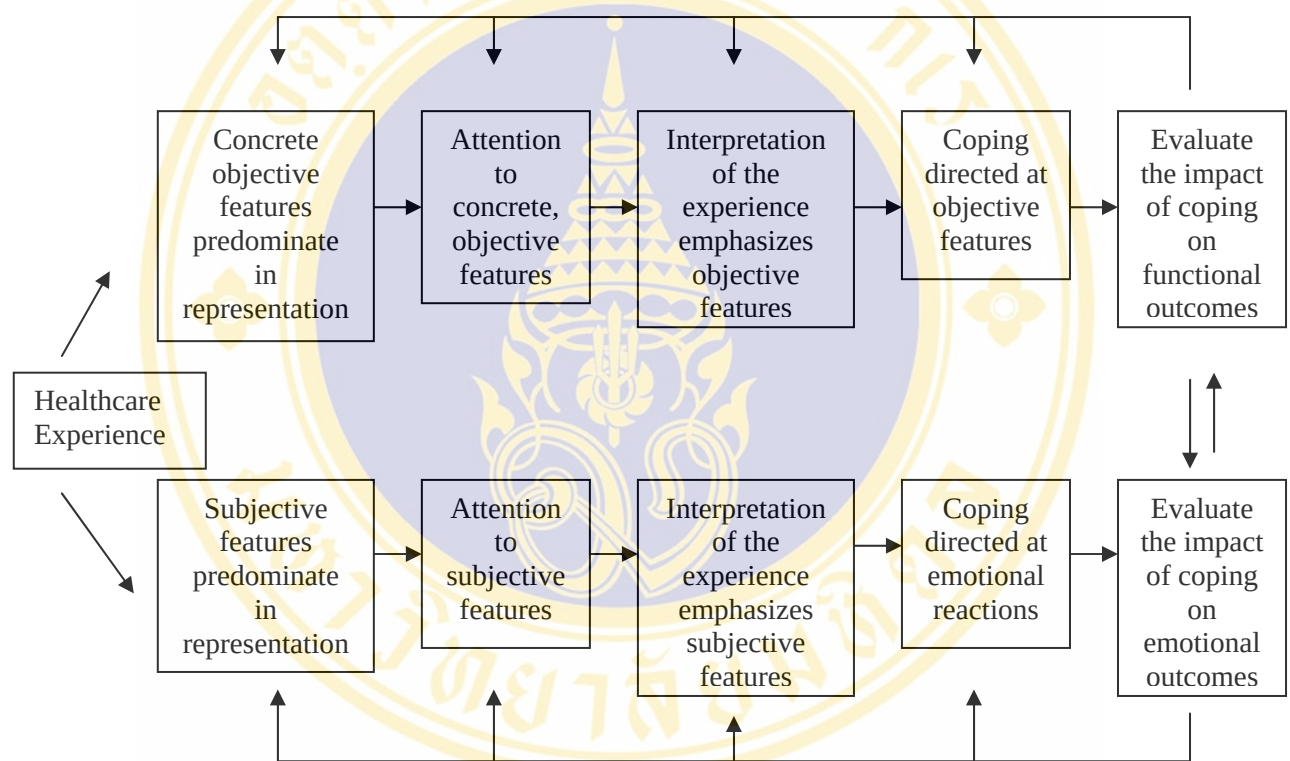


Figure 2 Model of self-regulation theory of coping with stressful experiences. From “Self-Regulation Theory: Applying Theory to Your Practice” by J.E. Johnson, V.K. Fieler, L.S. Jones, G.S. Wlasowicz & M.L. Mitchell, 1999, *Oncology Nursing Society*, p.11. Copyright 1999 by Research in Nursing & Health. Reprinted with permission.

Regulation of functional responses

The process that supports problem solving and regulation of functional activities is illustrated in the top pathway of the model (Figure 2). The experiential level of the representation consists of concrete-objective features of an impending experience. Concrete-objective features of health care event include: 1) the physical

sensations and symptoms that occur, 2) temporal characteristics, 3) environmental features, and 4) cause of sensations, symptoms and experiences. Physical sensations are what is seen, smelled, heard, felt and taste. Temporal characteristic are the duration and sequence of events. Environmental features include the characteristics of the treatment room and the people in the environment. The causes of the sensation often are self-evident. But to prevent misinterpretation, the cause of side effects or other features of the experience need to be explained (Johnson, 1999).

The empirical nature of the concrete-objective features reduces ambiguity about what will be experienced which facilitates retrieval of relevant information from memory, planning for how to deal with the experience and assembling resources (e.g., cognitive, social and material) that will be needed. When concrete-objective features of the experience are dominant in the lower levels of the representation, patients look for these readily identifiable features and attend to them during the experience. If the expected features are present, confidence in the usefulness of the representation is increased and the original plans for how to deal with the experience are carried out. The next step in the pathway for regulating functional response is interpretation of the experience. The features of the experience that are dominant in their representation influence patients' interpretation of their experience. When objective features are dominant in a representation, patient's interpretation or understanding of their experience is based on those features. For example, a patient's understanding of a physical sensation would include its feeling (e.g., numbness), location in the body, when it occurs and how long it lasts, associated activities or environmental features (e.g., cold increases the pain), and the cause of the sensation. This interpretation draws on current experience with the sensation and information from past experience with the same or similar sensations. Because concrete-objective features of an experience are readily identified as they occur, the experience is viewed as predictable and unambiguous, which enhances their ability to understand what is happening. When patients perceive an impending experience as predictable and they have a sense of understanding it, their confidence in dealing with it increases. When patients' representation of their experience includes concrete-objective features, their plans for coping and coping efforts are directed toward those aspects of the experience. This includes such things as planning for and taking actions to reduce the intensity of a

symptom or sensation or altering usual routines so that the symptom has less negative impact as possible (Johnson, 1999).

Regulation of emotional response

The process supporting regulation of emotional response is illustrated in the bottom pathway of the model (Figure 2). The dominant features at the experiential level of the representation in this pathway are the emotions that may be elicited and subjective evaluations (e.g., how unpleasant or bad the experience is for the patient). Emotional reactions and evaluations of an experience vary among patients about these features. For example, some patients may feel angry, others may feel anxious and some may have no emotion. Thus, there can be little agreement among patients when evaluating the experience on positive–negative dimensions. When the subjective features are dominant in the representation, patients attend to their emotional response to the event. Emotional memories associated with past experiences are elicited. If patients' attention is directed to the subjective features of an experience, they tend to interpret their experience in terms of their vulnerability and emotional responses. The continued focus on the subjective emotional and evaluative features and the feedback of those responses to the representation can cause patients to define and understand their experience in such terms as distressing and upsetting. This interpretation leads patients to direct their coping efforts toward reduction of their emotional response and feelings of vulnerability so as to achieve the goal of emotional comfort. The effectiveness of the coping efforts will be evaluated by their impact on emotions. If the patient is emotionally comfortable, that is feedback to the pathway for regulation of functional responses and regulation of those responses will be attended to. If coping efforts are not successful in achieving emotional comfort, that feedback to earlier steps in the pathway to regulate emotional response stimulates the person to make changes and try again. Emotions and subjective reactions will continue to be monitored and efforts to achieve emotional comfort will continue (Johnson, 1999).

Interventions and self-regulation theory

In self-regulation theory, the content in the representation of a health care event is key to the coping process and the content in patients' representations can be influenced by informational interventions. Interventions that encouraged subjects to include objective features of the experience in their representation have been used in

laboratory and clinical research on self-regulation theory. The initial interventions were called “sensory information” and they consisted of descriptions of the physical sensations subjects usually experienced. In clinical settings, it became apparent that descriptions of physical sensations experienced did not adequately describe the objective aspects of patients’ experience. In the later clinical research, the intervention was called “concrete-objective information” (Johnson, 1999).

An essential step in constructing the interventions used in the research based on self-regulation theory was to conduct interviews of patients who had experienced the health care event of interest. The information from these interviews provided the information needed to construct the experimental intervention messages used in the clinical research. The features included in the intervention were referred as “typical”. Typical features of the experience were those that 50 % of the patients reported. This meant that it was highly likely that patients’ representations would contain some of the features they would experience. Such a representation formed a structure patients could use to construct a more complete representation as the event unfolded. Side effects and complications of treatments and procedures that are rarely experienced were not included in the descriptions of the impending event. When patients expect features of an experience that rarely occur, their information processing can be less efficient. They use energy searching for and making plans for coping with features that they are unlikely to experience (Johnson, 1999).

Descriptions in concrete-objective terms are factual, accurate and neutral and do not include descriptions of emotional or vulnerable responses. Words such as painful, distressing, upsetting, and severe are not included in preparatory information because they describe patients’ subjective interpretation of their experiences and not the objective aspects of it. (Johnson, Fieler, Jones, Wlasowicz, & Mitchell, 1997).

The amount of information given and whether all possible aspects of the experience are described are not the most important elements for helping patients to cope. Nurses need to describe the most common and salient objective features of the experience from the patients’ point of view. For example, when describing a procedure, nurses do not need to describe an element that most patients do not notice, such as the color of the walls in the room. Too much detail can overload and confuse patients. The color of the walls in the procedure room is concrete, objective

information, but it is of little use to patients when coping with the procedure. Patients are unlikely to be threatened by or have difficulty understanding the color of the walls. Likewise, nurses do not need to relate that the procedure poses a 0.001 % chance of death due to sepsis. This information is necessary for patients to give informed consent, but it is not useful for helping patients cope with the procedure. Nurses need to relay information about the common elements of the experience, not the unusual. When patients have an atypical experience (e.g., an unusual side effect), nurses can help them understand why it occurred, its course, and how to manage it. (Johnson, et al. 1997).

When preparatory information contains descriptions of concrete-objective features of an impending experience, patients expect to experience the unambiguous concrete-objective features and they monitor their experience for the absence or presence of these features. Attention is focused on the concrete-objective features aspects of the experience and coping is focused on problem solving and direct actions. Because this coping process is often effective, patients are able to minimize the amount of disruption to their usual life activities. Therefore, patients would pay little attention to subjective features. As a result patients would not attend to their emotional response to the event, resulting in positive emotional response or low anxiety levels (Leventhal & Johnson, 1983).

When children undergo cardiac catheterization, their mothers will perceive this event as potentially harmful or dangerous to their children and they may have anxiety (Leroy, et al, 2003; Miracle, 1994; Naylor, et al., 1984; Pederson & Harbaugh, 1995). Interventions based on self-regulation theory contain descriptions of the concrete-objective feature of an impending experience that facilitates coping through the formation of a cognitive schema that is analogous to the real-life experience. The processes by which this occurs include decreasing the discrepancy between what is expected and what actually occurs, increasing predictability, and enhancing one's ability to understand and interpret the experience thereby decreasing the discrepancy between their expectations and the reality of the events. When the mothers' attention is directed to the concrete-objective features the mothers would pay little attention to subjective features. As a result the mothers would not attend to their emotional

response to the event, resulting in positive emotional response or low maternal anxiety levels.

Research on the effects of informational intervention based on self-regulation theory

There are studies that examine the effects of informational intervention based on self-regulation theory regarding reduction of anxiety. Many studies, supported validity of self-regulation theory (Melnik, 1994; Melnyk, et al., 2004; Rattanasiri, 2004)

Saisamut (2002) studied the effect of preoperative preparation for open heart surgery using cartoon modeling book with concrete-objective information and family participation on anxiety of school age patients. Subjects were composed of 18 school age patients with open heart surgery, assigned to the experimental group and the control group by matched pair technique. The findings showed that decreased scores of anxiety of the experimental group between the admission day and the day before surgery were greater than those of the control group and increased scores of anxiety of the experimental group between the admission day and the second postoperative day were smaller than those of the control group.

Charoenchai (1998) studied the effects of preparatory information about procedures, sensations, and behavioral instruction on anxiety, pain, and distress in cardiac vulvular replacement patients. Subjects were 30 adult patients who were randomly assigned to the experimental group and the control group. The experimental group received preparatory information via videotape. The information consisted of sensory and procedural information. The control group received usual information. The results showed that the experimental group had mean scores for anxiety, pain, and distress significantly lower than the control group.

Ardharn (2002) studied the effect of preparatory information on anxiety in abdominal surgical patients. Subjects were 30 adult patients who were assigned to the experimental group and the control group. The experimental group received preparatory information via videotape. The information consisted of sensory, procedural, and behavioral instruction information. The control group received usual information. The results showed that the experimental group had significantly lower mean anxiety score than the control group.

Mittison (2002) studied the effects of preparatory information on anxiety in adult patients undergoing surgery for renal and ureteric calculi. Thirty subjects were divided into two groups. The experimental group received preparatory information via audiotape. The information consisted of sensory, procedural, and behavioral instruction information. The control group received usual information. The results showed that after the surgery, the experimental group did not have significantly lower mean anxiety score than the control group.

Petsorn (2003) studied the effects of preparatory information on adult patients undergoing cardiac catheterization. Sixty subjects were divided into two groups. The experimental group received preparatory information via videotape. The information consisted of sensory, procedural, and behavioral instruction information. The control group received usual information. The results showed that after received preparatory information, the experimental group did not have significantly lower mean fear score than the control group.

Providing information via multimedia computer

Providing information would clarify the misunderstanding or misinterpretation and the confusion of the mothers. Moreover, providing information enhances the perception of the central nervous system to enable the mother of an ill child to appraise the situation more closely to the reality (Faucett, 1990). Consequently, the mothers can prepare themselves to face the problems and decrease their fear, stress, anxiety and emotional tension. They may be able to better control themselves, leading to expression of appropriate behaviors and enhanced coping ability (Jacox, 1979).

Providing information is a technique for reducing anxiety among persons who have to confront a threatening or stressful situation. Mechanism of anxiety reduction by providing information is explained by a cognitive appraisal (Lazarus & Folkman, 1984).

Nurses have a role and responsibility in providing information as a part of their routine nursing care. The effectiveness of providing information to the mothers of children undergoing cardiac catheterization depends on the communication technique used. In the process of communication, media is the medium to carry and send information to receivers. Therefore, using unqualified and inappropriate media will cause the process of communication ineffective (Sompong, 1993).

Computer assists to compile the data very fast and effectively. At present, personal computer is very popular both in office and house. It is introduced to use for knowledge or information transferring in term of multimedia. Multimedia computer provides an immensely powerful tool for the dissemination of both information and entertainment. Current multimedia presentations consist of synchronized excerpts of media, such as image, sound, text, graphic, animation, and video which are integrated by the researcher to ensure that a clear narrative is presented to the audience. There is recording media in the CD-ROM by using CD-Writer. It does not use the memory of Hard Disc (Sompong, 2000). Furthermore, the researcher can develop computer assisted instruction (CAI) program that is controlled to play one by one like the slide show to make it more interesting.

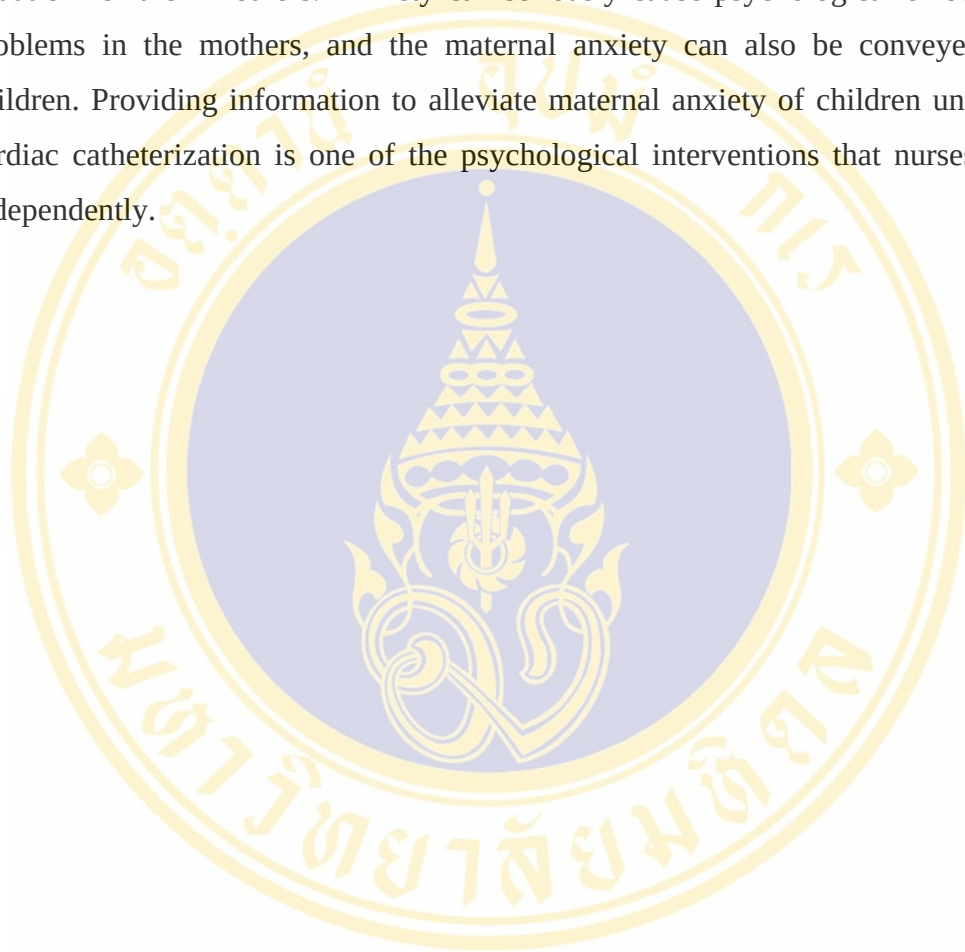
Multimedia computer gives the opportunity for the mothers to learn about cardiac catheterization for their children. It is a useful media for providing information to the mothers. Most of studies in the literature examining the utilization of multimedia computer for learning, knowledge and behavior change. Wofford (2004) conducted a systematic review of 26 randomized controlled trials to explore the potential use of computer assisted patient education in the office setting. Outcome measures included clinical indicators, knowledge retention, health attitudes, level of shared decision making, health services utilization and costs. The systematic review showed that the field of computer assisted patient education is still maturing. Evolving computer technology and strategies will allow better targeting of the educational tasks amenable to computer assisted educational strategies.

Warakitpoonphol (2004) studied the effectiveness of CAI on knowledge of mothers who had preterm infants. Twenty mothers were selected for the sample. Mothers received information on premature-infants care through a computer media, which included: 1) patho-physiologic of premature infant, 2) care and to take a bath and preparation, and 3) summary before discharge. Findings indicated that after learning information through CAI, the mothers have higher knowledge scores than before viewing CAI. However, from reviewing related literature, there is no CAI program to give information for reducing maternal anxiety.

The literature review revealed that informational intervention based on self regulation theory that contained descriptions of the concrete-objective features can

reduce personal anxiety. However, there are no studies on informational intervention that is based on self-regulation theory and provided via the multimedia computer to reduce maternal anxiety of children undergoing cardiac catheterization.

In conclusion, when children undergo cardiac catheterization, it is an anxious situation for their mothers. Anxiety can seriously cause psychological or behavioral problems in the mothers, and the maternal anxiety can also be conveyed to the children. Providing information to alleviate maternal anxiety of children undergoing cardiac catheterization is one of the psychological interventions that nurses can do independently.



CHAPTER III

METHODOLOGY

Research Design

This study is an experimental research (pretest–posttest control group) (Srisatitnarakul, 2004), which consists of the experimental group and the control group. The purpose of this study is to investigate the effect of concrete–objective information on maternal anxiety of children undergoing cardiac catheterization.

Population and Sampling

The population of this study was the mothers of children who underwent elective diagnostic cardiac catheterization for the first time. The children were admitted at the S8-ward of Queen Sirikit National Institute of Child Health, Ministry of Public Health, Bangkok, Thailand. Convenience sampling was used to select the subjects from July to November 2006.

An exclusion criterion was the mothers who had history of mental health problems. The discontinuation criteria were the mothers whose children had any medical complications which necessitated postponement of the cardiac catheterization, had any procedural complications and were transferred to an intensive care unit, and required surgery in the same admission.

Sample size

The sample size of this study was determined by using power analysis with a significance level at .05, power of tests at .80 and effect size was .81 (large effect size). The value for the effect size was calculated from the study of Naylor, et al. (1984) which examined the preparation of parents and children prior to cardiac catheterization by dividing the sample into the experimental and the control group of 20 each. The study found that the anxiety mean scores of parents in the experimental group were significantly lower than those of parents in the control group ($F = 6.55$, $p < .01$). Using

the formula of Hunter, Schmidt & Jackson (1982 cited in Liao, 2005, p. 5) as shown below:

$$ES = \sqrt{F \times \sqrt{1/N_1 + 1/N_2}}$$

F = F value

ES = effect size

N₁ = number of subjects in the experimental group

N₂ = number of subjects in the control group

The finding was used for calculation as follows:

$$\begin{aligned} ES &= \sqrt{6.55 \times \sqrt{1/20 + 1/20}} \\ &= .81 \end{aligned}$$

A table developed by Cohen (1988) was used to determine the number of subjects needed for comparison of mean differences between two independent groups, power calculations indicate that a sample of 26 mothers in each group. In order to account for drop-out, the researcher enrolled 30 mothers in each group for a total sample of 60.

Sixty subjects were recruited from the mother of children admitted at the S8-ward of Queen Sirikit National Institute of Child Health for cardiac catheterization from July to November 2006. Name list of children who were scheduled to undergo cardiac catheterization was used to identify potential subjects. Random assignment to the experimental group or the control group was not conducted at an individual subject but at a group of subjects (a block). A group of mothers of the children listed to have cardiac catheterization in each week (treated as one block) was randomly assigned and had a 50 % chance of being placed into the experimental group or the control group. This assignment was aimed to prevent the contamination of information between the experimental group and the control group.

Six mothers met the discontinuation criteria of the study because their children had respiratory and urinary infections while awaiting cardiac catheterization. Thus, a

total number of subjects in this study were 54 mothers who were the experimental group and the control group of 27 each.

Setting

The S8-ward of Queen Sirikit National Institute of Child Health, which was the setting of this study, was set for admission of pediatric patients (from the age of 1 month to 15 years) with non-infectious diseases. There were 3 sections in this ward for the admission of patients with hemato-oncologic diseases, neurological diseases and cardiovascular diseases. The unit had a capacity of 32 patient's beds. The relatives of patients were allowed to visit patients from 10:00 A.M. to 8:00 P.M., and one female relative of each patient could be with the patient in the ward 24 hours a day. The pediatricians and staff nurses worked in 3 equal shifts everyday. There were 2-3 nurses per shift. A head nurse and a nurse specialist were acting as a nursing consultant. The ward was not only the site for medical service but also the training site for pediatric specialists, medical and nursing students.

The cardiologists performed elective, diagnostic cardiac catheterization on Mondays, Thursdays, and Fridays. Patients were admitted to hospital for cardiac catheterization 1 day before the procedure. At a cardiology clinic, a cardiologist gave brief explanations regarding the cardiac catheterization to the patients' parents. After the patients had been admitted for treatment in the ward, the staff nurses of the unit would notify the date and time for cardiac catheterization and had parents of children sign consent forms for the procedure. On the evening before the cardiac catheterization, nurses prepared the patients' skin of both groins and a nurse from the cardiac catheterization room visited the patients, made inquiry regarding a history of various allergies and re-notified the parents of the date and time that their children would undergo cardiac catheterization. After midnight, nursing staff of the ward would have the patients abstain from food and drink for a specified period of time (about 4–6 hours) prior to cardiac catheterization and gave intravenous fluids. Approximately one hour before transferring the patients to the cardiac catheterization room, the staff nurse would administer sedative drugs to the patients in the form of a tablet or an injection. The patients would then be transferred to the cardiac catheterization room. Once the procedure has been completed (about 1–2 hours), a

cardiologist would tell the results of diagnostic cardiac catheterization to the patients' parents in front of the cardiac catheterization room. Then the patients were transferred back to the ward where the staff nurses would provide post-cardiac catheterization nursing care. The total hospitalization was approximately 3 days.

Instrumentation

The instruments used in the study consisted of the followings:

1. Instruments used for the experiment

The intervention used in the experiment was the concrete-objective information for the mothers of children undergoing cardiac catheterization via the multimedia computer, entitled "When your child undergoes cardiac catheterization". The multimedia computer was developed by the researcher based on self-regulation theory, previous studies on preparation of children and mothers for cardiac catheterization, nursing care for children before and after cardiac catheterization. The content was also based on data from interviews of five mothers whose children underwent cardiac catheterization at Queen Sirikit National Institute of Child Health.

The multimedia computer was produced with the representation of concrete-objective features which included the physical sensations and symptoms that occur, temporal characteristics, environmental features, and cause of sensations, symptoms and experiences of the mothers before and after cardiac catheterization of their children (Appendix E). The length of multimedia computer was 15 minutes. After showing the multimedia computer, the researcher would give an opportunity for the mothers to ask questions about the information given about 5–10 minutes.

The overall length of the intervention was about 30 minutes.

The steps of development of the multimedia computer were as follows:

1. Studying information about cardiac catheterization procedure for children and parents at the Queen Sirikit National Institute of Child Health. The cardiac catheterization nursing practice, personnel, and environments were observed and the nursing staffs of the S8-ward were also interviewed.
2. Observing and interviewing five mothers whose children underwent elective diagnostic cardiac catheterization.

3. Developing the concrete-objective information for the multimedia computer (Appendix E).

4. Creating the multimedia computer entitled “When your child undergoes cardiac catheterization”. The details of concrete-objective information were given as follows:

4.1 The details of information before cardiac catheterization included 1) the objectives of cardiac catheterization, 2) preparation for cardiac catheterization which included cleaning skin of both groins, maintaining nothing by mouth before the procedure, starting peripheral intravenous fluids, reaching a bathroom for urine and pre-medicating patient, and 3) maternal roles in caring for children before cardiac catheterization.

4.2 The details of information during cardiac catheterization included the equipment, personnel and environment in the cardiac catheterization room, the steps involved in cardiac catheterization, nursing care for children in the cardiac catheterization room, duration of cardiac catheterization, and the size of wound of the cardiac catheterization.

4.3 The details of information after cardiac catheterization included maternal roles in caring for children after cardiac catheterization, complications of cardiac catheterization, the condition of children and the period of time required for children to be fully awake after cardiac catheterization, nursing care for children in the ward, the length of hospitalization, and care of the children at home and follow-up.

5. The script and the multimedia computer (Appendix E) had been tested for content validity and sequence, images, and language suitability by five experts (Appendix A) in relevant fields. They were one pediatric cardiologist, one pediatric nursing instructor specialized in pediatric cardiology, one pediatric nursing instructor specialized in self-regulation theory, and two pediatric nurses specialized in caring for children undergoing cardiac catheterization. The multimedia computer was then modified according to the suggestions of the experts.

6. The multimedia computer was tested with ten mothers whose children underwent cardiac catheterization for the first time to evaluate the

understandability of content, the appropriateness of images and the simplicity of language.

2. Instruments for data collection

2.1 Demographic Characteristics Data Form of Mothers included age, education, marital status, number of children, family income, and perception of severity of their children's illness.

2.2 Demographic Characteristics Data Form of Children included age, gender, diagnosis, site of catheter insertion, and duration and early complications of cardiac catheterization.

2.3 The State Anxiety Inventory Form Y-I (SAI) developed by Spielberger, et al. (1983). It was translated into Thai by Chanwatana (2001). The SAI was a 20-item self-report questionnaire with a four-level likert rating scale, ranging from "not at all" to "very much so". Each statement required only one answer from the followings: (1) Not at all (2) Somewhat (3) Moderately so (4) Very much so.

Some of the items (e.g., "I am tense") were worded in such a manner that a rating of 4 indicated the presence of a high level of anxiety. These 10 items were 3, 4, 6, 7, 9, 12, 13, 14, 17, and 18. The scoring weight for these anxiety-present items were 1 to 4. Other items (e.g., "I feel pleasant") were worded so that a high rating indicated low anxiety. These 10 items were 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20. The scoring weights were reversed from 4 to 1.

A total score of all items ranged from 20 to 80. The higher score meant the higher level of anxiety.

Validity and Reliability

The validity of SAI was estimated by correlating the score with Manifest Anxiety Scale developed by Taylor (Taylor's MAS). For 126 college women, the coefficient was 0.80, while the coefficient was 0.79 for 80 college men. The alpha coefficient for internal consistency of SAI was 0.92 in male and female high school and college students, and male and female working adults (Spielberger, et al., 1983).

In Thailand, the SAI was translated into Thai by Chanwatana (2001) and its content validity was assured by four experts. Its reliability was assessed with ten mothers of pre-school children admitted for the first time in hospital and the Cronbach's alpha coefficient was 0.90. Moreover, Rattanasiri (2004) also used this

SAI with 20 mothers whose children had respiratory disorders and were admitted for the first time in hospital and the Cronbach's alpha coefficient was 0.76.

In this study, reliability of the SAI was assessed with ten mothers whose children underwent cardiac catheterization for the first time at the Queen Sirikit National Institute of Child Health. The Cronbach's alpha coefficient was 0.87. The alpha coefficient was calculated again using pretest anxiety scores of the study sample and it was 0.81 (N = 54).

Protection of Human Subjects

1. The study proposal was submitted for review and approval from the Committee of Human Rights Related to Human Experimentation, Mahidol University, and the Human Subjects Committee of Queen Sirikit National Institute of Child Health, Bangkok, Thailand.
2. The researcher began data collection after obtaining permission to conduct the study. The researcher explained the details of this study and asked the mother to read the information sheet (Appendix C). They were free to decide to participate or not to participate in this study. In addition, they were also confirmed that they could withdraw from the study at anytime. Their decisions would not affect the medical treatment or nursing care for their children, and the data would be kept strictly confidential and reported as group data.
3. After the mothers read and decided to participate in the study, they were asked to sign the consent form (Appendix C).

Data Collection

After receiving permission to collect data, the researcher contacted the supervisor nurse and head nurse of the S8-ward of Queen Sirikit National Institute of Child Health to explain the study purposes and the data collection procedure.

Procedure

1. The researcher used name list of children who were scheduled to have cardiac catheterization from the cardiology clinic of the institute to identify potential subjects. After the children were admitted into the S8-ward, the researcher introduced

herself to their mothers, explained about the objectives of the study and their rights and asked them if they want to participate in the study.

2. After the mothers in both experimental and control groups signed the consent form, they were interviewed about their demographic characteristics data and were asked to respond to the SAI questionnaire (pretest).

3. The researcher collected the demographic characteristics data of children from the patients' medical record.

4. The mothers in both groups received routine nursing care from nurses.

5. For the experimental group, the mothers received the concrete-objective information from the researcher. The intervention was given in the afternoon of the day before the scheduled date of cardiac catheterization as follows:

5.1 The researcher explained the purposes and benefits of the multimedia computer and informed the mothers about the length of the multimedia computer and time and place for viewing it.

5.2 The mothers were invited to individually view the multimedia computer in the conference room of S8-ward.

5.3 The researcher explained how to view the multimedia computer and told the mothers that they could view the multimedia computer as many times as they wanted.

5.4 The researcher provided help to the mothers in viewing the multimedia computer, which took about 15 minutes.

5.5 After showing the multimedia computer, the researcher gave an opportunity for the mothers to ask questions about the information given and would give concrete-objective answers from the guideline (Appendix E) about 5–10 minutes.

5.6 If the mothers had other questions such as rules and regulations of the ward, health insurance, the researcher would ask the staff nurses to give answers to the mothers afterwards.

6. The mothers in both groups were asked to answer the SAI at 1–2 hours prior to the cardiac catheterization (posttest I) and at 3–4 hours after the cardiac catheterization (posttest II). The process of data collection was presented in Figure 3.

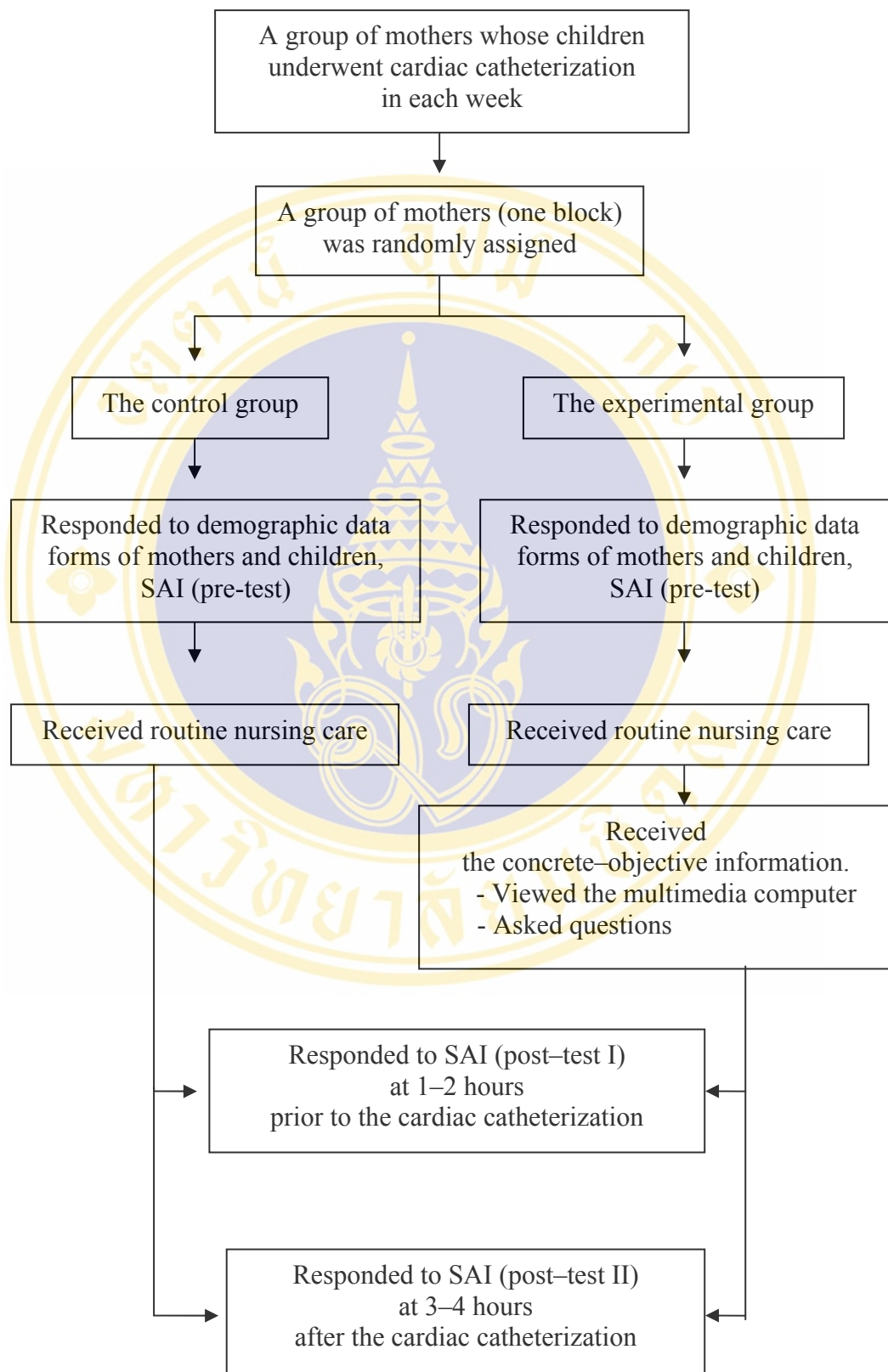


Figure 3 The Process of Data Collection

Data Analysis

The data were analyzed using the computer program. The details were as follows:

1. Number and percentage were used for analyses of demographic data of mothers including age, education, marital status, number of children, family income, and perception of severity of children's illness, and demographic data of children including age, gender, diagnosis, site of catheter insertion, and duration and early complications of cardiac catheterization.

2. Test assumptions of analysis of covariance (ANCOVA).

The assumptions that were tested included normal distribution, homogeneity of variance, and homogeneity of regression across group. The results showed that all of the assumptions were met (Appendix G).

3. Compare the mean anxiety scores between the experimental group and control group after the experiment by analysis of covariance using pretest anxiety scores as a covariate.

Since the assumptions of ANCOVA at post-test II were not met (Appendix G), the researcher compare the mean anxiety scores of the mothers at post-test II between the experimental group and control group by using independent t-test.

CHAPTER IV

RESULTS

This is an experimental research that aimed to study the effect of concrete-objective information on maternal anxiety of children undergoing cardiac catheterization. The data were collected by using the questionnaire to assess the state anxiety of the mothers in three stages, which were the pre-test stage at the afternoon of the day before the scheduled date of cardiac catheterization, the post-test I stage at 1–2 hours prior to the cardiac catheterization and the post-test II stage at 3–4 hours after the cardiac catheterization. The data collection took place from July to November 2006.

The total number of subjects for this study was 54 mothers who were randomized into the experimental group and the control group of 27 each. The results of the study are presented in 2 parts as follows:

Part 1: Characteristics of mothers and children.

Part 2: Comparison of the mean anxiety scores of mothers before and after the experiment in both groups.

Part 1: Characteristics of mothers and children.**Table 1 Demographic Characteristics of Mothers (N=27 in each group)**

Characteristics of mothers	Experimental group		Control group	
	N	%	N	%
Age (years)				
18 – 30	11	40.74	12	44.44
31 – 40	12	44.44	12	44.44
41 - 46	4	14.82	3	11.12
	Range = 18-46		Range = 20-44	
	Mean = 31.96, SD = 7.12		Mean = 31.52, SD = 6.80	
Education				
No education	2	7.40	0	0
Primary	16	59.26	15	55.54
Secondary	9	33.34	9	33.34
Diploma/ Bachelor or higher	0	0	3	11.12
Marital status				
Married	24	88.88	21	77.78
Divorced/ Separated/ Widowed	3	11.12	6	22.22
Number of children				
1	6	22.22	14	51.86
2	15	55.54	6	22.22
3	3	11.12	5	18.52
4	3	11.12	2	7.40

Table 1 Demographic Characteristics of Mothers (Continued)

Characteristics of mothers	Experimental group		Control group	
	N	%	N	%
Family income				
(bahts/month)				
2,800 – 5,000	6	22.23	9	33.34
5,001 – 10,000	14	51.85	11	40.74
10,001 – 20,000	7	25.92	6	22.23
20,001 – 30,000	0	0	1	3.69
	Range = 3,000-20,000		Range = 2,800 – 30,000	
	Mean = 8,820.37		Mean = 8,570.37	
	SD = 5,018.62		SD = 5,974.04	
Perception of severity of children’s illness				
Not severe and mild	0	0	0	0
Moderate	5	18.51	9	33.34
Severe	13	48.15	16	59.26
Extremely severe	9	33.34	2	7.40

Table 1 showed that most of the mothers were 18–40 years old (85.18 % in the experimental group and 88.88 % in the control group) and married (88.88 % in the experimental group and 77.88 % in the control group). More than half of the mothers had primary education (59.26% in the experimental group and 55.54 % in the control group) and had family income 5,001–20,000 bahts/month (77.77 % in the experimental group and 62.97 % in the control group). More than half of the mothers in the experimental group had 2 children (55.54 %), whereas those in the control group had only one child (51.86 %). More than half of the mothers in the control group (59.26 %) and less than half of the mothers in the experimental group (48.15 %) perceived their children's illness as severe.

Table 2 Demographic Characteristics of Children (N=27 in each group)

Characteristics of children	Experimental group		Control group	
	N	%	N	%
Age				
1 month – 1 year	2	7.41	3	11.12
> 1 year – 6 years	17	62.96	12	44.44
> 6 years – 12 years	8	29.63	12	44.44
1 month	Range = 8 months – 12 years 1 month Mean = 4.83 SD = 3.49		Range = 1 month – 12 years Mean = 5.40 SD = 3.32	
Gender				
Male	12	44.44	15	55.56
Female	15	55.56	12	44.44
Diagnosis				
Cyanotic heart	18	66.66	16	59.26
Acyanotic heart	9	33.34	11	40.74

Table 2 showed that most of the children were > 1–12 years old (92.59 % in the experimental group and 88.88 % in the control group). More than half of them had cyanotic heart disease (66.66 % in the experimental group and 59.26 % in the control group).

Table 3 Duration, Site of Catheter Insertion, and Early Complications of Cardiac Catheterization (N=27 in each group)

Variable	Experimental group		Control group	
	N	%	N	%
Duration of cardiac catheterization(minutes)				
35 – 60	7	25.92	8	29.64
61 – 90	13	48.16	14	51.85
91 – 120	5	18.51	5	18.51
121 – 150	2	7.41	0	0
	Range = 35 -150		Range = 40 -115	
	Mean = 75.22		Mean = 74.96	
	SD = 28.99		SD = 20.40	
Site of catheter insertion				
Rt. groin	27	100	24	88.88
Lt. groin	0	0	1	3.71
Both groins	0	0	2	7.41
Early complications after cardiac catheterization				
No	26	96.29	24	88.88
Yes	1	3.71	3	11.12

Table 3 showed that the average duration of cardiac catheterization was 75.22 minutes (SD = 28.99) in the experimental group and 74.96 minutes (SD = 20.40) in the control group. Most of the catheter insertion were performed at the children's right groin (100 % in the experimental group and 88.88 % in the control group). Four children had early complications after cardiac catheterization. One child in the experimental group had an urticaria, whereas in the control group one had mild bleeding at the site of catheter insertion, one had nausea and vomiting, and another had increased cyanosis.

Part 2: Comparison of the mean anxiety scores of mothers before and after the experiment in both groups.

Table 4 Comparison of the Mean Anxiety Scores of Mothers in Both Groups at Pre-test, Post-test I and Post-test II (N=27 in each group) by Independent t – test

Testing time	Experimental group			Control group			t
	Range	Mean	SD	Range	Mean	SD	
Pre - test	41-69	53.52	7.89	30-70	51.30	9.13	.96 ^{ns}
Post – test I	23-60	45.89	9.45	30-69	54.41	10.82	-3.08**
Post – test II	23-57	40.89	10.44	23-63	43.22	10.82	-.81 ^{ns}

^{ns} = non significant, $p > .05$, ** $p < .01$

Table 4 showed that the mean anxiety score of the experimental group at pre-test (53.52) was higher than that of the control group (51.30). At post- test I, the mean anxiety score of the experimental group reduced to 45.89 while that of the control group increased to 54.41. At post-test II, the mean anxiety score of the experimental group (40.89) was lower than that of the control group (43.22).

The mean anxiety scores of the two groups at pre-test, post-test I, and post-test II were compared by using independent t–test to determine if there was a significant difference. At pre-test, there was no significant mean difference ($t = .96$, $p > .05$) between the experimental group and the control group. At post-test I, the mean anxiety score of mothers in the experimental group at 1-2 hours prior to the cardiac catheterization was significantly lower than that of the control group ($t = -3.08$, $p < .01$) but at post-test II, the mean difference was not statistically significant ($t = -.81$, $p > .05$).

Table 5 Analysis of Covariance of Post-test I Mean Anxiety Score, with Pre-test Mean Anxiety Score as a Covariate. (N=27 in each group)

Source	df	Type III Sum of Squares	Mean Square	F
Covariate (pre - test)	1	821.16	821.16	9.22**
Main Effects (group)	1	1210.79	1210.79	13.59**
Residual (error)	51	4544.03	89.10	
Corrected Total	53	6344.82		

**p < .01, Adjusted R Square = .256

Table 5 showed a comparison of the mean anxiety scores at post-test I between the experimental group and the control group by using pre-test mean anxiety score as a covariate. The results showed that the covariate (pre-test mean anxiety score) was significantly related to the mean anxiety score at post-test I ($F = 9.22$, $p < .01$). After controlling for pre-test mean anxiety score, it was a significant difference of the mean anxiety scores at post-test I between the experimental group and the control group ($F = 13.59$, $p < .01$).

Table 6 Analysis of Covariance of Post-test II Mean Anxiety Score, with Pre-test Mean Anxiety Score as a Covariate. (N=27 in each group)

Source	df	Type III Sum of Squares	Mean Square	F
Covariate (pre - test)	1	418.48	418.48	3.91 ^{ns}
Main Effects (group)	1	125.21	125.21	1.17 ^{ns}
Residual (error)	51	5458.85	107.04	
Corrected Total	53	5950.83		

^{ns} = non significant, $p > .05$, Adjusted R Square = .047

Table 6 showed a comparison of the mean anxiety scores at post-test II between the experimental and control groups by using pre-test mean anxiety score as a covariate. The results showed that the covariate (pre-test mean anxiety score) was not significantly related to the mean anxiety score at post-test II ($F = 3.91$, $p > .05$). It indicated that the covariate did not have an effect on the mean anxiety score at post-test II. The ANCOVA could not be used as its assumption was not met. Thus, the researcher presented the findings in Table 4 instead, where the mean anxiety scores of the two groups at post-test II were compared by using independent t-test.

CHAPTER V

DISCUSSION

This was an experimental research aimed at studying the effect of concrete-objective information on the maternal anxiety of children undergoing cardiac catheterization. The discussion is presented according to the hypotheses of the study as follows:

Hypothesis 1: The anxiety scores of mothers in the experimental group at 1 - 2 hours prior to the cardiac catheterization will be lower than those of the control group.

When the mean anxiety scores of mothers in the experimental and control groups at 1-2 hours prior to the cardiac catheterization (post-test I) were compared by analysis of covariance (ANCOVA) with the mean anxiety score prior to the experiment (pre-test) as a covariate, it was found that the mean anxiety scores of mothers in the experimental and control groups at 1–2 hours prior to the cardiac catheterization differed with statistical significance ($F=13.59$, $p<.01$), (Table 5). Table 4 also showed that the mean anxiety score of mothers in the experimental group at post-test I (45.89) was lower than that of the control group (54.41). This finding supports the first hypothesis.

This result can be explained that when the mothers in the experimental group received preparatory information that contained descriptions of concrete-objective features of the cardiac catheterization of their children, the mothers expected to experience the unambiguous concrete-objective features and monitor their experience for the absence or presence of these features. The mothers' attention was focused on the concrete-objective aspects of the cardiac catheterization of their children and coping was focused on problem solving and direct actions. In addition, the pictures presented in the multimedia computer comprised actual photographs for the most part,

thus allowing the mothers to clearly view cardiac catheterization and creating an accurate schema. This enabled the mothers to hold realistic expectations for the situations they would encounter. When events at 1-2 hours prior to the cardiac catheterization corresponded with the information the mother received, they would interpret the meaning of the information according to their accurate knowledge and understanding. The processes by which this occurs include decreasing the discrepancy between what is expected and what actually occurs, increasing predictability, and enhancing one's ability to understand and interpret the experience. Thus, the mothers who were prepared with the concrete-objective information could match these events with the schema that was created by information, thereby decreasing the discrepancy between their expectations and the reality of the cardiac catheterization. When the mothers' attention is directed to the concrete-objective features the mothers would pay little attention to subjective features. As a result the mothers would not attend to their emotional response to the event, resulting in positive emotional response or low maternal anxiety levels. From additional analysis by paired t-test (Table 7, in Appendix F), it was found that the mean anxiety score of mothers in the experimental group at 1-2 hours prior to the cardiac catheterization (45.89) was significantly reduced from that prior to the experiment (53.52) ($t = 4.13, p < .001$).

For those mothers in the control group who did not receive the concrete-objective information, it was found that the mean anxiety score of the mothers at 1-2 hours prior to the cardiac catheterization (54.41) was higher than that prior to the experiment (51.30) (Table 4). However, from additional analysis by paired t-test, it was found that the mean anxiety score of mothers in the control group at 1-2 hours prior to the cardiac catheterization was not significantly increased from that prior to the experiment ($t = -1.45, p > .05$) (Table 7, in Appendix F). This may be explained that the mothers in the control group received only routine information from nurses which may include subjective features of the cardiac catheterization of their children. From interviewing the mothers, it was found that most of them imagined cardiac catheterization as life-threatening to their children. Some mothers believed that surgery had to be conducted for the insertion of the catheter. When the subjective features are dominant in the representation, the mothers would attend to their emotional response to the cardiac catheterization. Emotional memories associated

with past experiences are elicited. If the mothers' attention is directed to the subjective features of cardiac catheterization of their children, they tend to interpret their experience in terms of their vulnerability and emotional responses. The continued focus on the subjective emotional and evaluative features and the feedback of those responses to the representation can cause the mothers to define and understand their experience in such terms as distressing and upsetting, resulting in negative emotional response such as anxiety.

In addition, the method used to provide information was an important factor which would enable the mothers to learn information effectively. According to previous studies, media such as video and audio tapes were used. For this study, the researcher provided information via the multimedia computer, allowing mothers to ask questions about the information presented in this multimedia computer. The advantage of using the multimedia computer is that it simultaneously provides both images and sounds. The images of the multimedia computer in this study were real and colorful with clear sound which could attract the mothers' attention. According to interviews with the mothers in the experimental group after viewing the multimedia computer, it was found that they were satisfied with the media. They understood the meaning of the contents and said that the content was clear, continuous, and not confusing and enhance their understanding of their children's cardiac catheterization. Two of the mothers said that they were nervous after viewing the multimedia computer; however, they felt that they were more ready to handle the situation. At first, they used to view cardiac catheterization as frightening because they thought that their child had to be anesthetized and the wound of the cardiac catheterization was large. After viewing the multimedia computer, they wanted their child to undergo the cardiac catheterization because it would give crucial information needed for further treatment of their child.

Giving the mothers an opportunity to ask questions about the information in the multimedia computer, the researcher found that 10 mothers asked questions (Appendix E) to verify if the information they had received was accurate; for example, "Where is the catheter inserted?", "Will the catheter be removed?", and "Won't my child need general anesthesia?". When the mothers received concrete-objective answers from the researcher, their level of suspicion was reduced and they

became more certain that the information they received was correct. When the mothers were given accurate information, they were able to better assess and interpret the situation rather than imagine it negatively. Consequently, the mothers who received the concrete-objective information had lessened anxiety at 1-2 hours prior to the cardiac catheterization and had lower anxiety than those mothers who received routine information.

The findings of this study were similar to those of other studies. Rattanasiri (2004) studied the effects of informational intervention based on self-regulation theory on the maternal anxiety of children who had been hospitalized for respiratory disorders for the first time. The mothers in the experimental group participated in an admission program which comprised giving information via videotape, answering the mothers' questions and handing out pamphlets on how to care for their children with respiratory disorders during hospitalization. The findings revealed that the mean anxiety scores of mothers in the experimental group were lower than those in the control group with statistical significance. Melnyk et al. (2004) studied the effects of a preventive educational-behavioral intervention program, the creating opportunities for parent empowerment program (COPE). Subjects were 163 mothers with their 2-7 year-old children who were unexpectedly hospitalized in the pediatric intensive care unit and were randomly assigned to receive the COPE program in the experimental group. Results showed that COPE mothers reported significantly less parental stress as compared with mothers in the control group. Similarly, Melnyk (1994) studied the effects of informational interventions on the anxiety of mothers with unplanned childhood hospitalization. The findings revealed that mothers who received the interventions reported less anxiety than those in the control group with statistical significance.

Hypothesis 2: The anxiety scores of mothers in the experimental group at 3-4 hours after the cardiac catheterization will be lower than those of the control group.

The findings of this study revealed that the mean anxiety score of mothers in the experimental group (40.89) at 3-4 hours after the cardiac catheterization (post-test II) was lower than that of the control group (43.22) with no statistical significance ($t = -.81, p > .05$), as shown in Table 4. This finding does not support the second hypothesis. One possible explanation for not seeing the effect of the intervention

(concrete-objective information) at 3-4 hours after the cardiac catheterization may be due to the fact that the cardiologist at this institute told the results of the cardiac catheterization to the mothers immediately in front of the cardiac catheterization room. This information may help reduce maternal anxiety in both groups. Another possible explanation is that when the mothers saw their children came out safe after the cardiac catheterization, they felt very relieved. From interviewing the mothers about their feelings after they had responded to SAI at 3-4 hours after the cardiac catheterization, most mothers said “I felt relieved when I saw the staff bring my child from the cardiac catheterization room”, and “I was happy to see my child come out from the cardiac catheterization room safely”.

Moreover, it might be possible that the contents of concrete-objective information after the cardiac catheterization in the multimedia computer may not be all accurate or relevant to the mothers’ experience. When considering the details of the information after the cardiac catheterization, the researcher found that it did not include information about further treatment of their children and care of their children if bleeding occurs at home. From giving the mothers an opportunity to ask questions about the information in the multimedia computer, it was found that 2 mothers asked additional questions (Appendix E) such as “After the cardiac catheterization, is a surgery an only treatment for their my child?”, “What should I do if bleeding occurs at home?”. However, when the mothers received concrete-objective answers from the researcher, their level of suspicion was reduced. The concrete-objective information should be relevant to the mothers’ experience after the cardiac catheterization then allowing the mothers to clearly view after the cardiac catheterization and creating an accurate schema.

For the mothers whose children were not fully awake from the sedative drugs at 3-4 hours after the cardiac catheterization in both groups, they were as happy and relieved as those mothers whose children were already awake. The mothers whose children were not awake from sedative drugs said “Just knowing my child came out safely from the catheterization made me happy”, “I want my child to sleep for a long time so he won't feel the pain”, and “I want him to sleep for a long time because he may move his body and then the wound may bleed”.

This finding was consistent with the study of Mittison (2002) investigating the effects of preparatory information on anxiety of adult patients undergoing surgery for renal and ureteric calculi. The experimental group received preparatory information via audio tape. The results showed that after the surgery, the experimental group did have not significantly lower mean anxiety score than the control group. Mittison explained that she did not give the information to patients regarding the complication of postoperative of their experience. The findings of this study were not consistent with the study of Saisamut (2002) examining the effects of preoperative preparation for open heart surgery using cartoon modeling book with concrete-objective information and family participation on anxiety of school age patients. The findings showed that increased scores of anxiety of the experimental group between the admission day and the second postoperative day were smaller than those of the control group. Charoenchai (1998) studied the effects of preparatory information about procedures, sensations, and behavioral instruction on anxiety of cardiac vulvular replacement patients. The experimental group received preparatory information via videotape. The results showed that after the surgery, the experimental group had significantly lower mean anxiety score than the control group. Ardtharn (2002) studied the effect of preparatory information on anxiety of abdominal surgical patients. The experimental group received preparatory information via videotape. The results showed that after the surgery, the experimental group had significantly lower mean anxiety score than the control group.

CHAPTER VI

CONCLUSION

This is an experimental research that aimed to study the effect of concrete–objective information on maternal anxiety of children undergoing cardiac catheterization.

The sample of this study was the mothers of children who underwent elective diagnostic cardiac catheterization for the first time. The children were admitted at the S8-ward of Queen Sirikit National Institute of Child Health, Ministry of Public Health, Bangkok, Thailand. Subjects for this study were 60 mothers who were randomized into the experimental group and the control group of 30 each. There were 6 subjects who met the discontinuation criteria of the study because their children had respiratory and urinary infections while awaiting cardiac catheterization and had to be withdrawn from the study. Thus, a total number of subjects for this study were 54 mothers who were the experimental group and the control group of 27 each.

The instruments used in the study consisted of the followings:

1. Instruments for data collection included Demographic Characteristics Data Form of mothers, Demographic Characteristics Data Form of children and the State Anxiety Inventory form Y–I (SAI) developed by Spielberger, et al (1983). It was translated into Thai by Chanwatana (2001). The reliability of the SAI, using Cronbach's alpha coefficient assessed with ten mothers whose children underwent cardiac catheterization for the first time was 0.87. The alpha coefficient was calculated again using pretest anxiety scores of the study sample and it was 0.81 (N = 54).

2. Instruments used for the experiment: The intervention used in the experiment was the concrete–objective information for the mothers of children undergoing cardiac catheterization via the multimedia computer, entitled “When your child undergoes cardiac catheterization”. The multimedia computer was developed by the researcher based on self–regulation theory, previous studies on preparation of

children and mothers for cardiac catheterization, nursing care for children before and after cardiac catheterization and interview data from five mothers whose children underwent cardiac catheterization at Queen Sirikit National Institute of Child Health.

The data collection took place from July to November 2006. All data were analyzed by using the computer program. The findings were summarized as follows:

1. The mean anxiety scores of mothers between the experimental and control groups prior to the experiment were not significantly different ($t = .96, p > .05$).
2. The mean anxiety scores of mothers in the experimental group at 1-2 hours prior to the cardiac catheterization were lower than those in the control group with statistical significance ($F = 13.59, p < .01$).
3. The mean anxiety scores of mothers in the experimental group and the control group at 3-4 hours after the cardiac catheterization were not different with statistical significance ($t = -.81, p > .05$).

The research findings suggest that providing mothers with concrete-objective information via the multimedia computer and give the opportunity for them to ask question could reduce maternal anxiety of children prior to cardiac catheterization

Implications and Recommendations

Implications for nursing practice

1. The concrete-objective information via the multimedia computer could be used to give information to mothers whose children undergo diagnostic cardiac catheterization and to help increase the effectiveness of the information given in routine nursing care by nurses. The mothers of children can receive more relevant information, clearly see pictures of the cardiac catheterization, and repeatedly review things that they do not understand. However, nurses should not ignore providing information and answering questions. It allows the nurses and the mothers to have more interactions and will make the mothers feel comfortable about asking other questions or expressing their concerns.
2. The concrete-objective information in this study can be applied or modified to give information to mothers whose children undergo diagnostic cardiac catheterization in other institutes with different procedure of cardiac catheterization.

Implications for further study

1. This study should be replicated in other settings where the cardiologist might not give the results of the cardiac catheterization to mothers immediately in front of the cardiac catheterization room.

2. The results of this study found that maternal anxiety at 3-4 hours after the cardiac catheterization between the experimental and control groups were not different. It might be possible that the contents of concrete-objective information after cardiac catheterization in the multimedia computer may not be all accurate or relevant to the mothers' experience. In further study, the concrete-objective information should be developed by interviewing the mothers about their experience after the cardiac catheterization of their children, so the information is accurate and relevant to the mothers' experience.

3. Further study should explore the effects of the concrete-objective information via the multimedia computer to mothers whose children undergo therapeutic cardiac catheterization or other procedures that are similar to cardiac catheterization such as gastroscopy or bronchoscopy.

Limitation of the Study

This study was limited to the population of the Queen Sirikit National Institute of Child Health. The findings, therefore, can only be used within the institute. They may be used in other institutes with caution because cardiac catheterization procedures may differ at other institutes.

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APPENDIX A

List of Content Validators

The content validity of the multimedia computer used in this study was assured by five content validators. Name list of content validators was as follows:

1. Assoc. Prof. Raschanee Seeda,
Department of Pediatric Nursing,
Faculty of Nursing, Mahidol University.
2. Asst. Prof. Dr. Waraporn Chaiyawat, D.N.S.
Department of Pediatric Nursing,
Faculty of Nursing, Chulalongkorn University.
3. Thanarat Layangool, M.D.,
Department of Pediatric Cardiology, Queen Sirikit National Institute of Child Health,
Ministry of Public Health.
4. Mrs. Yaowalak Phanudom, RN, M.P.A. (Public Administration)
Head Nurse of S8-ward, Queen Sirikit National Institute of Child Health,
Ministry of Public Health.
5. Miss Supatra Moranon, RN.
Department of Pediatrics, Faculty of Medicine, Siriraj Hospital,
Mahidol University.

APPENDIX B

Documentary Proof of Ethical Clearance



No. MU 2006-124

Documentary Proof of Ethical Clearance
The Committee on Human Rights Related to
Human Experimentation
Mahidol University, Bangkok

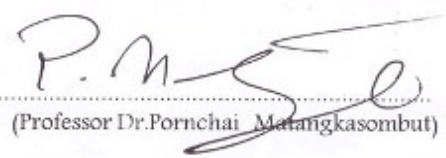
Title of Project. The Effect of Concrete-Objective Information on Maternal Anxiety of Children Undergoing Cardiac Catheterization (Thesis for Master Degree)

Principle Investigator. Miss Sopah Pissajarn

Name of Institution. Faculty of Nursing

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman. 
(Professor Dr. Srisin Khusmith)

Signature of Head of the Institute. 
(Professor Dr. Pornchai Matangkasombut)

Date of Approval. 19 JUL 2006

Date of Expiration. 18 JUL 2007



บันทึกข้อความ

ส่วนราชการ คณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์ ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี

ที่ สอ 0319/ 97/2

วันที่ 29 พฤษภาคม 2549

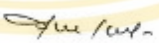
เรื่อง แจ้งผลการพิจารณาโครงการวิจัย

เรียน นางสาวโสภา พิเศษจาร

ตามที่ ท่านได้เสนอโครงการศึกษาวิจัยเพื่อรับการพิจารณาจากคณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี เรื่อง ผลของการให้ข้อมูลแบบรูปธรรม-ปรนัย ต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ THE EFFECT OF CONCRETE-OBJECTIVE INFORMATION ON MATERNAL ANXIETY OF CHILDREN UNDERGOING CARDIAC CATHETERIZATION นั้น

บัดนี้ คณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์ ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี ได้พิจารณาแล้ว เห็นควรอนุญาตให้ทำการศึกษาวิจัยได้ โดยขอ ให้แก้ไขจำนวนผู้เข้าร่วมวิจัยในเอกสาร Participant information sheet จากจำนวน 10 คน เป็น 50 คน ให้ตรงกับเอกสารวิธีการศึกษาวิจัย และเมื่อเสร็จสิ้นโปรดมอบผลการวิจัยฉบับสมบูรณ์ให้แก่สถาบันสุขภาพเด็กแห่งชาติมหาราชินีจำนวน 3 ชุดพร้อม Electronic File 1 ชุด โดยส่งที่ ศูนย์วิจัยและพัฒนาชั้น 12 อาคารสถาบันสุขภาพเด็กแห่งชาติมหาราชินี เพื่อประโยชน์ในการศึกษาวิจัย ในโอกาสต่อไป

จึงเรียนมาเพื่อทราบและแจ้งผู้เกี่ยวข้องทราบต่อไปด้วย จักขอขอบคุณ


(นางสุรณี เรืองสุวรรณ)

ประธานคณะกรรมการพิจารณาการศึกษาวิจัยในมนุษย์
ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี

หากมีข้อสงสัย หรือต้องการข้อมูลเพิ่มเติม

กรุณา ติดต่อ ศูนย์วิจัยและพัฒนา โทร.5210,5211 หรือ 02644-8943

APPENDIX C

Information Sheet and Informed Consent Form

คำอธิบายโครงการวิจัย (Participant Information Sheet)

(กลุ่มทดสอบเครื่องมือ)

ชื่อโครงการ ผลของการให้ข้อมูลแบบรูปธรรม-ปรนัย ต่อความวิตกกังวลของมารดาที่มีบุตร
จะเข้ารับการสวนหัวใจ

ชื่อผู้วิจัย นางสาวโสภา พิศจาร

สถานที่วิจัย หอผู้ป่วยอาคารสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) สถาบันสุขภาพเด็กแห่งชาติมหาราชินี

สถานที่ติดต่อผู้วิจัย คือ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ถนนพหลโยธิน เขตบางกอกน้อย

กรุงเทพมหานคร 10700 เบอร์โทรศัพท์ที่ติดต่อได้ทั้งในและนอกเวลาราชการคือ 01- 6666092

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาผลของการให้ข้อมูลต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ ประโยชน์ที่คาดว่าจะได้รับคือเพื่อช่วยให้มารดาที่มีบุตรจะเข้ารับการสวนหัวใจคลายความวิตกกังวล ข้อมูลที่ได้จากท่านจะช่วยในการหาคุณภาพของเครื่องมือที่ใช้ในการวิจัย

ท่านได้รับเชิญเข้าร่วมการวิจัยนี้ เพราะเป็นมารดาของผู้ป่วยเด็กที่จะเข้ารับการสวนหัวใจ จะมีผู้เข้าร่วมการวิจัยนี้ทั้งสิ้นจำนวน 10 คน

เมื่อท่านตกลงเข้าร่วมการวิจัย และลงนามในใบยินยอม ผู้วิจัยจะสัมภาษณ์ข้อมูลส่วนบุคคลของท่านจำนวน 6 ข้อ และตอบแบบประเมินความวิตกกังวลขณะเผชิญด้วยตนเอง จำนวน 20 ข้อ เวลาที่ใช้ในการสัมภาษณ์และตอบแบบประเมิน ประมาณ 10-15 นาที และในระหว่างที่ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ ผู้วิจัยจะบันทึกข้อมูลส่วนบุคคลของบุตรจากแฟ้มประวัติผู้ป่วย หลังจากนั้นให้ท่านชมสื่อคอมพิวเตอร์เรื่อง “เมื่อบุตรของคุณต้องเข้ารับการสวนหัวใจ” ใช้เวลาประมาณ 15 นาที หากท่านมีข้อสงสัยหรือต้องการคำแนะนำเพิ่มเติมเกี่ยวกับวิธีการดูแลบุตรที่ได้รับการสวนหัวใจ ผู้วิจัยจะให้ข้อมูลหรือคำแนะนำในการดูแลบุตรตามที่ท่านต้องการ ใช้เวลาโดยรวมประมาณ 30 นาที

หากท่านไม่เข้าร่วมในการวิจัยนี้ ท่านและบุตรของท่านยังคงได้รับการพยาบาลตามปกติจากเจ้าหน้าที่ในหอผู้ป่วยอาคารสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) ที่บุตรของท่านเข้ารับการรักษา

หากท่านมีข้อข้องใจที่จะสอบถามเกี่ยวกับการวิจัยครั้งนี้ ท่านสามารถติดต่อกับนางสาวโสภา พิศจาร ที่คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล เบอร์โทรศัพท์ที่ติดต่อได้ 24 ชั่วโมงคือ 01- 6666092

การเข้าร่วมการวิจัยนี้ ท่านไม่ต้องเสียค่าใช้จ่ายใด ๆ ทั้งสิ้น และท่านจะไม่ได้รับค่าตอบแทน หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์ และโทษที่เกี่ยวกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วไม่ปิดบัง

ข้อมูลส่วนตัวของท่านและบุตรของท่านจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม สำหรับข้อมูลของท่านและบุตรของท่านเป็นรายบุคคล อาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น คณะกรรมการจริยธรรมฯ เป็นต้น

ท่านมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัย หรือถอนตัวออกจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อค่าบริการ และการรักษาที่สมควรจะได้รับแต่ประการใด

หากท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงนี้ ท่านสามารถแจ้งให้ประธานคณะกรรมการจริยธรรมฯ ทราบได้ที่ศูนย์วิจัย ดิศดาลัยมสุขภาพเด็กแห่งชาติ ชั้น 12 สถาบันสุขภาพเด็กแห่งชาติมหาราชินี เบอร์โทร. 02 – 3548333 ต่อ 5211, 5214, 5213

โสภา พิศจาร
ผู้วิจัย

คำอธิบายโครงการวิจัย (Participant Information Sheet)**(สำหรับกลุ่มทดลอง)**

1. หัวข้อเรื่องที่จะทำการวิจัย: ผลของการให้ข้อมูลแบบรูปธรรม-ปรนัย ต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ

2. วัตถุประสงค์และวิธีการวิจัย การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อประเมินผลของการให้ข้อมูลต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ เป็นการวิจัยเชิงทดลองแบบ 2 กลุ่ม คือ มีกลุ่มทดลองและกลุ่มควบคุม ซึ่งท่านเป็นผู้หนึ่งที่ได้รับเชิญเข้าร่วมการวิจัยในกลุ่มทดลอง

3. เหตุผลที่เชิญชวนให้ผู้ยินยอมตนให้ทำการวิจัยเข้าโครงการวิจัย เนื่องจากการวิจัยครั้งนี้เป็นการศึกษาผลของการให้ข้อมูลต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ ซึ่งต้องการข้อมูลที่มาจากกลุ่มมารดาที่มีบุตรเข้ารับการสวนหัวใจเพื่อการวินิจฉัย เพื่อนำข้อมูลที่ได้จากการวิจัย มาใช้เป็นแนวทางในการให้ข้อมูลเพื่อช่วยลดความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ

4. ระยะเวลาที่ต้องทำการทดสอบผู้ยินยอมตนให้ทำการวิจัย

หลังจากที่ท่านตกลงเข้าร่วมการวิจัยและลงนามในใบยินยอม ผู้วิจัยจะขอสัมภาษณ์ข้อมูลส่วนบุคคลของท่านจำนวน 6 ข้อ และตอบแบบประเมินความวิตกกังวลขณะเผชิญด้วยตนเอง จำนวน 20 ข้อ (เป็นการตอบแบบประเมินครั้งที่ 1) ภายใน 2-3 ชั่วโมง หลังจากที่คุณบุตรของท่านเข้ารับการรักษาในหอผู้ป่วยอาการสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) ใช้เวลาประมาณ 10-15 นาที และในระหว่างที่ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ ผู้วิจัยจะบันทึกข้อมูลส่วนบุคคลของคุณบุตรจากแฟ้มประวัติผู้ป่วย

หลังจากนั้นท่านจะได้รับข้อมูลการสวนหัวใจตามปกติ จากพยาบาลประจำหอผู้ป่วยอาการสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) และพยาบาลประจำห้องสวนหัวใจ และจะได้รับข้อมูลจากผู้วิจัยในช่วงบ่ายก่อนวันสวนหัวใจ ณ หอผู้ป่วยอาการสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) ดังนี้

1. ผู้วิจัยชี้แจงวัตถุประสงค์ ประโยชน์ของการชมสื่อคอมพิวเตอร์ แจ้งสถานที่ เวลาในการพามารดาเข้าชมสื่อคอมพิวเตอร์ ระยะเวลาในการให้ข้อมูล (ระยะเวลาในการชมสื่อคอมพิวเตอร์ การซักถามปัญหา/ข้อสงสัย)

2. ให้ท่านชมสื่อคอมพิวเตอร์เรื่อง “เมื่อบุตรของคุณต้องเข้ารับการสวนหัวใจ” แต่ละหน้าจอภาพเอง (ความยาวประมาณ 15 นาที) โดยที่ผู้วิจัยจะนั่งอยู่เป็นเพื่อนท่านด้วย เพื่อช่วยอำนวยความสะดวกในการเปิดปิดคอมพิวเตอร์ และหากมีปัญหาขัดข้องทางเทคนิคของการใช้สื่อคอมพิวเตอร์ จะได้ให้ความช่วยเหลือและแก้ไขให้ทันที หรือผู้วิจัยจะเป็นผู้เปิดสื่อคอมพิวเตอร์ให้ในกรณีที่ท่านต้องการให้ผู้วิจัยเป็นผู้เปิดให้ชม

3. หลังจากท่านชมสื่อคอมพิวเตอร์เสร็จ ผู้วิจัยจะเปิดโอกาสให้ท่านได้ซักถามปัญหา/ข้อสงสัย ใช้เวลาประมาณ 5-10 นาที

ภายใน 1-2 ชั่วโมง ก่อนส่งบุตรของท่านเข้าห้องสวนหัวใจ ผู้วิจัยจะให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ (เป็นการตอบแบบประเมินครั้งที่ 2) ใช้เวลาประมาณ 10 นาที

ภายใน 3-4 ชั่วโมง หลังจากบุตรของท่านกลับจากห้องสวนหัวใจ ผู้วิจัยจะให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ (เป็นการตอบแบบประเมินครั้งที่ 3) ใช้เวลาประมาณ 10 นาที

ระยะเวลาในการดำเนินการวิจัย ประมาณ 2 วัน

5. ประโยชน์ที่คาดว่าจะเกิดขึ้นทั้งต่อผู้ยินยอมตนให้ทำการวิจัยและต่อผู้อื่น

ประโยชน์ที่คาดว่าจะเกิดขึ้นต่อท่าน คือ ท่านจะได้รับข้อมูลเกี่ยวกับการสวนหัวใจสำหรับบุตรของท่าน และมีโอกาสซักถามปัญหา/ข้อสงสัยต่าง ๆ เพื่อช่วย让您คลายความวิตกกังวลในเรื่องการสวนหัวใจของบุตรของท่าน

ประโยชน์ที่คาดว่าจะเกิดขึ้นต่อผู้อื่น คือ โรงพยาบาล/หน่วยงานที่ดูแลผู้ป่วยเด็กที่ต้องเข้ารับการสวนหัวใจ จะได้มีแนวทางในการให้ข้อมูลเพื่อช่วยลดความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจต่อไป

6. ความเสี่ยงหรือความไม่สบายที่คาดว่าจะเกิดขึ้นกับผู้ยินยอมตนให้ทำการวิจัย ในการเข้าร่วมการศึกษาวิจัย

การวิจัยนี้มีความเสี่ยงน้อยมาก หรือแทบจะไม่มีเลย เนื่องจากการทบทวนวรรณกรรมที่เกี่ยวข้อง ผู้วิจัยพบว่า การให้ข้อมูลเกี่ยวกับการสวนหัวใจในผู้ป่วยเด็ก จะช่วยให้มารดามีความเข้าใจ มองเห็นภาพการสวนหัวใจของบุตร และอาจช่วยลดความวิตกกังวลของมารดาได้ นอกจากนี้ เนื้อหาข้อมูลที่จะให้แก่มารดาได้ผ่านการพิจารณาจากผู้เชี่ยวชาญในการดูแลผู้ป่วยเด็กที่จะเข้ารับการสวนหัวใจแล้วว่ามีความเหมาะสม

7. การเตรียมผลิตภัณฑ์ หรือกระบวนการรักษาที่พิสูจน์จากการทำวิจัยแล้วว่าปลอดภัยและมีประสิทธิผลไว้ให้ผู้ยินยอมตนให้ทำการวิจัยอย่างไร

การให้ข้อมูลผ่านสื่อคอมพิวเตอร์ เป็นแผนการให้ข้อมูลที่ผ่านการทบทวนวรรณกรรมอย่างเป็นระบบ และได้ผ่านการตรวจสอบจากผู้เชี่ยวชาญด้านการสวนหัวใจในผู้ป่วยเด็กมาแล้ว ซึ่งคาดว่าจะช่วยให้ท่านเกิดความเข้าใจ มองเห็นภาพ และตีความที่ถูกต้องเกี่ยวกับการสวนหัวใจในบุตรของท่าน

8. ทางเลือกในการรักษาหรือวิธีการตรวจวินิจฉัยอื่น ที่อาจเป็นประโยชน์แก่ผู้ยินยอมตนให้ทำการวิจัย

การสมัครใจเข้าร่วมโครงการวิจัยในครั้งนี้ ท่านจะไม่เสียผลประโยชน์ในการรักษาแต่อย่างใด และจะยังคงได้รับการดูแลตามปกติจากเจ้าหน้าที่ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี ซึ่งถือเป็นการดูแลผู้ป่วยเด็กตามมาตรฐานของทางโรงพยาบาล นอกจากนี้ท่านยังจะได้รับการให้ข้อมูลผ่านสื่อคอมพิวเตอร์เกี่ยวกับการสวนหัวใจในผู้ป่วยเด็ก เพิ่มเติมจากผู้วิจัยด้วย

9. ขอบเขตการดูแลรักษาความลับของข้อมูลต่างๆ ของผู้ยินยอมตนให้ทำการวิจัย

ผู้วิจัยจะเก็บข้อมูลทุกอย่างของท่านเป็นความลับ การรายงานผลการวิจัยจะเสนอในภาพรวมเท่านั้น ไม่มีการเปิดเผยชื่อ นามสกุลของท่านและบุตรให้ผู้อื่นรับทราบ

10. การดูแลรักษาที่ผู้วิจัยจะจัดให้

ท่านจะยังคงได้รับการดูแลตามปกติจากเจ้าหน้าที่ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี สิ่งที่ผู้วิจัยจะจัดให้แก่ท่านเพิ่มเติมจากทางโรงพยาบาลคือ การให้ข้อมูลเรื่องการสวนหัวใจในผู้ป่วยเด็กแก่ท่าน ซึ่ง

ประกอบด้วย การให้ท่านชมสื่อคอมพิวเตอร์เรื่อง “เมื่อบุตรของคุณต้องเข้ารับการสวนหัวใจ” และการเปิดโอกาสให้ท่านได้ซักถามปัญหา/ข้อสงสัยในเรื่องการสวนหัวใจในบุตรของท่าน

11. กรณีเกิดอันตราย หรือผลไม่พึงประสงค์จากการศึกษาวิจัย ผู้ยินยอมตนให้ทำการวิจัยจะได้รับ

การดูแลรักษาโดยไม่ต้องเสียค่าใช้จ่ายอย่างไรบ้าง

การวิจัยในครั้งนี้เป็นการสัมภาษณ์ท่านเกี่ยวกับข้อมูลส่วนบุคคล การตอบแบบประเมินความวิตกกังวลขณะเผชิญ และการให้ข้อมูลเกี่ยวกับการสวนหัวใจในผู้ป่วยเด็ก ซึ่งการเข้าร่วมโครงการวิจัยในลักษณะนี้ไม่ก่อให้เกิดอันตรายแก่ท่านแต่อย่างใด

อย่างไรก็ตาม ในขณะที่ให้ข้อมูล หากท่านรู้สึกกังวลใจ หรือไม่สบายใจในการรับข้อมูล ผู้วิจัยจะพักการให้ข้อมูลไว้ก่อน และจะคอยดูแลท่านอย่างใกล้ชิดจนกว่าจะสบายใจขึ้น หากท่านสบายใจขึ้น และยินดีที่จะรับข้อมูลต่อ ผู้วิจัยจึงจะดำเนินการให้ข้อมูลต่อไป หากผู้วิจัยให้การดูแลท่านแล้ว แต่ท่านยังมีความไม่สบายใจอยู่ และไม่ยินดีที่จะรับข้อมูลต่อ ผู้วิจัยจะหยุดการให้ข้อมูลในครั้งนั้นทันที และจะรายงานอาการของท่านให้พยาบาลประจำหอผู้ป่วยที่ให้การดูแลท่านได้ทราบ เพื่อให้การดูแลและช่วยเหลือท่าน โดยไม่ต้องเสียค่าใช้จ่ายใด ๆ

12. ในกรณีเกิดอันตรายจากการวิจัยถึงขั้นพิการ หรือเสียชีวิต ผู้ยินยอมตนให้ทำการวิจัยหรือทายาทจะได้รับการชดเชยอย่างไร

การวิจัยในครั้งนี้เป็นเพียงการให้ข้อมูลเกี่ยวกับการสวนหัวใจในผู้ป่วยเด็ก ไม่ก่อให้เกิดอันตรายจากการวิจัยถึงขั้นพิการ หรือเสียชีวิต

13. สิทธิผู้ยินยอมตนให้ทำการวิจัยจะถอนตัวออกจากโครงการวิจัยได้ทุกเมื่อ โดยไม่กระทบต่อการดูแลรักษาที่พึงได้รับตามปกติ

ท่านมีสิทธิที่จะถอนตัวหรือบอกเลิกการเข้าร่วมโครงการวิจัยเมื่อใดก็ได้ โดยไม่มีผลกระทบใด ๆ ต่อการรักษาและบริการที่ท่าน และบุตรของท่านพึงได้รับตามปกติจากทางโรงพยาบาล

14. ชื่อ ที่อยู่ และเบอร์โทรศัพท์ของผู้วิจัยที่ผู้ยินยอมตนให้ทำการวิจัยสามารถติดต่อได้โดยสะดวก ทั้งในและนอกเวลาราชการ กรณีมีเหตุจำเป็นหรือฉุกเฉิน

นางสาวโสภา พิศจาร

คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

ถนนพหลโยธิน เขตบางกอกน้อย กรุงเทพมหานคร 10700

หมายเลขโทรศัพท์ที่สามารถติดต่อได้ตลอด 24 ชั่วโมง 01 - 6666092

โสภา พิศจาร

ผู้วิจัย

คำอธิบายโครงการวิจัย (Participant Information Sheet)**(สำหรับกลุ่มควบคุม)**

1. หัวข้อเรื่องที่จะทำการวิจัย: ผลของการให้ข้อมูลแบบรูปธรรม-ปรนัย ต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ

2. วัตถุประสงค์และวิธีการวิจัย การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อประเมินผลของการให้ข้อมูลต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ โดยการวิจัยครั้งนี้เป็นการวิจัยเชิงทดลองแบบ 2 กลุ่ม คือ มีกลุ่มทดลองและกลุ่มควบคุม ซึ่งท่านเป็นผู้หนึ่งที่ได้รับเชิญเข้าร่วมการวิจัยในกลุ่มควบคุม

3. เหตุผลที่เชิญชวนให้ผู้ยินยอมตนให้ทำการวิจัยเข้าโครงการวิจัย เนื่องจากการวิจัยครั้งนี้เป็นการศึกษาผลของการให้ข้อมูลต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ ซึ่งต้องการข้อมูลที่มาจากกลุ่มมารดาที่มีบุตรเข้ารับการสวนหัวใจเพื่อการวินิจฉัย เพื่อนำข้อมูลที่ได้จากการวิจัย มาใช้เป็นแนวทางในการให้ข้อมูลเพื่อช่วยลดความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ

4. ระยะเวลาที่ต้องทำการทดสอบผู้ยินยอมตนให้ทำการวิจัย

หลังจากที่ท่านตกลงเข้าร่วมการวิจัยและลงนามในใบยินยอม ผู้วิจัยจะสัมภาษณ์ข้อมูลส่วนบุคคลของท่านจำนวน 6 ข้อ และตอบแบบประเมินความวิตกกังวลขณะเผชิญด้วยตนเอง จำนวน 20 ข้อ (เป็นการตอบแบบประเมินครั้งที่ 1) ภายใน 2-3 ชั่วโมง หลังจากบุตรของท่านเข้ารับการรักษาในหอผู้ป่วยอาศรัยสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) ใช้เวลาประมาณ 10-15 นาที และในระหว่างที่ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ ผู้วิจัยจะบันทึกข้อมูลส่วนบุคคลของบุตรจากแฟ้มประวัติผู้ป่วย

หลังจากนั้นท่านจะได้รับข้อมูลการสวนหัวใจตามปกติ จากพยาบาลประจำหอผู้ป่วยอาศรัยสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) และพยาบาลประจำห้องสวนหัวใจ

ภายใน 1-2 ชั่วโมง ก่อนส่งบุตรของท่านเข้าห้องสวนหัวใจ ผู้วิจัยจะให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ (เป็นการตอบแบบประเมินครั้งที่ 2) ใช้เวลาประมาณ 10 นาที

ภายใน 3-4 ชั่วโมง หลังจากบุตรของท่านกลับจากห้องสวนหัวใจ ผู้วิจัยจะให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ (เป็นการตอบแบบประเมินครั้งที่ 3) ใช้เวลาประมาณ 10 นาที

ระยะเวลาในการดำเนินการวิจัย ประมาณ 2 วัน

5. ประโยชน์ที่คาดว่าจะเกิดขึ้นทั้งต่อผู้ยินยอมตนให้ทำการวิจัยและต่อผู้อื่น

ท่านอาจไม่ได้ประโยชน์โดยตรงจากการวิจัยในครั้งนี้ แต่ข้อมูลที่ได้จากท่านจะเป็นประโยชน์อย่างมากต่อทางโรงพยาบาล/หน่วยงานที่ดูแลผู้ป่วยเด็กที่ต้องเข้ารับการสวนหัวใจ จะได้มีแนวทางในการให้ข้อมูลเพื่อช่วยลดความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับการสวนหัวใจ

6. ความเสี่ยงหรือความไม่สบายที่คาดว่าจะเกิดขึ้นกับผู้ยินยอมตนให้ทำการวิจัย ในการเข้าร่วมการศึกษาวิจัย

ในการเข้าร่วมการวิจัยครั้งนี้ ผู้วิจัยจะสัมภาษณ์เกี่ยวกับข้อมูลส่วนบุคคลของท่าน และให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ ซึ่งไม่มีความเสี่ยง หรือผลเสียใดๆ ต่อท่าน

7. การเตรียมผลิตภัณฑ์ หรือกระบวนการรักษาที่สูงขึ้นจากการทำวิจัยแล้วว่าปลอดภัย และมีประสิทธิภาพไว้ให้ผู้ยินยอมคนให้ทำการวิจัยอย่างไร

ผู้วิจัยไม่ได้ให้การดูแลรักษาใด ๆ แก่ท่าน นอกจากการสัมภาษณ์ท่านเกี่ยวกับข้อมูลส่วนบุคคล และให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญ

8. ทางเลือกในการรักษาหรือวิธีการตรวจวินิจฉัยอื่น ที่อาจเป็นประโยชน์แก่ผู้ยินยอมคนให้ทำการวิจัย

การสมัครใจเข้าร่วมโครงการวิจัยในครั้งนี้ ท่านจะไม่เสียผลประโยชน์ในการรักษาแต่อย่างใด และจะยังคงได้รับการดูแลตามปกติจากเจ้าหน้าที่ของสถาบันสุขภาพเด็กแห่งชาติมหาราชินี ซึ่งถือเป็นการดูแลผู้ป่วยเด็กตามมาตรฐานของทางโรงพยาบาล

9. ขอบเขตการดูแลรักษาความลับของข้อมูลต่างๆ ของผู้ยินยอมคนให้ทำการวิจัย

ผู้วิจัยจะเก็บข้อมูลทุกอย่างของท่านเป็นความลับ การรายงานผลการวิจัยจะเสนอในภาพรวมเท่านั้น ไม่มีการเปิดเผยชื่อ นามสกุลของท่านและบุตรให้ผู้อื่นรับทราบ

10. การดูแลรักษาที่ผู้วิจัยจะจัดให้

ผู้วิจัยไม่ได้ให้การดูแลรักษาใด ๆ แก่ท่าน ผู้วิจัยเพียงแต่สัมภาษณ์ท่านเกี่ยวกับข้อมูลส่วนบุคคล และให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญเท่านั้น

11. กรณีเกิดอันตรายหรือผลไม่พึงประสงค์จากการศึกษาวิจัย ผู้ยินยอมคนให้ทำการวิจัยจะได้รับ

การดูแลรักษาโดยไม่ต้องเสียค่าใช้จ่ายอย่างไรบ้าง

การวิจัยในครั้งนี้เป็นการสัมภาษณ์ท่านเกี่ยวกับข้อมูลส่วนบุคคล การตอบแบบประเมินความวิตกกังวลขณะเผชิญ ซึ่งการเข้าร่วมโครงการวิจัยในลักษณะนี้ไม่ก่อให้เกิดอันตรายแก่ท่านแต่อย่างใด

อย่างไรก็ตาม หากท่านรู้สึกกังวลใจ หรือไม่สบายใจในการให้ข้อมูล ผู้วิจัยจะพักการเก็บข้อมูลไว้ก่อน และจะคอยดูแลท่านอย่างใกล้ชิดจนกว่าจะสบายใจขึ้น หากท่านสบายใจขึ้นและยินดีให้ข้อมูลต่อ ผู้วิจัยจึงจะดำเนินการเก็บข้อมูลต่อไป หากผู้วิจัยให้การดูแลท่านแล้วแต่ท่านยังไม่สบายใจอยู่ และไม่ยินดีให้ข้อมูลต่อ ผู้วิจัยจะยุติการเก็บข้อมูลในครั้งนั้นทันที และจะรายงานอาการของท่านให้พยาบาลประจำหอผู้ป่วยที่ให้การดูแลท่านได้ทราบ เพื่อให้การดูแลและช่วยเหลือท่าน โดยไม่ต้องเสียค่าใช้จ่ายใด ๆ

12. ในกรณีเกิดอันตรายจากการวิจัยถึงขั้นพิการ หรือเสียชีวิต ผู้ยินยอมคนให้ทำการวิจัย หรือทายาทจะได้รับการชดเชยอย่างไร

ในการเข้าร่วมการวิจัยครั้งนี้ ผู้วิจัยจะสัมภาษณ์เกี่ยวกับข้อมูลส่วนบุคคลของท่าน และให้ท่านตอบแบบประเมินความวิตกกังวลขณะเผชิญเท่านั้น ไม่ก่อให้เกิดอันตรายจากการวิจัยถึงขั้นพิการหรือเสียชีวิต

13. สิทธิผู้ยินยอมคนให้ทำการวิจัยจะถอนตัวออกจากโครงการวิจัยได้ทุกเมื่อ โดยไม่กระทบต่อการดูแลรักษาที่พึงได้รับตามปกติ

ท่านมีสิทธิที่จะถอนตัวหรือบอกเลิกการเข้าร่วมโครงการวิจัยเมื่อใดก็ได้ โดยไม่มีผลกระทบใดๆ ต่อการรักษาและบริการที่ท่าน และบุตรของท่านพึงได้รับตามปกติจากทางโรงพยาบาล

14. ชื่อ ที่อยู่ และเบอร์โทรศัพท์ของผู้วิจัยที่ผู้ยินยอมคนให้ทำการวิจัยสามารถติดต่อได้โดยสะดวก
ทั้งในและนอกเวลาราชการ กรณีมีเหตุจำเป็นหรือฉุกเฉิน

นางสาวโสภา พิศจาร

คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

ถนนพราณนก เขตบางกอกน้อย กรุงเทพมหานคร 10700

หมายเลขโทรศัพท์ที่สามารถติดต่อได้ตลอด 24 ชั่วโมง 01 – 6666092



แบบฟอร์มใบยินยอมให้ทำการวิจัย
โดยได้รับการบอกกล่าวและเต็มใจ (Informed Consent Form)

การวิจัยเรื่อง ผลของการให้ข้อมูลแบบรูปธรรม-ปรนัยต่อความวิตกกังวลของมารดาที่มีบุตรจะเข้ารับ
การสวนหัวใจ

วันให้คำยินยอม วันที่ เดือน พ.ศ.

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึง วัตถุประสงค์ของการวิจัย
วิธีการวิจัย อันตราย หรืออาการที่อาจเกิดขึ้นจากการวิจัย รวมทั้งประโยชน์ ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด และ
มีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่าง ๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้น จนข้าพเจ้าพอใจ
ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการวิจัยนี้ โดยสมัครใจ
และการบอกเลิกการเข้าร่วมการวิจัยนี้ จะไม่มีผลต่อการรักษาโรคที่บุตรของข้าพเจ้าจะพึงได้รับ ต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะที่เกี่ยวกับตัวข้าพเจ้าและบุตรของข้าพเจ้าเป็นความลับ และจะเปิดเผยได้
เฉพาะ ในรูปที่สรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าและบุตรของข้าพเจ้าต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้อง
กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ผู้วิจัยรับรองว่าหากเกิดอันตรายใด ๆ จากการวิจัยดังกล่าว ข้าพเจ้าจะได้รับการรักษาพยาบาล โดยไม่คิดมูลค่า
ตามมาตรฐานวิชาชีพ และจะได้รับการชดเชยรายได้ที่สูญเสียไประหว่างการรักษา พยาบาลดังกล่าว ตลอดจนเงิน
ทดแทนความพิการที่อาจเกิดขึ้น

ผู้วิจัยรับรองว่าหากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการศึกษา ข้าพเจ้าจะได้รับการแจ้งให้ทราบ โดยไม่ปิดบัง
ซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความ
เต็มใจ

ลงนาม ผู้ยินยอม

ลงนาม พยาน

ลงนาม พยาน

ในกรณีที่ผู้ยินยอมตนให้ทำการวิจัยไม่สามารถอ่านหนังสือได้ จะต้องได้รับการยินยอมในขณะที่ยังมี
สติสัมปชัญญะ และระบุข้อความไว้ตามนี้ ข้าพเจ้าไม่สามารถอ่านหนังสือได้ แต่ผู้วิจัยได้อ่าน ข้อความในใบยินยอมนี้
ให้แก่ข้าพเจ้าฟังจนเข้าใจดีแล้ว ข้าพเจ้าจึงลงนาม หรือประทับลายนิ้วแม่มือขวา ของข้าพเจ้าในใบยินยอมนี้ด้วยความ
เต็มใจ

ลงนาม ผู้ยินยอม

ลงนาม พยาน

ลงนาม พยาน

APPENDIX D

Data collection Instruments

เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูล

แบบสัมภาษณ์ที่.....
วันที่.....

แบบสัมภาษณ์ข้อมูลส่วนบุคคลของมารดา

1. อายุ.....ปี
2. ระดับการศึกษา

☐ ไม่ได้เรียนหนังสือ	☐ ประถมศึกษา
☐ มัธยมศึกษาตอนต้น	☐ มัธยมศึกษาตอนปลาย/ปวช.
☐ ปวส./อนุปริญญา	☐ ปริญญาตรีขึ้นไป
3. สถานภาพสมรส

☐ คู่	
☐ หย่าร้าง/ม่าย/แยกกันอยู่	
4. จำนวนบุตร.....คน
5. รายได้ครอบครัวเฉลี่ย.....บาท ต่อเดือน
6. การรับรู้ความรุนแรงการเจ็บป่วยของบุตร

☐ ไม่รุนแรง	
☐ รุนแรงน้อย	
☐ รุนแรงปานกลาง	
☐ รุนแรงมาก	
☐ รุนแรงมากที่สุด	

แบบบันทึกที่.....

วันที่.....

แบบบันทึกข้อมูลส่วนบุคคลของบุตร

1. อายุ.....ปี.....เดือน

2. เพศ ☐ ชาย ☐ หญิง

3. การวินิจฉัยโรค.....

☐ โรคหัวใจชนิดเฉียบ

☐ โรคหัวใจชนิดไม่เฉียบ

4. เวลาในการสวนหัวใจ.....นาที

5. ตำแหน่งที่สวนหัวใจ.....

6. ภาวะแทรกซ้อนจากการสวนหัวใจระยะแรก.....

เลขที่แบบสอบถาม.....

วันที่.....

แบบประเมินความวิตกกังวลของมารดาขณะเผชิญ (State Anxiety Inventory Form Y - I)

คำชี้แจง ข้อความต่อไปนี้ เป็นข้อความที่อาจแสดงความรู้สึกต่าง ๆ ของท่าน โปรดอ่านข้อความแต่ละข้อ แล้วทำเครื่องหมายกากบาท (×) ทับลงบนตัวเลขในแต่ละข้อที่ตรงกับความรู้สึกของท่านเกี่ยวกับการเข้ารับการสวนหัวใจของบุตรท่านครั้งนี้ คำตอบของท่านไม่มีถูกหรือผิด และท่านไม่ต้องให้เวลากับการตอบคำถามข้อใดข้อหนึ่งมากเกินไป แต่ขอให้เลือกข้อที่ตรงกับความรู้สึกของท่านในขณะนี้มากที่สุด

ไม่รู้สึกเลย

หมายถึง ในขณะนี้ท่านไม่มีความรู้สึกนี้อยู่เลย

รู้สึกบ้าง

หมายถึง ในขณะนี้ท่านมีความรู้สึกนี้อยู่บ้าง

รู้สึกปานกลาง

หมายถึง ในขณะนี้ท่านมีความรู้สึกนี้อยู่ปานกลาง

รู้สึกมาก

หมายถึง ในขณะนี้ท่านมีความรู้สึกนี้อยู่มาก

ตัวอย่าง

ไม่รู้สึกเลย

รู้สึกบ้าง

รู้สึกปานกลาง

รู้สึกมาก

1. ฉันรู้สึกสงบ

×

2

3

4

คำอธิบายจากตัวอย่าง ถ้าท่านใส่เครื่องหมายกากบาท (×) ทับเลข 1 แสดงว่าในขณะนี้ท่านไม่รู้สึกสงบเลย

ข้อความ	ไม่รู้สึกเลย	รู้สึกบ้าง	รู้สึกปานกลาง	รู้สึกมาก
1. ฉันรู้สึกสงบ	1	2	3	4
2. ฉันรู้สึกมั่นคง	1	2	3	4
3. ฉันรู้สึกดีใจ	1	2	3	4
4. ฉันรู้สึกถูกกดดัน	1	2	3	4
.				
.				
.				
.				
20. ฉันรู้สึกแจ่มใส	1	2	3	4

APPENDIX E

The Concrete–Objective Information

แผนการให้ข้อมูลแบบรูปธรรม-ปรนัยแก่มารดา ก่อนที่บุตรจะเข้ารับการสวนหัวใจ

สถานที่	ห้องสอนสุขศึกษา หอผู้ป่วยอาคารสถาบัน 8 (งานอายุรกรรมเฉพาะโรค) สถาบันสุขภาพเด็กแห่งชาติมหาราชินี
วัน เวลา	ช่วงบ่าย ก่อนวันสวนหัวใจ
วัตถุประสงค์	เพื่อให้มารดาที่มีบุตรจะเข้ารับการสวนหัวใจคลายความวิตกกังวล
กลุ่มเป้าหมาย	มารดาที่มีบุตรจะเข้ารับการสวนหัวใจ ที่อยู่ในกลุ่มทดลอง
วิธีการ	ให้ข้อมูลแบบรายบุคคล
ระยะเวลา	ประมาณ 30 นาที
อุปกรณ์	1. เครื่องคอมพิวเตอร์ 1 เครื่อง 2. สื่อคอมพิวเตอร์ เรื่อง “เมื่อบุตรของคุณต้องเข้ารับการสวนหัวใจ”
ผู้ให้ข้อมูล	นางสาวโสภา พิศจาร
วิธีดำเนินการ:	

เวลา	กิจกรรม
3-5 นาที	1. พุดคุยเพื่อสร้างสัมพันธภาพกับมารดา 2. ชี้แจงวัตถุประสงค์ ประโยชน์ของการชมสื่อคอมพิวเตอร์ โดยแจ้งสถานที่ เวลาในการพามารดาเข้าชมสื่อคอมพิวเตอร์ ระยะเวลาในการชม สื่อคอมพิวเตอร์ การซักถามปัญหา/ข้อสงสัย
15 นาที	3. ให้มารดาชมสื่อคอมพิวเตอร์เรื่อง “เมื่อบุตรของคุณต้องเข้ารับการสวน หัวใจ”
5-10 นาที	4. เปิดโอกาสให้มารดาซักถามปัญหา/ข้อสงสัย 5. แจ้งมารดาว่า สิ้นสุดกิจกรรมการให้ข้อมูล

สื่อคอมพิวเตอร์ที่ใช้ในการให้ข้อมูลแก่มารดา ก่อนที่บุตรจะเข้ารับการสวนหัวใจ

เรื่อง

“เมื่อบุตรของคุณต้องเข้ารับการสวนหัวใจ”

ความยาว

15 นาที



เนื้อหาของข้อมูลในสื่อคอมพิวเตอร์ประกอบด้วย

1. ความรู้สึกทางประสาทสัมผัส และอาการแสดงที่เกิดขึ้น (The physical sensations and symptoms that occur)
2. สาเหตุของความรู้สึกทางประสาทสัมผัส อาการ และประสบการณ์ (Cause of sensations, symptoms and experiences) ทั้ง 2 ข้อ อยู่ในลำดับภาพที่ 4,6,7,8,10,12,13,14,16,20,21,23,25,28

มีเนื้อหาครอบคลุมดังนี้

1. วัตถุประสงค์การสวนหัวใจ
2. การให้น้ำเกลือหลังคั่งน้ำคอกอาหารเพื่อไม่ให้ผู้ป่วยหิว
3. การพาผู้ป่วยไปถ่ายปัสสาวะก่อนรับประทานยานอนหลับเพื่อให้ได้ไม่ปวดขณะสวนหัวใจ
4. การรับประทานหรือฉีดยานอนหลับก่อนไปห้องสวนหัวใจ ทำให้ผู้ป่วยรู้สึกง่วง
5. ภายในห้องสวนหัวใจอากาศจะเย็น มีแพทย์พยาบาลใส่ชุดคลุมสีขาว และเขียว
6. ความรู้สึกของผู้ป่วยเมื่อแพทย์ฉีดยาชา
7. มีเลือดออกขณะสวนหัวใจ
8. ผู้ป่วยจะหลับขณะสวนหัวใจ แต่บางรายอาจตื่นและปวดแผล แพทย์จะฉีดยานอนหลับหรือยาแก้ปวดเพิ่มให้
9. จะมีเลือดออกพยาบาลจะกดแผลห้ามเลือดให้
10. ผู้ป่วยตื่นนอนหลังสวนหัวใจและมีอาการสับสนหรือเพ้อ
11. ภาวะแทรกซ้อนจากการสวนหัวใจ
12. จัดทำนอนให้ผู้ป่วยเพื่อป้องกันเลือดออกจากแผล
13. พยาบาลถอดสายน้ำเกลือออกเพราะผู้ป่วยรับประทานอาหารได้ดีแล้ว
14. การดูแลผู้ป่วยที่บ้านเพื่อป้องกันไม่ให้เลือดออกจากแผล
3. ข้อมูลที่เกิดขึ้นตามลำดับเหตุการณ์ (Temporal characteristics) อยู่ในลำดับภาพที่ 5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,,29

มีเนื้อหาครอบคลุมดังนี้

1. การเตรียมตัวผู้ป่วยก่อนสวนหัวใจ
2. ระหว่างการสวนหัวใจ
3. การดูแลผู้ป่วยหลังการสวนหัวใจ
4. การดูแลผู้ป่วยเมื่อกลับบ้าน
5. การมาตรวจตามนัด

4. ลักษณะของสภาพแวดล้อม (Environmental features) อยู่ในลำดับภาพที่ 9,10,11,17,18

1. หน้าห้องสวนหัวใจ
2. ภายในห้องสวนหัวใจ
3. อากาศในห้องสวนหัวใจ
4. อุปกรณ์ในห้องสวนหัวใจ
5. สายสวนหัวใจ



ตัวอย่างแนวทางการตอบคำถามแก่มารดาภายหลังจากชมสื่อคอมพิวเตอร์

ข้อ คำถาม	คำถาม	คำตอบ
1	จะต้องให้ลูกดื่มน้ำและอาหารเมื่อไหร่	ให้ลูกดื่มน้ำ อาหาร นมทุกชนิดก่อนสวนหัวใจ ประมาณ 4-6 ชม. โดยเมื่อถึงเวลาพยาบาลจะมาบอกคุณแม่ และนำป้ายเตือนงดอาหารและน้ำมาแขวนไว้ให้ที่เตียง
2	คุณหมอจะใส่สายสวนหัวใจเข้าไปถึงไหน	คุณหมอจะใส่สายสวนเข้าทางหลอดเลือดดำหรือแดงที่บริเวณขาหนีบ หรือลำคอ แต่ส่วนใหญ่จะใส่บริเวณขาหนีบ คุณหมอ จะใส่สายสวนเข้าไปถึงหัวใจ เพื่อทำการตรวจหาความผิดปกติของหัวใจ และหลอดเลือดหัวใจ
3	จะสวนหัวใจนานเท่าไหร่	ระยะเวลาในการตรวจสวนหัวใจ ในผู้ป่วยแต่ละรายจะแตกต่างกัน โดยเฉลี่ยแล้วประมาณ 1 ชม. ถึง 1 ชม.ครึ่ง
4	คุณหมอจะบอกผลการสวนหัวใจเมื่อไหร่	คุณหมอจะบอกผลการตรวจสวนหัวใจ ให้คุณแม่ทราบที่หน้าห้องสวนหัวใจ
5	ลูกจะตื่นเมื่อไหร่	ลูกของคุณอาจจะตื่น ตั้งแต่ตรวจสวนหัวใจเสร็จ แต่บางคนก็อาจจะหลับนานประมาณ 3-4 ชม.
6	แผลสวนหัวใจมีขนาดใหญ่รึเปล่า	แผลสวนหัวใจจะมีขนาด 2-3 มิลลิเมตร อาจมี 1 หรือ 2 แผล
7	จะให้ลูกกินอาหารได้เมื่อไหร่ กินอะไรได้บ้าง	เมื่อสวนหัวใจเสร็จแล้วลูกตื่นดี ไม่คลื่นไส้ อาเจียน ให้คุณแม่ถามพยาบาลก่อนว่า จะให้ลูกกินน้ำหรืออาหารได้รึยัง พยาบาลจะมาดูแลการให้ก่อน ถ้าพยาบาลบอกให้กินได้ คุณแม่ก็ให้ลูกกินน้ำ นม หรืออาหารที่ทางโรงพยาบาลจัดไว้ให้ หรือถ้าจะหามาให้ ก็ควรเป็นอาหารอ่อนจืด เช่น โจ๊ก ข้าวต้ม
8	จะถอดน้ำเกลือออกได้เมื่อไหร่	เมื่อลูกกินอาหารได้ดี พยาบาลก็ถอดสายน้ำเกลือออกให้

คำถามของมารดาในกลุ่มทดลองภายหลังการชมสื่อคอมพิวเตอร์

1. ลูกกำลังหัดเดิน เขาจะเดิน ๑ วิ่ง ๑ ห้ามไม่ได้ ถ้ากลับบ้านแล้วมีเลือดออกจากแผลจะทำยังไง?

คำตอบ: ให้แม่ใช้มือกดแผลไว้เพื่อห้ามเลือด ประมาณ 5 – 10 นาที หรือจนกว่าเลือดจะหยุดไหล ให้ลูกนอนพักถ้าเลือดยังไม่หยุดไหลให้พาไปหาหมอใกล้บ้าน ระหว่างทางให้กดแผลห้ามเลือดด้วย

2. หลังสวนหัวใจจะรักษาด้วยการผ่าตัดอย่างเดียวหรือไม่?

คำตอบ: มีหลายวิธีค่ะ เช่น การผ่าตัด การสวนหัวใจเพื่อการรักษา การรับประทานยา หลังสวนหัวใจคุณหมอนัดคุณแม่เข้าประชุมเพื่อแจ้งแผนการรักษาต่อไป

3. สวนหัวใจเสร็จให้ลูกนอนตะแคงได้ไหม?

คำตอบ: ได้ค่ะ แต่ต้องให้ขาข้างที่สวนหัวใจเหยียดตรง

4. สายสวนหัวใจที่ใส่เข้าไปจะต้องถอดออกไหม?

คำตอบ: ถอดออกค่ะ

5. ผื่นแพ้จะเกิดขึ้นกับทุกคนไหม?

คำตอบ: มีโอกาสเกิดขึ้นกับทุกคนค่ะ โดยเฉพาะในคนที่มีความไวต่ออาหารทะเล

6. สวนหัวใจแล้วรักษาไปเลยได้ไหม?

คำตอบ: ได้ค่ะ ในโรคหัวใจบางชนิด เช่น สวนหัวใจแล้วใส่บอลลูน โดยคุณหมอนจะแจ้งผู้ปกครองก่อนทำค่ะ

7. สารทึบรังสีมีอันตรายไหม?

คำตอบ: มีค่ะ ในคนที่แพ้สารก็จะทำให้มีผื่นขึ้นได้

8. หลังสวนหัวใจนอนโรงพยาบาลคืนเดียวได้ไหม?

คำตอบ: ถ้าไม่มีอาการผิดปกติก็นอนสังเกตอาการหลังสวนหัวใจ คืนเดียวก็ได้

9. ไม่ต้องดมยาหรือ? ถ้าเขาคื่นจะต้องปวดไหม้หรือ?

คำตอบ: ไม่ต้องดมยาค่ะ คุณหมอนจะให้ยานอนหลับ และฉีดยาชาให้ก่อนสวนหัวใจ ระหว่างสวนหัวใจถ้าเด็กตื่น ร้องไห้ คุณหมอก็จะฉีดยานอนหลับหรือยาแก้ปวดเพิ่มให้ค่ะ

10. ใส่สายสวนเข้าไปที่ไหน? ใส่เข้าไปถึงไหน?

คำตอบ: ใส่สายสวนเข้าไปที่เส้นเลือดบริเวณขาหนีบ และใส่เข้าไปถึงหัวใจค่ะ

APPENDIX F

The Additional Results

Table 7 Comparison of the Mean Anxiety Scores of Mothers at Pre-test, Post-test I and Post-test II within the Experimental Group and within the Control Group. (N=27 in each group) by Paired t - test

Testing time	Experimental group			Control group		
	difference	SD	t	difference	SD	t
	mean			mean		
Pre – test & Post – test I	7.63	9.59	4.13 ***	-3.11	11.15	-1.45 ^{ns}
Pre – test & Post – test II	12.63	12.36	5.31***	8.07	11.04	3.80**
Post – test I& Post – test II	5.00	13.15	1.97 ^{ns}	11.18	13.97	4.16***

^{ns} = non significant, $p > .05$, ** $p < .01$, *** $p < .001$

From Table 7, when compared to the mean anxiety score at pre-test, the mean anxiety scores of the experimental group at post-test I (1-2 hours prior to the cardiac catheterization) and post-test II (3-4 hours after the cardiac catheterization) reduced significantly ($t = 4.13$; $t = 5.31$, $p < .001$, respectively). When the mean anxiety score at post-test I was compared with that at post-test II, the difference was not statistically significant ($t = 1.97$, $p > .05$).

Although the mean anxiety scores of mothers in the control group at post-test I was higher than that at pre-test, an increase was not statistically significant ($t = -1.45$, $p > .05$). When compared to the mean anxiety score at post-test II, the mean anxiety score at pre-test and that at post-test I reduced significantly ($t = 3.80$; $t = 4.16$, $p < .01$; $p < .001$, respectively).

APPENDIX G

Statistical Assumption Test for ANCOVA

The assumptions that were tested before using analysis of covariance included normal distribution, homogeneity of variance, and homogeneity of regression across groups (hypothesis testing and scatter plot). The results for each assumption were presented as follows:

1. Normal distribution was assessed by using One-Sample Komogorov-Smirnov Test. The dependent variables (post-test I, II scores) were shown as normally distributed. The assumption was met as shown in Table 8.

Table 8 Test of Normal Distribution of Dependent Variables by One-Sample Komogorov-Smirnov Test.

One-Sample Kolmogorov-Smirnov Test					
		post1control	post1exp	post2control	post2exp
N		27	27	27	27
Normal Parameters ^{a,b}	Mean	54.41	45.96	43.22	40.89
	Std. Deviation	10.821	9.553	10.821	10.438
Most Extreme Differences	Absolute	.114	.177	.093	.132
	Positive	.091	.071	.093	.116
	Negative	-.114	-.177	-.084	-.132
Kolmogorov-Smirnov Z		.593	.920	.482	.687
Asymp. Sig. (2-tailed)		.874	.366	.974	.732

a. Test distribution is Normal.

b. Calculated from data.

2. Homogeneity of variance of the dependent variables (post-test I, II scores)

was assessed by using Levene's Test. The assumption of homogeneity of variance was met, as shown in Table 9.

Table 9 Levene's Test of Equality of Error Variances (a)

Dependent Variables: post-test I, post-test II

Variables	F	df1	df2	sig
post-test I	.524	1	52	.472
post-test II	.374	1	52	.544

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+sumpre+group

3. Homogeneity of regression across groups of the covariate (pre-test scores)

and dependent variables (post-test I, II scores) were assessed by using F-test and scatter plot. The assumption of homogeneity of regression across groups was met as shown in Table 10 and 11.

Table 10 Tests of Between-Subjects Effects

Dependent Variable: post-test I

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1801.206 ^a	3	600.402	6.607	.001
Intercept	860.413	1	860.413	9.468	.003
group	37.212	1	37.212	.409	.525
sumpre	809.003	1	809.003	8.903	.004
group * sumpre	.417	1	.417	.005	.946
Error	4543.609	50	90.872		
Total	142146.000	54			
Corrected Total	6344.815	53			

a. R Squared = .284 (Adjusted R Squared = .241)

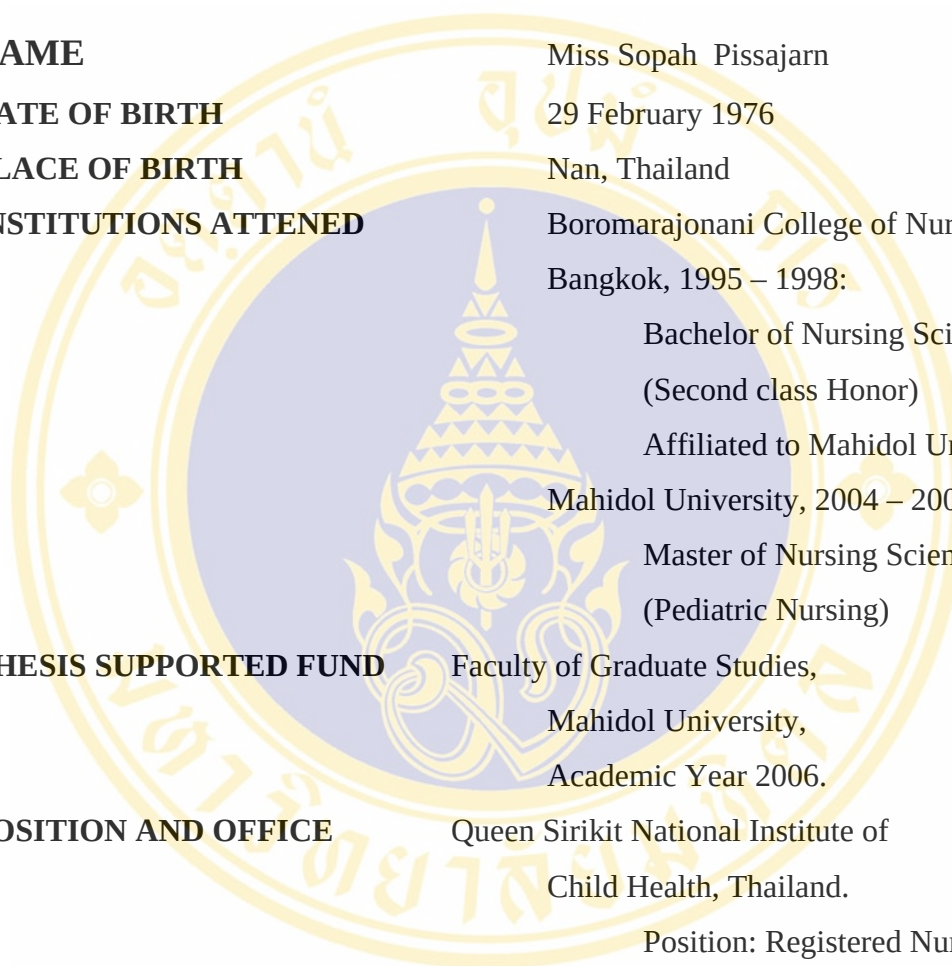
Table 11 Tests of Between-Subjects Effects

Dependent Variable: post-test II

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	589.733 ^a	3	196.578	1.833	.153
Intercept	887.920	1	887.920	8.281	.006
group	64.124	1	64.124	.598	.443
sumpre	353.208	1	353.208	3.294	.076
group * sumpre	97.752	1	97.752	.912	.344
Error	5361.101	50	107.222		
Total	101459.000	54			
Corrected Total	5950.833	53			

a. R Squared = .099 (Adjusted R Squared = .045)

BIOGRAPHY



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