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THE EFFECT OF CONCRETE OBJECTIVE INFORMATION ON EMOTIONAL
DISTRESS AND COMMUNICATION DIFFICULTY OF KOREAN PATIENTS
ON VENTILATOR THERAPY AFTER CARDIAC SURGERY

DISSERTATION

Presented in Partial Fulfillment of the Requirements
for the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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*****

The Ohio State University
1998

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ABSTRACT

A study was conducted to test the effects of concrete objective information on the emotional distress and communication difficulty related to ventilator therapy in Korean cardiac surgery patients. A quasi-experimental, nonequivalent control group design was used. Forty-three subjects were recruited by convenience sampling from a hospital in Kyonggi, Korea. During the preoperative period, all subjects in the study were asked to complete a background information form and three questionnaires: The State-Trait Anxiety Inventory (STAI), the Positive and Negative Affects Scale-Negative Scale (PANAS-NA), and the Krantz Health Opinion Survey-Information. Both groups received general information about the surgery from the doctor, anesthetist, and nurse. Concrete objective information about ventilator therapy and communication in the surgical intensive care unit (SICU) after cardiac surgery was provided to the experimental group, in addition to the general information. When subjects returned to the general ward after surgery, they were asked to complete three questionnaires: the A-State Anxiety, PANAS-NA, and the Ease of Communication Scale. Information on the amount and type of sedatives used while on the ventilator was collected from SICU records.

Four hypotheses and one research question were tested in the study. Hypothesis one was supported; subjects in the experimental group were significantly less anxious during ventilator therapy \( (F = 14.95, df = 1, p = .0004) \) than patients who were not given concrete objective information. Hypothesis two was supported; the subjects who were
given concrete objective information about ventilator therapy and communication during the ventilator therapy experienced significantly lower negative moods during ventilator therapy ($F = 8.48, df = 1, p = .006$). Hypothesis three was not supported: there was no significant difference between the control and experimental group in the average amount of sedatives used per hour during ventilator therapy ($t = 1.14, df = 40, p = .13$).

Hypothesis four was supported: the subjects in the experimental group experienced significantly less difficulty in communication during ventilator therapy than did subjects in the control group ($t = 1.91, df = 41, p = .03$). The research question examined interaction effects between preference for information and intervention on the outcome variables. There were no significant interaction effects between preference for information and the preparatory information treatment on the outcome variables. In addition to findings related to the hypotheses and research question, concrete objective information was found to be associated with a shorter intubation time. Patients in the control group received mechanical ventilation significantly longer than patients in the experimental group. In conclusion, this study demonstrates concrete objective is effective means of decreasing patient stress and enhancing patient adaptation to the stressful procedure. Concrete objective information should be provided to patients undergoing elective intubation.
Dedicated to my family
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CHAPTER I

INTRODUCTION

In critical care settings, most patients experience physical, psychological, and environmental stressors. For example, common problems critically ill patients face are pain, physical discomfort, emotional distress, the sense of loss of control, change in self-image, sleep deprivation and sensory alteration (Riggio, Singer, & Hartman, 1982). Mechanical ventilation has been identified as one stressful experience that may provoke problems for patients in intensive care units. Many ventilator-dependent patients have expressed feelings of loss of control, helplessness, and negative emotional reactions such as anxiety, fear, and anger (Belitz, 1983).

Mechanical ventilation is widely used therapeutically for critically ill patients. In the 1960s in Korea, six to twenty-six cases of heart surgery per year required ventilator therapy. By the 1980s, the incidence of heart surgery and the number of hospitals that perform cardiac surgery increased dramatically (Kim, 1991). One general hospital performed 380 cases of heart surgery in 1993 (Seoul National University Hospital, 1993).

Previous investigators have described the stressors that mechanically ventilated patients often encounter. Inability to communicate effectively is the most pressing problem among ventilator dependent patients (Albarran, 1991; Gries & Fernsler, 1988;
Riggio et al., 1982). Additional major stressors are the feeling of no control, anxiety, the fear of ventilator malfunctioning without the staff being aware (Frace, 1982), the feeling of being tied down by equipment, gagging (Gries & Femsl. 1988), loss of memory, and disorientation (Riggio et al., 1982). Feelings of anger, anxiety, and frustration were associated with communication difficulty while being mechanically ventilated (Menzel, 1993; Riggio et al., 1982).

Most cardiac surgery patients receive ventilator therapy for a short period of time. Investigation in recent years has shown a tendency toward shorter intubation time. Nonetheless, patients experiencing mechanical ventilation may become anxious due to lack of control, unexpected discomforts, and inability to talk. Gries and Femsl. (1988) found that there was no specific relationship between the time of intubation and number of stressors expressed by patients receiving mechanical ventilation.

In Miller and Shada's study (1978), the majority of subjects who had open-heart surgery reported that they had a difficult experience with the ventilator. For example, eighteen out of the nineteen patients recruited in this study had difficulty adapting to the ventilator. Even patients who had practiced with the intermittent positive pressure breathing (IPPB) machine before surgery expressed difficulty in breathing with the ventilator. In addition, feelings of choking to death and extreme panic were experienced by open-heart surgery patients (Miller & Shada, 1978).

Pennock, Crawshaw, Maher, Price, & Kaplan (1994) investigated distressful events in the surgical intensive care unit (SICU) as perceived by patients who had coronary bypass surgery. Subjects reported that intubation and inability to communicate were the top two aspects of the experience rated as extremely distressful and were significantly
more stressful than all the other stressors.

Cardiac surgery patients are vulnerable to extreme emotional distress and its consequences. Emotional arousal can cause stimulation of the sympathetic nervous system. Sympathetic activation results in elevated heart rate, blood pressure and cardiac output due to the release of catecholamines (Lindsey, Carrieri-Kohlman, & Pager, 1993). Negative emotional feelings may affect the course of recovery from surgery and may reduce patients' coping ability during the stressful experience. Some patients may resist breathing synchronously with the ventilator, or may show some behaviors of agitation due to overwhelming emotional tension so they need to be sedated during the ventilator therapy. The sedatives or analgesics administered to patients may depress the respiratory system and result in a decreased respiratory rate and poor ventilation during the weaning period. Pharmacologic interventions are indicated to reduce pain and anxiety in most patients during weaning from the ventilator. It is essential to address non-pharmacologic cognitive and behavioral interventions such as relaxation, education, and frequent orientation to reduce the negative side effects of pharmacological interventions (Carroll & Magruder, 1993).

The study of effective interventions related to negative emotional reactions resulting from ventilator therapy is an important research area which should be addressed by nurse scholars. The Research Committee of the American Association of Critical Care Nurses (AACN) in the United States has ranked the care of mechanically ventilated patients as the ninth research priority out of 74 research priorities (Lewandowski & Kositsky, 1983). However, there has been limited research on effective intervention for stress experienced by mechanically ventilated patients. Most previous studies have focused on the
description of stressors that mechanically ventilated patients are facing.

Several investigators have suggested that preoperative teaching may decrease anxiety if patients are prepared about what is to be expected (Cisar & Morphew, 1983; Shimko, 1981). Patients who are informed about what is to be expected in postoperative periods may be less susceptible when they encounter the potentially stressful experiences. Investigators have consistently reported that concrete objective information or sensory information has a positive effect on a patient's coping and reduces psychological distress (Christman, Kirchhoff, & Oakley, 1992).

According to Johnson and Lauver (1989), the patient's negative emotional response during a threatening experience can be decreased by providing concrete objective information. Concrete objective information affects the formation of schemata. A schema is a cognitive structure of complex knowledge that is abstracted from experience. A schema helps the patient to have realistic expectations and enhances the patient's coping ability. Schemata are developed from information. Concrete objective information includes the sensations commonly experienced by a patient population, temporal information, environmental information, and cause for the sensations and experiences. Concrete objective information is contrasted to procedural information which describes the steps of a procedure or experience. It gives some idea of what can be done to and for the patient (Johnson & Lauver, 1989).

Some investigators have suggested that information provided as a nursing intervention produces some conditional effects due to certain personality traits or tendency to prefer information (Auerbach, Martelli, & Mercuri, 1982; Watkins, Weaver, & Oderguard, 1986). Patients who prefer information and involvement in stressful
situations benefit from preparatory information (Auerbach et al., 1983). However, patients who do not prefer information or have a low preference for information may not benefit (Auerbach, et al., 1983). Therefore, patients' preference for information as a moderator variable should be assessed because it may affect patients' responses to informational interventions.

**Purpose**

The purpose of this study was to test the effect of concrete objective information on emotional stress and communication difficulty related to ventilator therapy in Korean cardiac surgery patients.

**Hypotheses**

The hypotheses for this study are:

1) Patients given concrete objective information regarding ventilator therapy will experience lower state anxiety during ventilator therapy than patients who are not given concrete objective information.

2) Patients who are given concrete objective information will experience lower negative mood during ventilator therapy than patients who are not given concrete objective information.

3) Patients who receive concrete objective information will use less sedatives during ventilator therapy when compared with patients who do not receive concrete objective information.

4) Patients who receive concrete objective information will report less difficulty in
communication with care staff during ventilator therapy when compared with the patients who do not receive the concrete objective information.

The following research question was asked:

5) Does preference for information interact with the concrete objective information interventions to produce a difference in state anxiety, negative mood, ease of communication, and medication use?

Definition of Terms

Concrete Objective Information

Theoretical definition. Concrete objective information can be defined as a description about the "physical sensations experienced by most individuals through sensory modalities such as hearing, smelling, seeing, touching, and tasting; the environmental features; the temporal characteristics (duration of procedure and sequence of events); and the cause of sensations or experience when it is not self-evident" (Johnson & Lauver, 1989, p. 42).

Operational Definition. In this study, concrete objective information is operationally defined as information in an information booklet with a figure and written information composed of general information about ventilator therapy after cardiac surgery, the alarms of the ventilator, communication during ventilator therapy, weaning from the ventilator and what happens while receiving ventilator therapy. The information is structured by referring to the literature (Gries & Fernsler, 1988) and education materials from The Ohio State University Hospital, Columbus, Ohio, U.S.A. It was revised based on the interview data from Korean patients who had cardiac surgery (See Appendix A).
This booklet includes concrete objective information, procedural information, and some other information that is usually given to patients.

**Negative Mood**

**Theoretical Definition.** Mood is defined as a state of feeling at a particular time. Negative mood can be defined as a state of feeling without any useful and helpful qualities (Longman, 1987) and "a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, disgust, guilt, fear, and nervousness" (Watson, Clark, & Tellegan, 1988, p. 1063).

**Operational Definition.** Negative mood is operationally defined as the scores obtained on the Negative Affect (NA) scale which is the subscale of the Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988). High scores indicate a great level of negative mood. A low score indicates a state of calmness and serenity.

**State Anxiety.**

**Theoretical Definition.** State anxiety is defined as a transitory emotional state or condition of the human organism that is characterized by "subjective, consciously perceived feelings of tension and apprehension, and heightened autonomic nervous system activity" (Spielberger, Gorush, Lushene, Vagg, & Jacobs, 1983, p. 4).

**Operational Definition.** State anxiety is operationally defined as the scores measured with A-State of State-Trait Anxiety Inventory (Spielberger et al., 1983). A high score means a more anxious state.
Trait Anxiety.

**Theoretical Definition.** Trait anxiety refers to "differences between people in the tendency to respond to situations perceived as threatening" (Spielberger et al., 1983, p. 5).

**Operational Definition.** Trait anxiety is operationally defined as the scores on the A-trait of State-Trait Anxiety Inventory (Spielberger et al., 1983). A high score indicates a high level of trait anxiety.

The Amount of Sedatives Used.

**Operational Definition.** The amount of sedatives used is measured as milligram of each sedative used during ventilator therapy. The amount of sedatives used was averaged for each hour of intubation. Information on the type and amount of sedatives used was taken from SICU record sheets.

Difficulty with Communication

**Theoretical Definition.** Communication is a process which includes the generation and exchange of meaning and provides information about outside reality (facts) and about emotional arousal from inside (feeling) among individuals with verbal and/or nonverbal methods (Duldt, Griffin, & Patton, 1984). Five essential components of communication are source, message, channel, receiver, and feedback (Bradley & Edinberg, 1990). Difficulty with communication is the subjective sense of patients related to difficulty in the exchange of information about meaning, outside reality, and inside feeling with others during ventilator therapy.
Operational Definition. In this study, communication difficulty is operationally defined as the scores obtained in the Ease of Communication Scale (Menzel, 1994). The scale has been revised (Menzel, personal communication, June 6, 1995). For this study, the revised scale was used. A higher score indicates greater level of difficulty in communication during ventilator therapy.

Preference for Information

Theoretical Definition. Preference for information refers to difference between individuals in tendency to desire information or interest for information about an upcoming event (Strauss, 1988).

Operational Definition. Preference for information is operationally defined as the scores on the information-subscale of Krantz Health Opinion Survey (KHOS-I) (Krantz, Baum, & Wideman, 1980). The KHOS-I contains statements about individuals' preferences for asking questions and being informed about medical decisions. Higher scores indicate a greater preference for information.
CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Patients' Distress During Mechanical Ventilation

Many critically ill patients report ventilator therapy as a very stressful experience. Ventilator therapy may produce physiological and psychological stressors. Tracheal and laryngeal trauma can be caused by the endotracheal tube and suctioning can produce hypoxia. There is a documented relationship between hypoxia and dysrhythmia (Stauffer & Silvesti, 1982). Anxiety and disturbances in orientation are some psychological issues associated with ventilator therapy (Riggio et al., 1982).

Porter (1995) reviewed research regarding distress with procedures in critical care settings. The designs of most of these studies were retrospective. Subjects were asked to recall experiences that were most distressing to them while staying in critical care units. The author found that eight of thirteen studies reviewed mentioned mechanical ventilation and procedures related to the experience, such as endotracheal suctioning and the weaning process, as very stressful.

Several investigators have tried to understand patients' experience during ventilator therapy. Gires and Fernsler (1988) conducted an exploratory study investigating patients' perceptions of mechanical ventilator therapy. Seventeen subjects were invited to
participate in this study, but five subjects were dropped from the study due to no recollection of experience and three subjects were deleted from the study due to no wish to discuss it. The nine subjects included in the analysis had events precipitating intubation such as respiratory failure, chest trauma, and abdominal surgery. The negative experiences cited by subjects were categorized into four stressors: intrapersonal physiological stressors, intrapersonal psychosociocultural stressors, interpersonal stressors, and extrapersonal stressors. Restriction of usual activities and positive pressure ventilation were major sources of intrapersonal physiological stress and the inactivity resulted in frustration as psychological stress. Lack of explanation of ventilator therapy was a negative intrapersonal psychosociocultural stressor in this study. According to Gries and Fernsler (1988), this lack of information made two patients guess incorrectly the reason for their inability to talk. The major source of interpersonal stress was difficulty in communication. Discomforts related to endotracheal tube placement and suctioning were extrapersonal stressors.

The experience of ventilator treatment was explored in interviews with 158 patients who had ventilator therapy (Bergbom-Engberg & Haljamae, 1989). Of all patients, 47% expressed that they felt anxiety and/or fear during the treatment. Thirty percent of subjects reported that they experienced agony and/or panic at one time or another time. These feelings were reported more often by females (40%) than by males (25%). Inability to talk and communicate (72%) was found to be the dominant reason for such feelings. There were significant correlations between negative emotions such as anxiety, fear, and panic and the duration of mechanical ventilation.
Riggio and colleagues (1982) investigated the perceptions of former ventilator patients, their relatives, and their respiratory care staff to determine what each group perceived as important patient problems. The critical problems cited by the former ventilator patients were communication difficulty, disorientation and loss of memory, emotional stress such as anxiety, fear, frustration, pain, and discomfort (Riggio et al., 1982). Patients and families tended to report more extreme responses, that is, their variances were larger than staff variances. Staff members perceived that patients had more problems with communication, disorientation, loss of memory, fear, and pain than the patients or family members.

Turner and colleagues (1990) studied 100 subjects' recall of their experience within 48 hours of transfer from the respiratory critical care setting. The top four areas of concern were arterial blood gas sampling (48%), tracheal suctioning (44% of 68 intubated subjects), pain (22%), and noise (20%).

Johnson and Sexton (1990) studied a small group (N = 14) of subjects' experiences with mechanical ventilation using a semi-structured interview. All subjects reported that mechanical ventilation was distressing to them. All patients reported distress over difficulties with communication, particularly the inability to speak. Twelve of the 14 subjects expressed feelings of frustration and anger due to the inability to speak and ineffective usual methods of communication during ventilator therapy. This frustration resulted from fatigue, poor vision because of ophthalmic ointment and no eyeglasses, hand tremor due to weakness, and difficulty in writing while lying in a bed.

Frace (1982) interviewed patients who had the experience of ventilator therapy to explore their feelings and chief concerns. The patients reported feeling very anxious
during ventilator therapy. They specifically feared that the ventilator would malfunction without the staff being aware of it. The difficulty in conveying their feelings and their concerns were also pressing problems (Frase, 1982). Mood swings, anger, fear, anxiety, and uncertainty were major negative perceptions related to mechanical ventilation in other studies (Appel-Hardin, 1984; Cronin & Carrizosa, 1984; Stovsky, Rudy, & Dragonette, 1988).

Experiences from a dozen former ventilator dependent patients were investigated by Jablonski (1995). In the study, patients repeatedly reported the same themes of fear, anxiety, and relief that they were going to live. Discomforts such as gagging, choking sensations, and pressure on their tongue were related to the presence of the endotracheal tube. Lack of appropriate communication made nurses misunderstand patients who tried to shift the endotracheal tube to a more comfortable position as attempting extubation (Jablonski, 1995). Blurry vision, inability to turn their heads due to ventilator hoses, and the inability to speak caused a sense of disorientation among these patients. The patients also pointed out that there were no means of communication successful enough to deliver their message.

The initial reactions of patients to being unable to speak due to mechanical ventilation were reported in a descriptive study (Fitch, 1989). The investigator collected data using a semi-structured interview following extubation and recorded the data on tape. Thirty subjects were divided into two groups based on the length of intubation time. Subjects in Group A (n = 15) were intubated for 24 hours or less to allow stabilization of cardiovascular function after coronary artery bypass grafting surgery. Subjects in Group B (n = 15) were intubated for longer than 24 hours due to various
reasons such as thoracic surgery and respiratory failure. Approximately two-thirds (19) of the subjects expressed emotional distress. Emotions such as fear and anger were expressed as an initial reaction to their inability to speak. Six patients felt resignation as an initial reaction. The initial feelings of fear were associated with a lack of understanding of the reasons for their inability to speak. The lack of understanding in Group A was attributed to inability to recall their pre-operative instruction. Group B did not receive any pre-operative instruction. The majority of subjects attempted to communicate with nurses or others by using the combination of communication channels such as the use of hand signals and writing during mechanical ventilation.

In the case of cardiac surgery, anxiety, fear, and pain are common occurrences for patients on ventilator therapy after cardiac surgery. These negative emotions and pain may influence a patient’s ability to tolerate ventilator therapy. Moreover, severe anxiety or fear can make a patient agitated during ventilator therapy, which usually leads to more sedative administration by clinicians and sometimes unplanned early extubation. In Bizek’s (1995) study, 80% of the patients experiencing ventilator therapy received sedative medications, and 52% of those patients received some type of combination therapy. Puntillo (1994) found that patients received 14 mg/day of morphine on the average for the first 3 postoperative days after cardiac surgery.

In summary, previous studies on ventilator therapy constantly have pointed out that patients who undergo mechanical ventilation experience various psychological and physical stressors. Among these stressors, anxiety, fear, the anger and frustration of being unable to talk, and difficulty to communicate with nurses were the most frequently mentioned psychological stressors. These stressors should be managed properly to
improve patient tolerance of mechanical ventilation and to induce successful weaning. Although there have been a few research studies on pharmacologic and nonpharmacologic interventions to limit patient distress, much more research effort should be concentrated on effective interventions to reduce distress experienced during mechanical intervention.

**Potential Consequences of Psychological Distress Experienced During Mechanical Ventilation**

Extreme psychological distress like anxiety and fear has the potential to cause negative physiologic consequences (Hartel, 1987). Psychological distress can cause over stimulation of the sympathetic nervous system. Sympathetic nervous system arousal results in physiologic alterations such as elevated heart rate, blood pressure, and cardiac output, and vasoconstriction (Lindsey et al., 1993). These physiologic responses to psychological distress can be associated with an increase in oxygen consumption.

The relationships between psychological stressors and negative hemodynamic changes and arrhythmias were supported through several studies. Reich and colleagues (1981) found that the onset of malignant ventricular arrhythmias was associated with identifiable emotional triggers in 21% of patients referred for antiarrhythmic management.

Mazzuero and colleagues (1989) examined the effects of psychophysiological stress (mental stress) on coronary flow, cardiac output, electrophysiology and central hemodynamics in patients with ischemic heart disease. Mental stress was induced by means of mental arithmetic in this study. The main hemodynamic changes observed
during mental stress were that heart rate increased by 39% on average, systolic blood pressure by 19%, diastolic by 25%, pulmonary wedge pressure by 86%, and cardiac output by 29% (Mazzuero et al., 1989). These negative physiologic consequences may inhibit successful weaning of ventilator dependent patients.

Psychological stressors also can affect the patient’s recovery from surgery. Surgery is physically very stressful as well as anxiety provoking. This level of stress is evident in spite of the fact that cardiac surgery patients receive mechanical ventilator therapy for a comparatively short period of time. For example, patients received ten to fifteen hours of ventilator therapy on the average in Heo’s (1993) Korean study. In Pennock’s and colleagues’ (1994) study, the subjects who received coronary artery bypass surgery began weaning from the ventilator 6 to 8 hours after admission to the ICU and were usually weaned completely after 12 to 14 hours. However, this is a very stressful time even though it is short because this is the phase when patients are recovering from anesthesia and stabilizing their cardiopulmonary functions after surgery. Therefore, interventions to reduce stress during ventilator therapy are important to decrease negative influences on recovery.

Management of Psychological Distress and Preparatory Information

Several interventions for the management of psychological distress have been suggested in the literature for patients who experience mechanical ventilation. Patients are often given sedatives and analgesics during ventilator therapy as pharmacologic management. Sedatives or analgesics can increase tolerance to the presence of endotracheal tube and reduce anxiety. Reduced anxiety could decrease oxygen
consumption and other manifestations of the stress response during mechanical ventilation (Mazzeo, 1995). If nonpharmacologic interventions are combined with usual pharmacologic intervention, psychologic distress could be reduced.

Nonpharmacologic interventions developed for the preparation of patients who undergo mechanical ventilation therapy include providing information and cognitive-behavioral strategies such as relaxation, music therapy, biofeedback, hypnosis, and rehearsal (Cochran, 1983; Fontaine, 1994). For example, in a study of the effects of a relaxation technique for coronary artery bypass graft surgery patients, significant decreases in physiologic manifestations of stress were found as a result of relaxation in terms of blood pressure, heart rate, respiratory rate, pain reports (Miller, Pasty, & Perry, 1990). The majority of patients in the experimental group used the relaxation techniques to relieve postoperative pain during the first two days after surgery. However, there was a nonsignificant difference by group in analgesic use.

In several case studies (Acosta, 1988; LaRiccia, Katz, Peters, Atkinson, & Weiss, 1985) authors reported the success of a relaxation technique when it used in combination with the use of biofeedback or hypnosis in weaning the long-term ventilator patient. In other studies of various patient populations, preoperative information reduced patients' psychological distress and enhanced patients' physical recovery (Anderson, 1987; Cuppler, 1991; Linderman, 1988).

Anderson (1987) evaluated the effect of preoperative preparations for cardiac surgery in terms of the reduction of psychological distress, the reduction of preoperative anxiety, and reduction of sympathetically mediated acute postoperative hypertension. The experimental groups (information-only group and information-plus-coping
preparations group) were significantly less anxious and fearful than the control group preoperatively and postoperatively. Both experimental groups had a significantly lower incidence of postoperative hypertension.

Cardiac surgery patients have expressed a need for more information about the endotracheal tube, ventilator, suctioning (Grady et al., 1988; Miller & Shada, 1978), and chest tube removal (Miller & Shada, 1978). Heo (1993) interviewed Korean patients who had cardiac surgery to investigate retrospectively their perioperative nursing needs. The results of the study indicated that cardiac surgery patients wished to know about machines and equipment in the ICU, pain, the methods of communication, and mood change while staying in intensive care units.

In addition to the patients' information needs and interventions, another important aspect that should be considered in the study of preparatory information is patients' differences in preference for information. Several investigators have demonstrated conditional effects on outcome measures due to difference in preference for information among patients (Auerbach et al., 1983; Watkins, Weaver, & Oderguard, 1986). Caldwell (1991) investigated the influence of preference for information on preoperative stress and coping in surgical outpatients. Patients who had a high preference for information reported significantly lower levels of preoperative stress than patients who had low preference for information. Patients having high preference for information demonstrated significantly better adjustment during a surgical procedure (Krantz et al., 1980). When the subjects who were high in preference for information received sensory information, they showed less anxiety prior to catheterization than the subjects who were
high in preference for information and received only information about the procedure (Watkins et al., 1986).

**Self-Regulation Theory and Concrete Objective Information**

Self-regulation theory explains how a specific type of information (concrete objective information) affects persons' emotional distress and enhances their coping with stressful experiences such as surgery and medical procedures. Johnson, as a major contributor to the self-regulation theory, has delineated the theory based on a series of studies. 

The self-regulation theory has a central concept, which is schema (see figure 1). Schema is a generalized cognitive mental representation and guides the focus of attention and the direction of a person's attention. Suls and Fletcher (1985) derived a hypothesis from supporting literature about how guidance in the focus of attention is beneficial for individuals who encounter stressful experiences. That is, coping is enhanced by directing attention to the objective features of situations instead of focusing attention on subjective and evaluative emotions or responses. Schemata are formed from information. Concrete objective information contributes to the clarity of schemata. When schemata are clear and unambiguous, a person's understanding of a stressful event is enhanced. The interpretation of the event can be facilitated through enhancing the organization of incoming information and facilitating the recall of stored information (see figure 1).

Schemata help a person to have certain expectations about stressful events. When a new experience is consistent with what has been expected, a person's coping abilities are enhanced. When a new experience is not consistent with his/her own expectation, a person has inhibited, hesitating, and may exhibit inappropriate behaviors and incorrect
Concrete Objective Information

Preference for Information

**Formation of Schemata:**
- Guide focus of attention
- Organize incoming information
- Retrieve stored information

Coping Ability

- Regulating Emotional Responses
  - Anxiety
  - Negative Mood
- Regulating Goal-directed Behaviors
  - Sedatives
  - Ease of Communication

Figure 1: A Proposed Model of Relationships Among Concrete Objective Information, Emotional Responses, and Behavioral Regulation in Patients on Ventilator Therapy After Cardiac Surgery (adapted from Johnson & Lauver, 1989).
interpretations about his/her own experience (Mchugh, Christman, & Johnson, 1982). If schemata are clear, the consistency between expectations and actual experiences is enhanced. Owens and Hutelmyer (1981) tested the hypothesis that patients who were provided preoperatively information about unusual sensory or cognitive experiences, would feel comfortable or in control of the experiences when they occurred. As anticipated, the subjects who received information about unusual experiences felt significantly more comfortable or in control after cardiac surgery when they were confronted with an unusual sensory experience than the subjects in the control group.

In sum, concrete objective information affects the formation of schemata. The formation of schemata is an important element in information processing. Concrete objective information ultimately takes two important roles. First, concrete objective information provides the patient with accurate expectations about threatening episodes. In contrast, the inability to predict events is related to a sense of helplessness, or a lack of perceived control (Ferguson, 1992). Appropriate expectations about an upcoming threat may help to facilitate one’s voluntary responses toward control. Second, concrete objective information reduces discrepancies between seeing and thinking. Discrepancies between expectation and real experience are likely to stimulate an emotional arousal such as fear, depression, and a sense of bewilderment (Nerenz & Leventhal, 1983). These discrepancies can be reduced by concrete objective information.

According to self-regulation theory, two types of feedback loops called parallel processing are active in stress situations (Nerenz & Leventhal, 1983). One is the regulation of emotion and this ability is reflected in the degree of emotional distress when a person encounters a stressful event. The other is the regulation of goal-directed
behavior (regulation of danger) and this coping ability is reflected in problem-solving to achieve goals. For patients undergoing ventilator therapy after cardiac surgery, the net outcome of concrete objective information will be reduced anxiety and negative mood with respect to the regulation of emotion. And it will be better adaptation with respect to behavioral regulation as reflected by less use of sedatives and less difficulty with communication with others.

Johnson and her colleagues (Johnson, 1975; Johnson and Fuller, et al., 1978; Johnson, et al., 1989) have tested the positive effect of concrete objective information through a series of studies. In the early phase of their studies, the research focused on how sensory information affected a person's emotion control and coping ability. Sensory information was defined as descriptions about our environment which are acquired through our sensory modalities- tasting, hearing, seeing, touching, and smelling (Mchugh et al., 1982). Later (after mid-80s), they changed the term sensory information to concrete objective information. Concrete objective information was defined by Johnson and Lauver (1989) as including four aspects related to a person's experience or an event. They were sensory information associated with the experience, information about environmental features, temporal characteristics, and information on the cause of sensation or experience related to the event.

Johnson and her colleagues have supported the positive outcome of preparatory information in terms of recovery from surgery and reducing emotional distress through a series of research projects. The effect of sensory information on patients' recovery from the surgery was investigated by Johnson, Rice et al. (1978). The independent variables were types of instruction (instruction vs. no instruction) and types of information
(sensory vs. procedure vs. no information). The dependent variables were indicators of postoperative recovery such as number of doses of parenteral analgesics, mood state, and ambulation. Three important results were reported in this study. First, the sensory description was the only intervention which significantly increased the rate of recovery measured by the length of stay in hospital before discharge and the time before venturing out of the house after discharge. Second, the combination of behavioral instruction and sensory information was the most useful intervention for patients' preparation for an impending stressful events as demonstrated by the reduction in length of postoperative hospitalization. Last, the procedural information decreased the patients' feeling of helplessness after surgery. Johnson, Fuller et al. (1978) reported that a replication of this study also repeated the main results of the original study. Surgical patients given concrete objective information reported a perception of increased ability to deal with the experience and a belief that the experience would be less difficult for them (Johnson, Christman, & Stitt, 1985).

The effect of concrete objective information on the coping outcomes of patients with radiation therapy was tested by Johnson et al. (1989). The investigators also measured the similarity between experience and expectation and understanding of patients' experiences as processing variables relevant to the self-regulation theory. The hypothesis was that concrete objective information would reduce negative emotion and disruption in usual activities during and following radiation therapy. The investigators reported that concrete objective information affected the composition of schemata about a stressful experience, but the effects of interventions on coping outcome were mediated by two variables- the similarity between expectation and experience and understanding of
experience. Based on the prior accumulated and consistent knowledge about the effects of sensory information or concrete objective information, Johnson and her colleagues (1989) recently concluded that concrete objective information may affect the reduction of patients' emotional distress and the enhancement of coping abilities.

In summary, providing preparatory education or information is a very common and important nursing practice. However, Derham (1991) insisted that it is important to determine whether preparatory information or visits made patients more anxious and afraid. In some persons, such information is overwhelming and causes some negative emotional responses. Thus, the prior assessment of preference for preparatory information on patients' outcome is also a very crucial nursing action. The assurance of quality of information not quantity is one way to facilitate positive patient outcomes (Johnson & Lauver, 1989). In terms of quality of information, concrete objective information has some effects on the reduction of negative emotional responses and the enhancement of coping abilities (Johnson & Lauver, 1989). The positive results of the concrete objective information reported in previous studies may be extended to the reduction of emotional distress and enhancement of coping abilities of ventilator dependent patients after cardiac surgery. To date, there have been no studies to assess the effect of concrete objective information on the emotional distress of ventilator dependent Korean patients.
CHAPTER 3

METHOD

Research Design

A quasi-experimental, nonequivalent control group design was used for this study (Campbell & Stanley, 1963). Subjects were recruited by using a convenience sampling method and were divided into two groups. Because several (3-10) patients shared one room in the Korean hospital in which data were collected and interaction among them was very active, there was a chance for subjects to share information given by the investigator with each other. Therefore, random assignment to the groups was not used. Data were collected from the control group first. Twenty-two subjects composed the control group and 21 subjects were in the experimental group.

Nurses working on the ward identified which patients met study criteria and gave them a printed sheet with brief information about the study (Appendix B). If a patient agreed to participate, the nurse gave the patient's name to the investigator. The patient then was invited by the investigator to participate in this study.

The control group received routine information. The experimental group was provided concrete objective information on ventilator therapy and communication during ventilator therapy in addition to the routine information. Prior to data collection, the
study was approved by The Ohio State University Behavioral and Social Science Human Subject Review Committee (Appendix C) and the director of the Department of Thoracic Surgery of the Sejong Hospital in Kyonggi, Korea (Appendix D). In addition, verbal approvals from the director of the nursing department and physicians were obtained. This is the usual procedure for the approval of research studies in Korea.

Sample

Fifty-six subjects were recruited by convenience sampling method from the special hospital in Kyonggi, Korea for cardiac disease patients. This hospital had nine SICU beds for cardiac surgery patients out of a total 450 beds. Three to five patients had cardiac surgery in this hospital every day. Subjects who met the following criteria were recruited: a) adult patients over age 18 who were scheduled to undergo a first cardiac surgery, b) no previous ventilator experience, c) had no postoperative complications related to mental status and had no history of mental disturbance, d) had ventilator therapy for no more than 48 hours, e) were not on beta-blockers, and f) were willing to participate in the study.

Independent Variable

The independent variable was the type of information provided to the subjects. Both groups received general information related to the surgery at a scheduled routine preoperative teaching time. In addition, charge doctors, anesthetists and nurses could provide some general verbal information related to surgery before the operation. The general routine information included the following information: type of surgery, how
long patients usually stay in the ICU after surgery, possible complications of surgery and anesthesia, and how long the surgery usually takes.

This preoperative teaching was scheduled every Saturday for groups that included the patients and their families. Patients and their families could ask questions any time during the teaching session. In the first part of the teaching, a physician briefly explained the anatomy and physiology of the heart for about ten minutes. The explanation was focused on possible surgical complications and the reasons for the complications. In the second part of the teaching, a nurse explained the schedule of surgery, unexpected changes in the schedule, surgery site, general anesthesia and using medical tools and equipment not covered by health insurance. The nurse briefly commented that patients would be on a ventilator. This second part usually took 30 to 40 minutes. In this hospital, family and friends were encouraged to donate blood needed for surgery. Much of the time for teaching by the nurse was used for explanation of the blood donation.

The experimental group was provided concrete objective information related to ventilator therapy in addition to this routine information in approximately a thirty minute meeting with the patient. The investigator provided concrete objective information regarding ventilator therapy and communication during ventilator therapy to the experimental group using a booklet. The investigator explained the content of the booklet to patients and then answered subjects' questions only regarding the contents of the booklet. After preparatory teaching, the booklet was left at the patient's bedside.

This booklet was developed based on the usual information pamphlet for ventilator therapy at The Ohio State University Medical Center and literature regarding patients' perceptions about ventilator therapy. The original pamphlet from The Ohio State
University Medical Center was composed of general information, information about alarms, and weaning from the ventilator. The investigator added concrete objective information which reflected what patients would experience during ventilator therapy and information about the causes for the experience. For example, both of the patients' hands will be lightly restrained until the anesthesia wears off. suction may cause the patient to experience coughing and gagging temporarily, and the patient will hear sounds from the ventilator that sound like a steam engine and someone sawing wood. Information about communication difficulty and how to communicate with the nurse during mechanical ventilation was included. In addition to these, temporal information, such as how long patients usually remained on mechanical ventilation after surgery, was included. Subjects who participated in the pilot study judged the content of booklet to be similar to their experiences during mechanical ventilation.

The proportion of concrete objective information included in this information booklet was assessed using the Types of Information Instrument developed by Garvin (1992). The instrument categorizes information that is given to patients in three types: concrete objective information, procedural information, and other information. The definitions of concrete objective information and procedural information follow those defined by Johnson and Lauver (1989). Other information is defined as information that does not fit into the procedural or concrete objective information categories (Garvin, 1992).

Assessing the amount of concrete objective information included several steps (Cissna, Garvin, & Kennedy, 1986; Garvin, 1992). The unit of analysis is the word or group of words (phrase or phrases) that includes some separate and different piece of
information about a particular event, in this case, the ventilator therapy. Two coders (the investigator and advisor) independently coded all information.

The first step taken was to identify all of the units of information. The units were identified by placing parentheses around the word or words in the information. Agreement of coders on the unit of analysis (unitizing reliability) was determined by examining the extent to which two coders (the investigator and advisor) identified the same units. Unitizing reliability was 77% in this study.

After agreement was reached on each unit of analysis, the type of information units were coded by placing the number of the category after the parentheses. Agreement of the two coders in categorizing the units of information was obtained by comparing the numbers of agreement in coding to the total numbers of codes assigned. The agreement of coders in categorizing was 85%.

Next, to correct for chance agreement Cohen's Kappa was used. The Cohen's Kappa was .72. Category-by-category reliabilities were also calculated. Category-by-category reliabilities using Cohen's Kappa were .85 for concrete objective information, .80 for procedural information, and .14 for other information. Usually, a value of Kappa above .75 has been recognized as an excellent agreement beyond chance and values between .40 and .75 as fair to good agreement beyond chance (Landis & Koch, 1977). Finally, the proportion of concrete objective information was calculated. Based on this assessment, 36% of all information was concrete objective information, 63% was procedural information, and 1% was other information.
Dependent Variables

Subjects were asked to complete quantitative scales preoperatively and postoperatively and a background information form. Data about the amount of sedatives used during ventilator therapy were obtained from the patient's record.

The patient's anxiety related to ventilator therapy was measured with the State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1983) (Appendix E). The STAI consists of 40 items (20 items for A-state portion and 20 items for A-trait) and each item has a 4-point response scale, from 1 (not at all) to 4 (very much so). The A-State Anxiety portion is designed to measure how much anxiety an individual is experiencing at a specific time in relation to a specific stressful event. Spielberger et al. (1983) explain that the A-state scale may be used to measure how an individual felt at a particular time in the recent past. Subjects in this study were asked to fill out the A-state scale two times. Subjects were requested to respond how they feel right now before surgery for the pre-test and how they felt during ventilator therapy after they returned on the general ward for the post-test. Higher scores indicate greater levels of state anxiety. The score range for A-state subscale is from 20 to 80.

A-trait refers to relatively stable individual differences in anxiety proneness (Spielberger et al., 1972). The A-trait scale asks people to describe how they generally feel. Higher scores indicate greater levels of trait anxiety. The score range for A-trait subscale is from 20 to 80.

The STAI has been rigorously tested for reliability and validity. Appropriate alpha reliability coefficients for this scale were established and ranged from 0.86 to 0.95 (for A-state) and from 0.89 to 0.91 (for A-trait) for high school students, working adults,
military recruits and college students samples (Spielberger et al., 1972). Concurrent
validity for the A-trait scale of form X has been documented by comparing this scale with
other anxiety scales such as the Taylor Manifest Anxiety scale (TMAS) (1953), and the
IPAT Anxiety scale (IPAT) (Zuckerman, 1960). Correlations between the A-trait, the
IPAT, and the TMAS were relatively high ranging from 0.85 to 0.73. Correlations
between the A-state and A-trait scales ranged from 0.59 to 0.75 for males of working
adults, college students, high school students, and military recruits subjects and from 0.59
to 0.70 for female working adults, college students, and high school students.

The STAI scale was translated into Korean by Kim (1978). The internal item
consistencies of the STAI were 0.87 and 0.86 for A-state and A-trait, respectively in a
study which the subjects were Korean adolescents (Kim, 1978). In another Korean study,
the Korean scale of the STAI which was translated by Kim (1978) was used to measure
anxiety level in patients undergoing coronary angiography. The alpha reliability
coefficients were .74 for A-trait and .94 for A-state.

The patient's negative mood related to ventilator therapy was measured with the
Negative Affect (NA) subscale of the Positive and Negative Affect Schedule (PANAS)
(Watson et al., 1988) (Appendix F). The PANAS-NA scale is a Likert-scale instrument
which represents subjective distress that subsumes aversive mood states. Ten adjectives
such as scared, distressed, nervous, guilty, irritable are put together to comprise the NA
scale. Each item for the NA scale has a five-point response scale from 0 (not at all) to 4
(very much). Subjects were asked to circle the answer which best describes how they are
feeling right now at pre-test and how they had been feeling during ventilator therapy at
post-test for each adjective.
Adequate reliabilities have been established for the PANAS. Watson et al. (1988) reported that coefficient alpha values of the PANAS were near 0.84 or above at the measurements of six different time frames. The test-retest reliability of NA was .81 in a small psychiatric inpatient sample \( (n = 61) \).

Convergent and discriminant validity were established by comparing the ratings on the PANAS with five other short mood scales. For example, correlation coefficients between the PANAS-NA and their corresponding regression-based factors from the factor analysis of the set of 60 mood adjectives from in Zevon and Tellegen's (1982) study were compared. The results of the test were that the discriminant correlations of the PANAS-NA with factor 2 were quite low, ranging from -.02 to -.18 and the convergent correlations of NA with factor 1 were very high, ranging from .91 to .93 at six different time measurements (Watson et al., 1988). This scale was translated into Korean using the method described below. Validity and reliability for the Korean version were tested as described in a later part of this dissertation.

The patients' sense of difficulty with communication was measured with Menzel's (1995) revised Ease of Communication Scale (Appendix G). The scale originally was comprised of 6 items and was revised as a 9 item scale (Menzel, 1995). Each item has 5-point response scale ranging from 0 (not hard at all) to 4 (extremely hard). The instrument was designed to measure patients' perceived difficulty with communication during ventilated time. Subjects in this study completed the instrument once postoperatively. Menzel (1994) reported that the coefficient alpha for the original instrument was .88. Content validity was established by three nurse experts with experience in ventilated patients and communication (Menzel, 1994). The construct
validity was supported by the results of the study. The results of the study showed that difficulty with communication was significantly related to patients' feeling of anger ($r = .50$) and worry/fear ($r = .47$) at being unable to talk. The scale was translated into Korean using the method described below and the Korean version also was tested for face validity and reliability.

Five of the 9 items in the revised scale were judged as valid in the field test and were selected to measure patients' sense of difficulty in communication for this study. Nurses and most patients participating in the field test pointed out that several items in this instrument were not adequate to represent questions measuring communication difficulty. Item number two was eliminated because most patients did not have a chance to communicate with their family members as they usually visited the patients right after surgery while the patients were still under anesthesia and/or after extubation. Item number four was eliminated because most patients stated that patients did not communicate or have direct contact with doctors. Item numbers seven and eight were eliminated because patients said that they did not even try to express their thoughts, emotions, or feelings. Therefore, questions number 1, 3, 5, 6, and 9 were selected to measure communication difficulty of those patients. Possible range of scores is 0 to 20. Higher scores indicate more difficulty in communication.

Preference for information of subjects was quantified with the KHOS-I (Krantz et al., 1980) (Appendix H). The original KHOS-I consisted of 7 items, each rated in a binary, agree-disagree response format. The KHOS-I for this study consisted of 7 items using a 6-point scale indicating degree of agreement or disagreement. The 6-point scale has been used consistently in recent studies to reflect greater sensitivity to differences in
preference for information. KHOS-I is defined "by seven items measuring the desire to ask questions and wanting to be informed about medical decisions" (Krantz et al., 1980, p.980). High scores indicate favorable attitudes toward being informed. Subjects in this study completed the instrument once preoperatively.

Internal consistency of the KHOS-I has been reported as .76 (Krantz et al., 1980). A Cronbach's alpha for the instrument in Caldwell's (1991) study which changed the response format to 6-point Likert scale rather than the binary agree/disagree format was .67 (Caldwell, 1991). To establish adequate validity, three related studies using known groups designs were conducted by Krantz et al. (1980). The result showed that the KHOS successfully discriminated between a criterion group of high self-care subjects and the general student population (Krantz et al., 1980). This instrument also was translated into Korean and tested for face validity and reliability. Reliability findings are reported below.

The amount of sedatives used during ventilator therapy for each subject was obtained from the patient's medication record (Appendix I). Sedatives, such as Ativan, and analgesics, like Morphine, are usually prescribed as p.r.n. for cardiac surgery patients during ventilator therapy. There were no sedatives and analgesics prescribed routinely. The amount of sedatives and analgesics used was averaged for each hour of intubation time. The extubation time for cardiac surgery patients who were admitted to SICU during the morning from the operating room was usually night time and the extubation time for patients who were admitted in the afternoon was usually early the next morning. The number of hours intubated was from the time of admission into the intensive care unit after surgery until the time of extubation.
A background information form (Appendix J) was completed by each subject. This form was used to collect information about the following variables: age, sex, religion, years of education, marital status, and previous experience with someone on a ventilator.

**Translation of Instruments into Korean Language**

The PANAS-NA, the Ease of Communication Scale, and the KHOS-I were translated into Korean by using the method recommended in the cross-cultural research literature. Translated Korean versions of instruments are included in the next page of original English scales in appendices. Back-translation is strongly recommended to assure that research results do not reflect translation error (Jones, 1987; Jones & Kay, 1992; McDermott & Palchanes, 1994). The original English scales were translated into Korean by the investigator and then these translated Korean versions were back-translated into English by a Korean nursing professor who studied in U.S.A. Quality of translation equivalence was judged by the identification of the number of meaning errors between the original and back-translation. Fewer identified errors indicate the better translation. Generally acceptable error limitation is less than 8 out of every 300 words (McDermott et al., 1994).

Quality of translation equivalence between the original and back-translation for the PANAS-NA, the Ease of Communication Scale, and the KHOS-I were within acceptable range. Nine meaning errors, out of total 453 words for all three instruments were found. After establishing equivalent Korean versions, reliability and validity were tested through a field and pilot study for the Korean version scales.
The field study was conducted at the hospital in which the main study was performed. Patients who had cardiac surgery and were recovering from the surgery were asked to participate in this field study. Two expert nurses who worked at the ICU and fifteen patients who had cardiac surgery judged three Korean version scales (PANAS-NA, KHOS-I, & Ease of Communication scale) in terms of the representativeness of items, the clarity of direction and items, and wording. The KHOS-I and the NA were found to have face validity. However, nurses and most patients included in the field test, as described above, pointed out that several items in the Ease of Communication Scale were not adequate to represent questions measuring communication difficulty. Questions number 1, 3, 5, 6, and 9 were judged as valid items to represent communication difficulty by most subjects who participated in the field study.

From the pilot study with the same 15 patients who were recruited for the field test, the coefficient alpha of the PANAS-NA (.79), the KHOS-I (.78) and the Ease of Communication Scale (.92) were obtained. In the case of the Ease of Communication Scale, only five items were used to calculate coefficient alpha. The coefficient alpha of state anxiety and trait anxiety were .94 and .81, respectively. According to Nunnally (1978), when an alpha coefficient is greater than 0.70, it is acceptable in early stages of instrument development. When an alpha is greater than 0.80, it is appropriate for a more developed instrument. The alpha coefficients of all instruments were generally acceptable values.

Procedures for data collection

Preoperative. If a potential subject was identified by a nurse, the nurse asked the
patient whether he/she would agree to participate in the study. Once the subject agreed to participate in this study, the nurse gave his/her name to the investigator and the investigator visited the patient. The investigator explained the purpose of study, the activities for the study, and the right of the patient to withdraw from the study at any time during the study. An informed consent form was signed by the subject (Appendix K).

During the preoperative period, all subjects in the study were asked to complete a background information form and three questionnaires in the order listed: the State-Trait Anxiety Inventory (STAI), the Krantz Heath Opinion Survey-Information (KHOS-I), and the Positive and Negative Affects Scale -Negative Scale (PANAS-NA). Both groups received general information from doctor, anesthetist, and nurse. Concrete objective information was provided to the experimental group by the investigator, in addition to the general information.

**Postoperative.** After subjects were back on the general ward, the investigator revisited the patients and they were asked to complete three questionnaires in the order listed: the A-State, the PANAS-NA, and the Ease of Communication Scale. The amount and type of sedatives used while being on the ventilator were collected from SICU records by the investigator.

**Data Analysis**

Data from the background information form were summarized with descriptive statistics. Frequencies and percentages were calculated for the nominal level variables of sex, religion, marital status, education, the experience of previous hospitalization, the experience of previous surgery and surgery type. These variables were analyzed with
Chi-square to test the equivalence of both groups prior to treatment. Independent two-tailed t-tests were used to test the two groups with respect to preoperative A-state anxiety and A-trait anxiety and mood state to detect any differences between two groups prior to the intervention. ANCOVA procedure was used for hypothesis one and two to estimate mean differences in outcomes associated with the type of information after adjusting for differences in the pretest scores of state anxiety for hypothesis one and the pretest scores of negative mood for hypothesis two. Pretest scores were used as covariates for ANCOVA. The difficulty in communication and the amount of sedatives used between both groups were tested for any difference by using independent one-tailed t-tests. The research question was tested by using a two-way ANOVA.
CHAPTER 4
DATA ANALYSIS & RESULTS

This chapter presents the data analysis and results in four sections. The first section describes the sample and instrument reliabilities, the second contains the results of the data analysis from the pretest, the third section addresses findings related to the hypotheses, and last section describes findings related to the secondary analysis.

Sample

Overall 56 subjects were recruited for the study, but 13 subjects were dropped from the study. Two subjects were excluded because they required ventilator therapy longer than 48 hrs (95 hrs and 58 hrs, respectively). Ten subjects were dropped from the study because they did not recall what happened during ventilator therapy. One subject refused to fill out the post-test questionnaire because he felt very sick. The final sample used for data analysis consisted of 43 patients who underwent ventilator therapy after cardiac surgery. The control group (n = 22) was given general information. The experimental group (n = 21) received concrete objective information in addition to this general information.

Table 1 presents data regarding demographic features of the sample. Table 2 presents the results of the chi-square analysis of demographic features by group.
Table 1

**Demographic Characteristics of the Sample (N = 43)**

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Control Group</th>
<th>Experimental Group</th>
<th>Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Sex</td>
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<td>2 (5)</td>
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<td>10 (48)</td>
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<td>No Response</td>
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<td>1 (2)</td>
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<td>Marital Status</td>
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<tr>
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<td>9 (21)</td>
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<td>16 (76)</td>
<td>32 (74)</td>
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<td>1 (2)</td>
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<td>3 (14)</td>
<td>3 (14)</td>
<td>6 (14)</td>
</tr>
<tr>
<td>No Responses</td>
<td>1 (4)</td>
<td>0 (0)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6 (27)</td>
<td>5 (24)</td>
<td>11 (26)</td>
</tr>
<tr>
<td>No</td>
<td>16 (73)</td>
<td>16 (76)</td>
<td>32 (74)</td>
</tr>
</tbody>
</table>

*Note. The total for each cell does not necessarily equal 100% because of rounding.*
Table 2

Chi-Square of Demographic Characteristics of the Sample (N = 43)

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Control Group n</th>
<th>Experimental Group n</th>
<th>$\chi^2$</th>
<th>Df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>13</td>
<td>14</td>
<td>0.26</td>
<td>1</td>
<td>.61</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religious Preferences</td>
<td>8</td>
<td>10</td>
<td>0.80$^a$</td>
<td>1</td>
<td>.37</td>
</tr>
<tr>
<td>No Religion Preferences</td>
<td>14</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>16</td>
<td>16</td>
<td>0.31</td>
<td>1</td>
<td>.58</td>
</tr>
<tr>
<td>Currently not married</td>
<td>6</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>5</td>
<td>0.07</td>
<td>1</td>
<td>.80</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$^aN = 42$ because of no response
In this table, some demographic features had to be recategorized to meet the basic assumption of chi-square statistical test that every cell must have 5 cases at minimum.

The total sample was comprised of 16 (37%) males and 27 (63%) females. There was no statistically significant difference in numbers of males and females in the control and experimental groups ($\chi^2 = 0.26, \text{df} = 1, p = .61$) as shown in Table 2.

Twenty-four (56%) of the subjects did not have a religious preference. Of the 18 (42%) subjects who had a religious preference, 11 (25%) were Protestants, 5 (12%) were Buddhists, and 2 (5%) were Catholics. Subjects were categorized as religious preference and no religious preference for chi-square analysis. There was no statistically significant difference in religious preference by group ($\chi^2 = 0.80, \text{df} = 1, p = .37$).

Thirty-two (74%) of the subjects were married and 9 (21%) had never been married. For chi-square analysis the subjects were categorized as married or currently not married. The subjects who were in the not married category were those who were single, separated, or widowed. There was no statistically significant difference in marital status by group ($\chi^2 = 0.31, \text{df} = 1, p = .58$).

The education levels of the subjects ranged from the completion of elementary school to the completion of a university degree. Seventeen (40%) of the subjects earned a high school diploma and ten (23%) of the subjects completed elementary education. Seven (16%) subjects completed middle school education. Only 6 (14%) of the subjects earned a bachelors degree and 2 (5%) subjects completed junior college education. The basic assumption of less than 20% on the cells have theoretical values less than five for
chi-square analysis was not met in the education category so chi-square test could not be done.

In terms of occupation, the majority of the subjects (74%) had no occupation. Only 26% of the subjects (control = 27%, experimental = 24%) had an occupation. There was no statistically significant difference in the presence of an occupation by group ($\chi^2 = 0.07, df = 1, p = .80$).

Table 3 presents the comparison of demographic characteristics between the 43 subjects included in analysis and the 13 subjects dropped from the study. The demographic features of the 13 subjects dropped from the study were similar to the demographic features of the subjects who were included in the analysis (Table 3).

Table 4 presents the t-test results for age by group. Subjects ranged in age from 21 to 62, and the mean age for the control and the experimental group were 40.41 and 39.19, respectively. There was no statistically significant difference for age between the two groups ($t = 0.32, N = 43, df = 41, p = .75$).
Table 3

Comparison of Demographic Characteristics Between Subjects Excluded and Included in Study

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Subject Included n (%)</th>
<th>Subjects Excluded n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>16 (37)</td>
<td>4 (31)</td>
</tr>
<tr>
<td>Female</td>
<td>27 (63)</td>
<td>9 (69)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protestant</td>
<td>11 (25)</td>
<td>1 (8)</td>
</tr>
<tr>
<td>Catholic</td>
<td>2 (5)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Buddhist</td>
<td>5 (12)</td>
<td>1 (8)</td>
</tr>
<tr>
<td>No Religion</td>
<td>24 (56)</td>
<td>10 (76)</td>
</tr>
<tr>
<td>No Response</td>
<td>1 (2)</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>9 (21)</td>
<td>2 (15)</td>
</tr>
<tr>
<td>Married</td>
<td>32 (74)</td>
<td>9 (69)</td>
</tr>
<tr>
<td>Separated</td>
<td>1 (2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Widowed</td>
<td>1 (2)</td>
<td>2 (15)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>10 (23)</td>
<td>6 (46)</td>
</tr>
<tr>
<td>Middle School</td>
<td>7 (16)</td>
<td>3 (23)</td>
</tr>
<tr>
<td>High School</td>
<td>17 (40)</td>
<td>3 (23)</td>
</tr>
<tr>
<td>Jr. College</td>
<td>2 (5)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>University &amp; Over</td>
<td>6 (14)</td>
<td>1 (7)</td>
</tr>
<tr>
<td>No Responses</td>
<td>1 (2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>11 (26)</td>
<td>4 (31)</td>
</tr>
<tr>
<td>No</td>
<td>32 (74)</td>
<td>9 (69)</td>
</tr>
</tbody>
</table>

Note. The total of each cell does not necessarily equal 100% because of rounding.
Table 4

Comparison of Age by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>21</td>
<td>39.19</td>
<td>10.93</td>
<td>0.32</td>
<td>41</td>
<td>.75</td>
</tr>
<tr>
<td>Control Group</td>
<td>22</td>
<td>40.41</td>
<td>4.11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 presents the number of years the members of each group had cardiac disease prior to this operation. The number of years with cardiac disease prior to the operation ranged from 1 year to 21 years. The majority of the subjects (n = 33, 77%) were diagnosed with cardiac disease less than 10 years. The subjects in the experimental group had known the diagnosis of their disease for 4.76 years on the average. The mean in the control group was 4.57 years. There was no significant difference in the number of years with cardiac disease by group (t = -0.11, N = 38, df = 36, p = .91).
Table 5

Comparison of the Number of Years with Cardiac Disease by Group (N = 38)

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>17</td>
<td>4.76</td>
<td>5.66</td>
<td>-0.11</td>
<td>36</td>
<td>.91</td>
</tr>
<tr>
<td>Control Group</td>
<td>21</td>
<td>4.57</td>
<td>4.85</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( ^a N = 38 \) because of missing data

Table 6 presents prior surgery experience and type of surgery of the subjects. In the control group, 5 (23%) of the subjects had experienced surgery at least once before, and 17 (77%) of the subjects had not experienced surgery before. In the experimental group, 16 (76%) of the subjects never had any type of surgery before. Only 5 (22%) of the experimental group had experienced surgery before. There was no significant difference in previous surgery experience by group (\( \chi^2 = 0.01, df = 1, p = .93 \)).
Table 6

Prior Surgery Experience and Type of Surgery

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control Group</th>
<th>Experimental Group</th>
<th>Total Sample</th>
<th>χ²</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Surgery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>17 (77)</td>
<td>16 (76)</td>
<td>33 (77)</td>
<td>0.01</td>
<td>1</td>
<td>.93</td>
</tr>
<tr>
<td>Yes</td>
<td>5 (23)</td>
<td>5 (24)</td>
<td>10 (23)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CABG</td>
<td>4 (18)</td>
<td>4 (19)</td>
<td>8 (19)</td>
<td>3.54</td>
<td>2</td>
<td>.17</td>
</tr>
<tr>
<td>Valvular Surgery</td>
<td>11 (50)</td>
<td>5 (24)</td>
<td>16 (37)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congenital Defect Correction</td>
<td>7 (32)</td>
<td>12 (57)</td>
<td>19 (44)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The type of cardiac surgery that the subjects underwent were valve repair or replacement surgery, correction of congenital heart defects such as an atrial septum defect (ASD) or a ventricular septum defect (VSD), and coronary artery bypass grafting (CABG) surgery. In the control group, 11 (50%) of the subjects had surgery for the repair or replacement of more than one valve. Seven (32%) of subjects in the control group had surgery to correct a congenital heart defect and 4 (18%) had undergone coronary artery bypass grafting surgery. In the experimental group, 5 (24%) received valve replacement surgery, 12 (57%) received congenital defects correction surgery, and 4 (19%) received CABG surgery. The type of surgery which subjects received was not significantly different by group ($\chi^2 = 3.54, df = 2, p = .17$).

Previous indirect experience about ventilator therapy may affect a patient's knowledge about ventilator therapy (i.e., not being able to talk, endotracheal suction, etc.). However, in this study, no one had previous experience with a relative or close friend on ventilator therapy.

Many subjects did not remember how they felt, what they asked the nurses, how they communicated with the nurses, and how they responded to nurses checking their condition. Ten subjects who did not remember what happened during ventilator therapy were not included in the analysis. Overall data from 13 subjects were dropped from the study. Although data from only 7 subjects were available, the only difference between subjects included in the study and those excluded was the amount of analgesics used during ventilator therapy. Subjects excluded received slightly more morphine (1.74 mg/h) compared with subjects included in the study (.97 mg/h).
Instrument Reliability

Cronbach's alpha coefficients were calculated to assess the internal consistency reliability of each Korean version of the quantitative scales. Table 7 shows Cronbach's alpha coefficients obtained in the present study for the Korean version of the quantitative scales. Cronbach's alpha coefficients for the A-State subscale were .91 at pretest and .88 at posttest. A reliability coefficient of .89 was obtained for the A-trait subscale of STAI. The coefficient alpha of the Negative Mood subscale in the pretest and posttest were .84 and .85, respectively. The coefficient alpha of the Krantz Health Opinion Survey and Ease of Communication were .87 and .87, respectively. The alpha coefficients of all quantitative scales were at an acceptable value. Seven subjects did not completely fill out the A-trait Anxiety Scale.
Table 7

**Cronbach's Alpha Coefficients for the Quantitative Scales Used in the Study**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of items</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pretest</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-State subscale</td>
<td>20</td>
<td>.91</td>
</tr>
<tr>
<td>A-Trait subscale</td>
<td>20</td>
<td>.89&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>KHOS-I subscale</td>
<td>7</td>
<td>.87</td>
</tr>
<tr>
<td>PANAS-NA subscale</td>
<td>10</td>
<td>.84</td>
</tr>
<tr>
<td><strong>Posttest</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-State subscale</td>
<td>20</td>
<td>.88</td>
</tr>
<tr>
<td>PANAS-NA subscale</td>
<td>10</td>
<td>.85</td>
</tr>
<tr>
<td>Ease of Communication</td>
<td>5</td>
<td>.87</td>
</tr>
</tbody>
</table>

<sup>a</sup><em>n = 36 because of missing data</em>
The Results of Data Analysis from Pretest

A quasi-experimental, nonequivalent control group design was used for this study. State anxiety, trait anxiety, preference for information, and negative mood before surgery were measured in the pretest. An independent two-tailed t-test was used for these variables to measure the equivalence between groups before surgery.

The mean score of the control group for state anxiety was 55.36 (SD = 12.15) on the pretest. The mean score for the experimental group was 53.57 (SD = 9.00). There was no significant difference in the state anxiety mean scores between groups (t = 0.55, df = 41, p = .59) before surgery (see Table 8).

Table 8

Comparison of Pretest State Anxiety by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>21</td>
<td>53.57</td>
<td>9.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group</td>
<td>22</td>
<td>55.36</td>
<td>12.15</td>
<td>0.55</td>
<td>41</td>
<td>.59</td>
</tr>
</tbody>
</table>
The trait anxiety mean scores for both the control and experimental groups were not significantly different ($t = 0.63$, $df = 34$, $p = .54$) on the pretest, as is shown in Table 9. The mean trait anxiety for the control group was 45.19 (SD = 9.66). The mean trait anxiety for the experimental group was 43.45 (SD = 7.02).

Table 9

Comparison of Pretest Trait Anxiety by Group (N\textsuperscript{a} = 36)

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>20</td>
<td>43.45</td>
<td>7.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>16</td>
<td>45.19</td>
<td>9.66</td>
<td>0.63</td>
<td>34</td>
<td>.54</td>
</tr>
</tbody>
</table>

\textsuperscript{a}N = 36 because of incomplete data
The mean score for negative mood on the pretest was 10.14 (SD = 6.92) for the control group and 8.62 (SD = 4.59) for the experimental group. The mean scores were not significantly different in negative mood ($t = 0.84$, $df = 41$, $p = .40$) before surgery as shown in Table 10.

Table 10

Comparison of Pretest Negative Mood by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>21</td>
<td>8.62</td>
<td>4.59</td>
<td>0.84</td>
<td>41</td>
<td>.40</td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group</td>
<td>22</td>
<td>10.14</td>
<td>6.92</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Mean scores for preference for information before surgery for both groups were not significantly different ($t = 0.41, df = 41, p = .68$). The mean score for the control group was 19.41 ($SD = 5.18$) and 18.76 ($SD = 5.20$) for the experimental group on preference for information (see Table 11).

Table 11

*Comparison of Preference for Information by Group*

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>21</td>
<td>18.76</td>
<td>5.20</td>
<td>0.41</td>
<td>41</td>
<td>.68</td>
</tr>
<tr>
<td>Control Group</td>
<td>22</td>
<td>19.41</td>
<td>5.18</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hypotheses and Research Question

This section of the results is organized in regard to the four hypotheses and one research question. An alpha level of .05 was used for all hypotheses testing. Campbell and Stanley (1963) strongly suggested that "the analysis of covariance with pretest scores as the covariate are usually preferable to simple gain scores comparison (p. 23)." Therefore, for the two measures for which there were a pretest and a posttest (A-state and PANAS-NA subscale), ANCOVA was used to test hypotheses one and two. Independent one tailed t-tests were used in the remaining two hypotheses. A two-way ANOVA was used to test the research question.

Hypothesis One

Patients given concrete objective information regarding ventilator therapy will experience lower state anxiety during ventilator therapy than patients who are not given concrete objective information.

Patients’ state anxiety during ventilator therapy was examined to address this hypothesis. The A-state subscale of the STAI was used to measure the patient’s state anxiety during ventilator therapy. An analysis of covariance was performed on the scores of state anxiety in the experimental and control groups. Table 12 depicts summary statistics and covariance analysis for state anxiety on the posttest by group and state anxiety on the pretest. The mean score on posttest state anxiety was 44.19 (SD = 5.67).
Table 12

Summary Statistics and Covariance Analysis for State Anxiety on the Posttest by Group and State Anxiety on the Pretest

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Posttest</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>State Anxiety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>53.24</td>
<td>44.19</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>8.83</td>
<td>5.67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>873.59</td>
<td>436.79</td>
<td>7.77</td>
<td>2</td>
<td>.001***</td>
</tr>
<tr>
<td>Error</td>
<td>2190.99</td>
<td>56.18</td>
<td></td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>3064.57</td>
<td></td>
<td></td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>840.11</td>
<td>840.11</td>
<td>14.95</td>
<td>1</td>
<td>.0004***</td>
</tr>
<tr>
<td>State Anxiety</td>
<td>14.06</td>
<td>14.06</td>
<td>0.25</td>
<td>1</td>
<td>.62</td>
</tr>
<tr>
<td>(Pretest)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .001
and the scores on the A-state scale ranged from 35 to 55 in the experimental group. The subjects in the control group showed an average of 53.24 (SD = 8.83) on the posttest anxiety score. This hypothesis was supported. Subjects in the experimental group were significantly less anxious during ventilator therapy ($F = 14.95$, $df = 1$, $p = .0004$) than patients who were not given concrete objective information. The scores of state anxiety on the pretest did not have an impact on the scores of state anxiety on the posttest ($F = 0.25$, $df = 1$, $p = .62$).

Hypothesis Two

Patients who are given concrete objective information will experience lower negative mood during ventilator therapy than patients who are not given concrete objective information.

Negative mood during ventilator therapy was examined to address this hypothesis. The scores of the negative mood subscale of the PANAS were analyzed by means of an ANCOVA. The mean score on posttest negative mood in the experimental group was $4.48$ (SD = 2.38) (see Table 13). The mean score for posttest negative mood in the control group was $8.14$ (SD = 5.07).

This hypothesis was supported. The subjects who were given concrete objective information experienced significantly lower negative moods during ventilator therapy ($F = 8.48$, $df = 1$, $p = .006$) than patients who did not receive concrete objective information about ventilator therapy. The scores of negative mood on the pretest did not influence the scores of negative mood on the posttest ($F = 0.31$, $df = 1$, $p = .58$).
### Table 13

**Summary Statistics and Covariance Analysis for Negative Mood on the Posttest by Group and Negative Mood on the Pretest**

<table>
<thead>
<tr>
<th>Negative Mood</th>
<th>Posttest</th>
<th>Control</th>
<th>Experimental</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>22</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>8.14</td>
<td>4.48</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>5.07</td>
<td>2.38</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>152.51</td>
<td>76.25</td>
<td>4.68</td>
<td>2</td>
<td>.015*</td>
</tr>
<tr>
<td>Error</td>
<td>651.54</td>
<td>16.29</td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>804.05</td>
<td></td>
<td></td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>138.10</td>
<td>138.10</td>
<td>8.48</td>
<td>1</td>
<td>.006**</td>
</tr>
<tr>
<td>(Pretest)</td>
<td>4.97</td>
<td>4.97</td>
<td>0.31</td>
<td>1</td>
<td>.58</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01
Hypothesis Three

Patients who receive concrete objective information will use less sedative medications during ventilator therapy when compared with patients who do not receive concrete objective information.

To test this hypothesis, the amount of sedative medication used per hour during ventilator therapy was investigated. The amount of sedatives in the control group was 0.34 mg/h ($SD = 0.31$) and 0.24 mg/h of ventilator therapy ($SD = 0.25$) for the experimental group. An independent t-test analysis was performed on the sedative means averaged for each hour of intubation for the two groups. Hypothesis 3 was rejected ($t = 1.14, df = 40, p = .13$). Although subjects in the experimental group used less sedatives, sedatives used per hour during ventilator therapy were not significantly different by group.
Table 14

Comparison of the Amount of Sedatives Averaged with Intubation Time per Hour by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>20</td>
<td>0.24</td>
<td>0.25</td>
<td>1.14</td>
<td>40</td>
<td>.13</td>
</tr>
<tr>
<td>Control Group</td>
<td>22</td>
<td>0.34</td>
<td>0.31</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, analgesics and β-blockers also have sedation and anxiolytic effects (Craig & Stitzel, 1994). Patients on beta-blockers were excluded from participation in this study. However, analgesics like morphine were frequently prescribed for patients on ventilator therapy. Table 15 shows t-test results for analgesics averaged for each hour of intubation time. The amount of analgesics was not significantly different by group ($t = 1.42$, $df = 40$, $p = .08$). The amount of analgesics averaged for each hour of intubation time was .79 mg/h in the experimental group and 1.16 mg/h in control group as shown in Table 15.
Table 15

Comparison of for the Amount of Analgesics Averaged with Intubation Time per Hour by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>20</td>
<td>0.79</td>
<td>0.85</td>
<td>1.42</td>
<td>40</td>
<td>.08</td>
</tr>
<tr>
<td>Control</td>
<td>22</td>
<td>1.16</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*n = 20 for missing data

Hypothesis Four

Patients who receive concrete objective information will report less difficulty in communication with care staff during ventilator therapy when compared with patients who do not receive concrete objective information.

Difficulty of communication during ventilator therapy was investigated to test this hypothesis. The difficulty in communication with nurses was measured by the Ease of Communication Scale, which consists of five items. A higher score indicates greater difficulty in communication. An independent one tailed t-test analysis was performed on
the two groups' mean scores. There was a significant difference in the ease of communication between groups ($t = 1.9097$, $df = 41$, $p = .03$). Thus, this hypothesis was supported. The subjects in the experimental group experienced significantly less difficulty in communication during ventilator therapy than subjects in the control group. The mean scores for ease of communication were 5.48 (SD = 3.80) in the experimental group and 7.82 (SD = 4.22) in the control group.

Table 16

Comparison of Ease of Communication During Ventilator Therapy By Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>21</td>
<td>5.48</td>
<td>3.80</td>
<td>1.91</td>
<td>41</td>
<td>.03*</td>
</tr>
<tr>
<td>Control</td>
<td>22</td>
<td>7.82</td>
<td>4.22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05, one-tailed
Research Question

Does preference for information interact with the concrete objective information interventions to produce a difference in state anxiety, negative mood, difficulty in communication, and medication use?

Preference for information before surgery was investigated to test this research question. The preference for information was measured by the subscale of the Krantz Health Opinion Survey. To test this research question, first the control group and the experimental group were divided into a high preference for information group and a low preference for information group by using a median split. Then a two-way ANOVA was performed to test the interaction between preference for information and the concrete objective information to produce a difference in postoperative state anxiety, negative mood, ease of communication, and medication use. There were no significant interaction effects between preference for information and concrete objective information intervention on the postoperative outcome variables of state anxiety, negative mood, medication use, and ease of communication. The F value for the interaction between preference for information and treatment on postoperative state anxiety was .59 (df = 1, p = .92). The interaction between preference for information and treatment on postoperative negative mood and ease of communication were not significant (F = .07, df = 1, p = .79; F = .19, df = 1, p = .66, respectively).
Secondary Analysis

Intubation time ranged from 2 to 25 hours for all subjects. The mean time the control group was intubated with an endotracheal tube was 17.68 hours. This was significantly longer than the mean time (M = 13.85) of the experimental group. There was a statistically significant difference in intubation time between the groups (t = 2.21, N = 43, df = 40, p = .03) (see Table 17).

Table 17

Comparison of Intubation Time by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>21</td>
<td>13.85</td>
<td>5.71</td>
<td></td>
<td></td>
<td>.03*</td>
</tr>
<tr>
<td>Control Group</td>
<td>22</td>
<td>17.68</td>
<td>5.55</td>
<td>2.21</td>
<td>40</td>
<td>.03*</td>
</tr>
</tbody>
</table>

*p < .05, two-tailed
CHAPTER 5

DISCUSSION OF FINDINGS

The present study examined the effect of concrete objective information on the distress of patients undergoing ventilator therapy. Four hypotheses were proposed to test the effect of concrete objective information in terms of reduction of patients' distress. The results of this study support the conceptual framework originally proposed in terms of the effect of concrete objective information in emotional control which was tested by hypothesis one and hypothesis two. Subjects who received concrete objective information experienced less anxiety and negative mood during ventilator therapy. The results of this study, however, only partially support the conceptual framework in terms of the effect of concrete objective information in danger control that was tested by hypothesis three and hypothesis four. Subjects in the experimental group reported less difficulty in communication but they did not show significantly less use of sedative medications during ventilator therapy.

To date, most, but not all studies that focused on the effect of preoperative information on the psychological distress of patients have reported positive results. The studies tested generally the effect of preparatory information on various subject groups, and specifically tested the positive effect of sensory information (concrete objective

In this study, hypothesis one and two were supported. Subjects who received concrete objective information experienced less anxiety and less negative mood during ventilator therapy than subjects in the control group. These findings are consistent with the findings of Johnson and Rice et al. (1978) that sensory information significantly reduced postoperative anger in patients who were relatively fearful preoperatively. These findings also are consistent with the findings of other previous studies (Padilla et al., 1981; Sime and Libera, 1985; Rice, Sieggreen, Mullin, & Williams, 1988). In short term stressful health care situations, sensory information reduced patients' emotional distress during or immediately following a stressful episode. When sensory information was combined with procedural descriptions, the same effect on patients' emotional distress was reported (Anderson, 1987; Padilla et al., 1981; Rice et al., 1988).

These series of significant findings for concrete objective information (sensory information) support the important role of concrete objective information to the formation of schemata and the clarity of schemata about stressful experiences. Concrete objective information may assist subjects in developing a new schema concerning ventilator therapy which will provide a structure for interpreting their experiences and result in unambiguous expectations. The patients who had certain expectations of
mechanical ventilation experienced less anxiety and negative mood because the concrete objective information provided to the subjects assured them that their experiences with mechanical ventilation are normal and typical. The patients who did not have these expectations about mechanical ventilation expressed more anxiety, negative mood, and a longer intubation time when they were confronted with the discomforts associated with mechanical ventilation such as inability to speak and tracheal suctioning.

The relevance of concrete objective information is supported by the findings of Fitch (1989). In this study, subjects initially experienced negative emotions such as fear, anger, and resignation when they did not understand the reason for their inability to speak during ventilator therapy. Subjects who adjusted to their inability to speak cited previous exposure to information about mechanical ventilation such as pre-operative teaching or past ventilator experience as reasons for their adjustment (Fitch, 1989). Subsequently, when subjects adjusted to their inability to speak, they reported more frequently responses that they did not mind the ventilator therapy or that they were relieved that the situation was only temporary. These findings support the importance of the influence of expectations about impending stressful events on the emotional responses of ventilated patients.

The level of anxiety prior to the stressful encounter has been found to interact with the effectiveness of information intervention (Crumlich, 1989; Sime, 1976; Sime & Libera, 1985). High state anxiety subjects reported less tension-anxiety and distress during dental surgery after receiving sensory information but subjects with lower levels of anxiety did not benefit from sensation information (Sime & Libera, 1985). In contrast to the findings of Sime and Libera (1985), the current finding showed that anxiety prior
to surgery did not interact significantly with the intervention on the post state anxiety.

The difference in results between this study and Sime and Libera (1985) could be explained by the difference in sample size. Ninety-one subjects were used in the previous study. In the current study only forty-three subjects were used in the final analysis. This relatively small sample size may not have been large enough to capture the association between level of anxiety prior to surgery and outcomes.

The patient's preference for information has been noted as an moderator variable which may affect the results of the study. In the present study, the preference for information was not significantly different by group before surgery. Also, preference for information did not have interaction effects with preparatory information treatment to produce any difference in post state anxiety, negative mood, medication use, and ease of communication. These findings differ from other studies. A high preference for information was associated with better adjustment when subjects received specific information (Auerbach et al., 1983). Subjects low in preference for information adjusted slightly better than when they received general information as compared to specific information (Auerbach et al., 1983). When a problem-focused intervention was given for high information preference subjects and an emotion-focused intervention was given for low information-preference subjects, better adjustment and satisfaction and lower self-reported pain were reported (Martelli, Auerbach, Alexander, & Mercuri, 1987).

One possible reason for these nonsignificant results in this study might be associated with the sensitivity of the instrument to measure preference for information among Korean patients. In the Korean culture, there may be a tendency for many patients to hesitate to ask questions of doctors even though they may have a desire for information.
They believe that asking many questions is challenging the authority of doctors. Therefore, their desire for information could be high but their actual behaviors as asked in the items 1, 3, and 4 in the instrument may not be exhibited.

The positive effects of preparatory information have shown conditional effects. Preparatory information either combined with coping preparation or not reduced patient's anxiety preoperatively and emotional distress such as anxiety, anger, and anger postoperatively, but the preparatory information reduced patients' anxiety and emotional distress by increasing feelings of control preoperatively (Anderson, 1987). Although this study did not test such conditional effect, future study related to the effect of preparatory information may need to be focused on this intervening variable to understand the phenomena more thoroughly.

In several studies, analgesic usage was measured as an outcome variable to demonstrate coping behaviors in stressful situations. There have been somewhat inconsistent reports in terms of the positive effect of information intervention on medication used. The findings of this study of no difference in medication use by group are similar to the findings of Johnson and Rice et al. (1978) where the number of doses of parenteral analgesics as a postoperative recovery indicator was not significantly different between the sensory group and the no-information group. The findings of this study are not consistent with the finding where preparation with either procedure or sensory information reduced anticipatory distress as indicated by the amount of intravenous tranquilizer (Johnson et al., 1973).

The nonsignificant results with regard to medication use in the present study might be related to the fact that there are no protocols in Korea currently in existence to guide
clinicians in initiating and effectively monitoring patients receiving these agents. The administration of sedatives or analgesics relied primarily on the physicians' or nurses' personal judgment. Nurses or physicians usually used routine care patterns to guide the use of sedatives or analgesics for their patients. Thus the use of analgesics or sedatives was probably more dependent on their care patterns than coping patterns of patients. If the administration of analgesics could be controlled by patients themselves, as in patient controlled analgesics (PCA), the patient's coping ability might be reflected better on this outcome variable.

The results of this study supported the positive effect of concrete objective information on difficulty in communication. Patients who received concrete objective information experienced less difficulty in communication than patients who did not receive concrete objective information. Communication difficulty is one of the crucial stressors confronting patients undergoing ventilator therapy. Subjects in this study who reported more ease in communication experienced less negative emotion. These findings are supported by other studies (Bergbom-Engberg and Haljamae, 1989; Menzel, 1993; Riggio et al., 1982) where difficulty in communication with an endotracheal tube in place was significantly related to negative emotions.

In this study, the information booklet contained 36% concrete objective information, 63% procedural information, and 1% other information. In a study describing type and amounts of information given to patients in preparation for cardiac catheterization (Garvin, Huston, & Baker, 1992), the content of information delivered by most nurses during their interactions with patients was 62% procedural, 19% sensory information, and 19% other information. Although the relative amount of concrete
objective information was greater in this present study compared to what was used in the previous study. It is still unknown what proportion of concrete objective information is most helpful for patients. Therefore, the most effective amounts of information should be tested in future studies investigating the effect of concrete objective information.

Patients in the control group received mechanical ventilation significantly longer than patients in the experimental group. This finding suggests that the intubation time of the subjects in the experimental group was significantly less than those of the subjects in the control group because they were better informed by the concrete objective information than subjects in the control group. These results support the positive effect of concrete objective information in terms of danger control.

In previous studies, length of intubation was positively associated with various negative emotions such as anxiety, fear, panic and feelings of worry at being unable to speak (Bergbom-Engberg and Hal Jamae, 1989; Menzel, 1994). The correlations between negative emotions and the duration of ventilation were not significant in the present study. These different results could be explained by difference between this study and prior studies with respect to intubation time. Subjects in the previous study (Bergbom-Engberg et al., 1989) were kept on the ventilator much longer than the subjects in the present study (6.4 days in the previous study, 16 hrs in the present study). Although mechanical ventilation provokes various negative emotions, long term mechanical ventilation therapy might exaggerate those negative emotions.

In previous studies, state anxiety was highly correlated with trait anxiety, however, the correlation between state anxiety and trait anxiety on the pretest was low ($r = .25, N = 36, p = .14$) in this study. According to Spielberger (1983), in general the correlations
between state anxiety and trait anxiety are higher in social evaluative situations whereas, the correlation between state anxiety and trait anxiety are lower in physical-danger situations. For example, the correlation between state anxiety and trait anxiety among females ranged from .11 to .53 ($M = .30$) in a stressful testing session. Since cardiac surgery carries a threat of physical danger, a low correlation between state and trait anxiety would be expected.

In the present study, the two groups were very similar in background characteristics such as gender, age, education, occupation, years of disease, previous surgery experience, and surgery type. However, the proportion of females in this study did not represent the proportion in the population who undergo ventilator therapy after cardiac surgery in Korea. More females were in the study than males. In many Korean studies, more male than female patients undergo cardiac surgery (Kim & Kim. et al., 1997; Kim & Lee, et al., 1997; Lee, Lee, Ahn, Lee, and Shin, 1997). In most U.S. studies, patients who had cardiac surgery, especially coronary bypass grafting surgery, predominantly were males (Ferguson, 1992; Pennock, et al., 1994; Stovsky et al., 1988). In the present study, the proportion of subjects, males and females, who received coronary bypass grafting surgery was only 19% ($n = 8$). This fact might partially contribute to the higher proportion of females in this sample. This low participation rate of the male patients also could be explained by the fact that many male patients’ family members refused to allow them to participate. Most male patients were taken care of by their spouses or family members during most of time they were staying in the hospital. In these cases, decision making about participation in this study was greatly affected by the patients’ family member. Most female patients stayed alone in the hospital most of time so the decision making
about participation was judged by themselves.

Although the fact that more females were recruited than males might be a potential limitation of this study with regard to representation of the population, this also could be a strength of the study. In many other related studies, the majority of subjects were male. The results of the studies are more applicable to male subjects than female subjects. The results of this study gives more information about females who previously have been understudied.

The mean score of preoperative state anxiety (55) in this study was higher than the mean score of preoperative state anxiety (about 39) in U.S. subjects (Anderson, 1987). The mean score of trait anxiety on the pretest (43) was similar to a previous Korean study that consisted of patients who were scheduled for a cardiac catheterization. In that Korean study, the mean score for trait anxiety for all subjects was 43 (Lee & Lee, 1994). In the U.S., mean scores for trait anxiety in many studies reviewed ranged from 33 to 40 and were about 10 points lower than the mean scores of trait anxiety in Korean studies (Garvin & Kim, 1997). Although there were no significant differences between the control and the experimental group in state anxiety and trait anxiety preoperatively in this study, these differences in cultural groups should be considered for the interpretation of transcultural studies.
CHAPTER 6

SUMMARY OF THE STUDY

Many patients after ventilator therapy have reported that mechanical ventilation and the procedures associated with the experience were very stressful. Among the several possible interventions for preparing patients to undergo stressful procedures, providing information, which has the strongest theoretical and research base, has become a standard of nursing care (Porter, 1995). The purpose of this study was to test the effect of concrete objective information on distress of Korean patients undergoing ventilator therapy. The effect of concrete objective information on distress was measured in terms of the regulation of emotion and the regulation of danger in stress situations. To test the effect of concrete objective information on the regulation of emotion, the variables of anxiety and negative mood were measured. Difficulty in communication and sedatives used during ventilator therapy were measured to test the effect of concrete objective information on the regulation of danger.

The conceptual framework for this study, self-regulation theory, was derived from Leventhal and Johnson's works in cooperation with their colleagues (Nerenz & Leventhal, 1983). Self-regulation theory explains how a specific type of information affects a person's emotional distress and enhances his/her ability to cope with stressful
A non-equivalent control group design was used. The sample consisted of 43 adults who had ventilator therapy after cardiac surgery. Data about background information were collected. The two groups were very similar in background characteristics of gender, age, religion, marital status, education, occupation, years of disease, previous surgery experience, and surgery type. Quantitative scales used for the study were the State Trait Anxiety Inventory, the sub-scale of the PANAS, the sub-scale of Krantz Health Opinion Survey, The Ease of Communication Scale. Data about sedatives and analgesics used during ventilator therapy were also collected from patients' medical records.

Descriptive and inferential statistics were used to analyze data from these quantitative scales. Three of the hypotheses were supported. Subjects who received concrete objective information experienced significantly less anxiety during ventilator therapy than subjects in the control group. Subjects who were given concrete objective information experienced significantly lower negative moods during ventilator therapy than subjects in the control group. The experimental group reported less difficulty in communication during ventilator therapy than the control group. The last hypothesis was not supported. Sedatives and analgesics used during ventilator therapy were not significantly different between the concrete objective information group and the general information group. There were no significant interaction effects between preference for information and concrete objective intervention to produce a difference in the outcome variables of postoperative state anxiety, negative mood, medication use, and ease of communication. Intubation time between both groups was significantly different.
Patients in the control group received mechanical ventilation significantly longer than patients in the experimental group.

**Limitations of the Study**

Several limitations of the study warrant discussion. Many patients did not remember how they were doing during ventilator therapy. Even though the patients were recorded on the SICU record sheets as "clear mentally and cooperated well or mild agitation" during ventilator therapy, they did not recall the extent to which the ventilator therapy was stressful. In a few cases, family members, especially spouses or parents stated that when they visited the SICU to see the patient, the patient did recognize them and responded by nodding his/her head or grasping their hands. However, the patients did not remember the fact that their family members had come to see them. In the present study, these patients who might experience some degree of distress related to ventilator therapy but had no recollection about the experience after they were transferred from the SICU were deleted from the analysis. These deletions are not accounted for in the results of this study. Therefore, the results of this study may have some limitations in interpretation and the application of the positive results of this study to all hospitalized cardiac surgery patients.

Another limitation of this study was related to the system of the hospital. One room accommodated one to ten patients in the hospital. A majority of the rooms accommodated more than four patients. Patients often met in a room and talked together. There was a possibility which patients who recovering from cardiac surgery were visited by other patients who were waiting for. The casual conversation or meeting among
patients could not be controlled. What they talked about and if they shared information with each other was unknown. There might be a chance of enhanced their learning through active interaction with patients who were recovering from the surgery among all subjects. This might be another source of error in this study. However, because both groups would have been subject to these influences, and there were still significant group differences, the impact of this limitation appears minimal.

The sample of this study did not represent the population of patients who underwent ventilator therapy in Korea due to lower recruitment of patients who received CABG surgery than the recruitment of patients who received other surgeries such as valve replacement or correction of congenital defects. In addition, more females were recruited for this study than males. Also, the sample size was relatively small. Therefore findings must be interpreted with caution. Replication with a larger representative sample in terms of gender and type of surgery is suggested.

Implications for Nursing Practice and Research

This study demonstrates that providing concrete objective information is an effective intervention for the reduction of negative emotional responses and difficulty in communication during ventilator therapy. Various populations of patients have received ventilator therapy but in many patients the initiation of mechanical ventilation is unpredictable for example, in emergency situations. In contrast, the sample for this study was a homogenous group of patients who underwent a cardiac surgery and the initiation of ventilator therapy for them was predictable because they were routinely admitted to the SICU after a surgery. This is an important point in terms of the implication of the
positive results of this study because nurses can easily identify the subjects prior to surgery and have enough time to make a plan for providing appropriate interventions for them. Therefore, it is important that cardiac surgery patients have well organized, systematic preparatory concrete objective information prior to their surgeries.

Most patients who have had ventilator therapy have suffered from the inability to communicate during ventilator therapy. If concrete objective information is given to subjects with the introduction of effective communication methods prior to surgery, the effectiveness would be maximized. Future studies are needed to focus on the effectiveness of various combined interventions for these patients.

The subjects in this study were a very homogenous group with respect to their having cardiac surgery. The homogenous feature of the subjects, however, can be a limitation in terms of generalization of the results of the study. To explore the positive effect of the intervention on other patients, future study is necessary with other populations. For example, patients who are scheduled for laryngectomy operations could be subjects because, although the patient usually does not undergo ventilator therapy, the patient would experience distress from the inability to communicate after surgery and suffer from the experience related to tracheal suction.

Another limitation may be that measurement of patients’ distress during ventilator therapy only relied on the retrospective recall from patients. This limitation was further complicated by the fact that almost one-fourth of the subjects could not remember their SICU experience. To compensate for this limitation, it may be necessary to develop an alternative indicator to measure the effect of the intervention that does not rely only on patients’ recall. For example, observation of patients on ventilator therapy may be a
possible measurement to test the effect of the intervention.

Inability to talk is significantly associated with various negative emotions. In previous research, a communication board increased the patient's satisfaction with communication during ventilator therapy. Although the results of current study demonstrate that concrete objective information reduces the difficulty in communication, it does not insure the effectiveness in communication between nurses and patients. Many patients who experienced ventilator therapy expressed that usual communication methods that they used during ventilator therapy were very unsatisfactory. Fatigue and poor vision were major factors that prevented patients from communicating their messages precisely. Nurses could facilitate communication by providing the patients' eyeglasses or removing ophthalmic ointment from their eyes (Stovsky et al., 1988). In addition, effective communication methods as alternatives need to be developed and tested to control negative emotions and enhance the effectiveness of communication between nurses and patients.

Although the findings of this study had shown that the concrete objective information did not reduce the amount of sedatives used for patients, the effectiveness of concrete objective information on the reduction of sedative use should be tested in future studies. These studies should examine the hospital context and the protocols to initiate sedation of patients and monitor the use of sedatives and analgesics.

It has been suggested that spending time with patients independent of providing information has the potential to make a difference in outcomes in patient education studies. The act of talking with patients may in actuality be an intervention. The results of this study could be partially explained by this influence. Therefore, in future studies
the design of the study should control for this effect in order to assure that any significant outcomes are related to the effect of concrete objective information.

In sum, the present study demonstrated that cardiac surgery patients who receive concrete objective information are less anxious and have less negative affect and greater ease of communication than the control subjects had postoperatively. This is an effective intervention of great importance in reducing negative consequences of cardiac surgery.
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82


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APPENDIX A

INFORMATION BOOKLET
VENTILATOR THERAPY IN
CARDIAC SURGERY PATIENTS

ventilator

endotracheal tube
What is Ventilator Therapy?

A ventilator is a machine that is used when you need help to breathe. Every cardiac surgery patient needs ventilator therapy for a short period after the surgery. As soon as the surgery is done in an operating room you will be moved into the surgical intensive care unit (SICU) from the operating room. Then the ventilator will be connected to you while you are still under the state of anesthesia. The ventilator will help you breathe until the anesthesia wears off and you are able to breathe strongly enough on your own. The ventilator pushes air and oxygen into your lungs. It is connected to an endotracheal tube. This is a large, about 30cm long tube that is put through your mouth or nose into your lungs. The ventilator has many controls. They are set to give you the amount of oxygen and the number of breaths you need. Blood tests are done to see that you are getting the right number of breaths and the correct amount of oxygen. The tests also tell doctors, nurses, and respiratory therapists if the carbon dioxide level in your blood is correct.

While You Are Receiving Ventilator Therapy

1. You may experience some restriction of movement because you are connected to some equipment and the machine. Both of your hands will be lightly restrained until the anesthesia wears off. This is to prevent you from unconsciously removing your endotracheal tube and the lines of a ventilator. So this restraint may cause you to feel uncomfortable because of a lack of full motion in your arms.

2. During ventilator therapy, your nurses will frequently remove secretions from your lungs with a long, narrow, and clear tube. This is called suction. This suction enhances the effect of ventilator therapy and ventilation of your lungs. Your breathing will be more comfortable after the suction. However, this may cause you to experience coughing and gagging very temporarily and you may feel as if you are not getting enough air.
3. The endotracheal tube staying in your throat and frequent suction can make soreness in your mouth, nose or throat, but it usually goes away within a few days.

4. You can not speak while you are having the ventilator therapy, so it makes communication difficulty.

5. You will hear the sound like a big steam engine or the sound like someone sawing wood when the machine pushes air and oxygen into your lungs and the air and carbon dioxide comes out from your lungs.

6. You may have the feeling of difficulty in breathing because of the presence of the endotracheal tube staying in your lungs.

Alarms

The ventilator has an alarm system. You may hear the alarm like the sound of an alarm bell from the machine. It alerts your nurses or respiratory therapist to change the delivery of oxygen, breathing rate, pressure, or temperature. Sometimes the alarm will sound when you are trying to talk or need to be suctioned because those may prevent the smooth flow of air and oxygen. So you should not try to talk during the ventilator therapy. Do not be afraid of the alarm. It is for your safety. Your nurse or doctors will respond to the alarm and correct any problem.

How You Communicate with Others

While the endotracheal tube connected to your ventilator is put in your lungs and is in place, you will not be able to talk. This is because the tube passes through your vocal cords and prevents the vibration of your vocal cords. So you may find it hard to ask your nurses about your current condition and to express your needs and your feelings. However, your nurses or doctors will try to communicate with you by using other methods that are not verbal communication. You will be given paper and a pencil to write what you would like to say. Sometimes they will try to ask questions that you can
When Are the Ventilator and the Endotracheal Tube Removed?

The ventilator will be removed when you can breathe strongly enough and you recover from the anesthesia. While you are getting off the ventilator, blood tests will be done to be sure that you are getting enough air and that your body has the proper level of oxygen and carbon dioxide. When the results of the blood tests are good your endotracheal tube will be removed from your mouth or nose and then you will be able to talk freely. In most cases, the ventilator and the endotracheal tube are removed usually within 12 hours after surgery.
APPENDIX B

INFORMATION GIVEN TO POTENTIAL SUBJECTS
Hello, my name is HwaSoon Kim and I am a registered nurse and a doctoral student in nursing at The Ohio State University, College of Nursing in the United States. I am conducting a research project as a part of my requirements for a doctoral degree under the direction of Dr. Bonnie Garvin, R.N., who is a department chairperson and faculty member in the College of Nursing at The Ohio State University.

I would like to talk with you for a few minutes about my research study. I am interested in examining the effect of giving information on your emotions and your coping with some events after surgery. The information you and others provide will help me and other nurses understand the way giving information affects you and other patients.

I am requesting your participation in this study. It will take you about 40 minutes to participate. Before your cardiac surgery, you will be asked to complete three questionnaires and a background information form. After surgery, you will be asked again to complete three questionnaires on your feelings and I will collect some information from your medical record regarding medications you took, your diagnosis, surgery type, occupation, and time that you had on endotracheal tube while staying in the ICU.

Your participation is voluntary. If you agree to participate and then change your mind, at any time, you can withdraw your participation from the study. Your decision to
participate or not participate will have no effect on your care. I will be here to assist you
to complete the forms if necessary. Your identity will remain confidential. The
information obtained in this study will be reported as group information. Would you be
willing to help me by taking part in this study? Do you have any questions about your
participation in this study?

I would like you to read and sign the consent form in which you give your
permission to participate in this study and allow me to collect information from your
medical records. I want you to know that you are free to stop your participation in this
study at any time if you so desire.

Principal Investigators

Bonnie J. Garvin
Chair & Associate Professor,
College of Nursing,
The Ohio State University
Phone No.: 614-292-4905 (USA)  

Hwasoon Kim
Doctoral Candidate
College of Nursing,
The Ohio State University
Phone No.: 02-597-4405 (Korea)
APPENDIX C

APPROVALS TO CONDUCT RESEARCH
BEHAVIORAL AND SOCIAL SCIENCES
HUMAN SUBJECTS REVIEW COMMITTEE
THE OHIO STATE UNIVERSITY

Research Involving Human Subjects

ACTION OF THE REVIEW COMMITTEE

With regard to the employment of human subjects in the proposed research protocol:

96B0166 THE EFFECT OF CONCRETE OBJECTIVE INFORMATION ON EMOTIONAL DISTRESS AND COMMUNICATION DIFFICULTY OF VENTILATOR DEPENDENT KOREAN PATIENTS AFTER CARDIAC SURGERY. Bonnie J. Garvin, Hwasoon Kim. Nursing

THE BEHAVIORAL AND SOCIAL SCIENCES REVIEW COMMITTEE HAS TAKEN THE FOLLOWING ACTION:

[ ] APPROVED [ ] DISAPPROVED
[ ] APPROVED WITH CONDITIONS* [ ] WAIVER OF WRITTEN CONSENT GRANTED

* Conditions stated by the Committee have been met by the Investigator and, therefore, the protocol is APPROVED.

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least three (3) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the University, signed consent forms are to be transferred to the Human Subjects Review Committee for the required retention period. This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the Review Committee, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: May 15, 1998

Signed (Chancellor):
APPENDIX D

APPROVAL TO CONDUCT RESEARCH FROM THE HOSPITAL
Your research protocol "The effect of Concrete Objective Information on Emotional Distress and Communication Difficulty of Ventilator Dependent Korean Patients after Cardiac Surgery" have reviewed. Since the protocol does not involve any invasive procedures on patients or subject them to any suspected harm, we can allow you to collect data for the study.

Sungnok Hong
Director of the Department of Thoracic Surgery
Chairman of the Institution of Medical Research
Sejong Hospital, Puchon

Signed: [Signature]

May 26, 1996
APPENDIX E

STATE-TRAIT ANXIETY INVENTORY
State-trait Anxiety Inventory for Adults  
(STAI for form Y-1)

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate **how you feel right now, that is, at this moment**. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

<table>
<thead>
<tr>
<th>Statement</th>
<th>not at all</th>
<th>somewhat</th>
<th>moderately</th>
<th>very much so</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel calm.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I feel secure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I am tense.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I feel strained.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I feel at ease.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I feel upset.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I am presently worrying</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>over possible misfortunes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I feel satisfied.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I feel frightened.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I feel comfortable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. I feel self-confident.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. I feel nervous.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I am jittery.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I feel indecisive.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I am relaxed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. I feel content.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. I am worried.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. I feel confused.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. I feel steady.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. I feel pleasant.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
State-trait Anxiety Inventory for Adults  
(STAI for form Y-2)

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

<table>
<thead>
<tr>
<th>Statement</th>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I feel pleasant.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. I feel nervous and restless.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23. I feel satisfied with myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24. I wish I could be as happy as others seem to be.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25. I feel like a failure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26. I feel rested.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27. I am “calm, cool, and collected”.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28. I feel that difficulties are piling up so that I cannot overcome them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29. I worry too much over something that really doesn’t matter.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30. I am happy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31. I have disturbing thoughts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32. I lack self-confidence.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>33. I feel secure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>34. I make decisions easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35. I feel inadequate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>36. I am content.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>37. Some unimportant thought runs through my mind and bothers me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>38. I take disappointments so keenly that I can’t put them out of my mind.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>39. I am a steady person.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>40. I get in a state of tension or turmoil as I think over my recent concerns and interests.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Below is a list of words that describe feelings people have. Please read each one carefully. Then circle the answer to the right which describe HOW YOU HAVE BEEN FEELING DURING THE VENTILATOR THERAPY.

<table>
<thead>
<tr>
<th></th>
<th>not at all</th>
<th>a little</th>
<th>moderately</th>
<th>quite a bit</th>
<th>extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scared</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Afraid</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Upset</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Distressed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Jittery</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Nervous</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Ashamed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Guilty</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Irritable</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Hostile</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
아래에 나열된 단어들은 사람들에게 가지는 감정(느낌)들을 시술하는 것들이다. 각 단어들은 잘 읽고 충돌자실에 있는 동안 그러한 감정을 느꼈는지지를 나타내고 있는 곳에 동그라미 해 주십시오.

<table>
<thead>
<tr>
<th>단어</th>
<th>전혀 없음</th>
<th>약간</th>
<th>보통으로</th>
<th>많이</th>
<th>아주 많이</th>
</tr>
</thead>
<tbody>
<tr>
<td>집단운</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>무서워하는</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>혼란스러운</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>피로운</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>조마조마하는</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>신경과민의</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>부끄러운</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>최책감이드는</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>참작하지 못하고</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>조그만 일에도</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>화를 내는</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>적개심을 품은</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX G

EASE OF COMMUNICATION SCALE
Ease of Communication Scale  
From Menzel (1995)

Below are questions related to your experience while receiving ventilator therapy. Please check your response for each question.

<table>
<thead>
<tr>
<th></th>
<th>not at all</th>
<th>a little</th>
<th>moderately</th>
<th>quite a bit</th>
<th>very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In general, how hard has it been for you to communicate without being able to speak?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Think of the nurses who have been caring for you during the last day or two. In general, how hard has it been for you to communicate with them without being able to speak?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. In general, how hard has it been for you to ask questions about care?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. In general, how hard has it been to ask questions about your condition?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. In general, how hard has it been to communicate your physical needs, such as being suctioned, being turned, pain medication, etc.?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
· 아래의 질문들은 귀하가 수술 후 중간기에서 경험한 것중 인공호흡기 사용으로
운전 할 수 없는 동안의 의사소통에 관계된 내용들입니다. 각 질문에 대하여 적절한
반응하여 동그라미 해 주십시오.

의사소통의 약간 보통으로 많이 아주
할증의 필요가 있다고 할증 didnt 필요가 많았다

1. 대체로, 귀하는 말을 할 수 없으면서
의사소통 하는 것이 얼마나 힘들었습니까?

2. 인공호흡기 오병증 귀하를 간호했던
간호사들은 생각해 보십시오. 대체로,
말을 할 수 없으면서 그들과 의사소통
하면 얼마나 힘들었습니까?

3. 대체로, 귀하가 받고 있는 간호(치료)에
관해 흥미로운 것들을 들어보기가 얼마나
힘들었습니까?

4. 대체로, 귀하의 치료상태가 대외 동물한
것들을 질문하기가 얼마나 힘들었습니까?

5. 대체로, 귀하의 신체적 요구사항:
진통제, 가해력, 음 음식이기동, 술 천골
허가가 얼마나 힘들었습니까?
APPENDIX H

KRANTZ HEALTH OPINION SURVEY
## Krantz Health Opinion Survey - Information

Please indicate your agreement with the statement listed below by circling the appropriate number at the right of the statement.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. I usually don't ask the doctor or nurse many questions about what they're doing during a medical exam.

2. I'd rather have doctors and nurses make the decisions about what's best than for them to give me a whole lot of choices.

3. Instead of waiting for them to tell me, I usually ask the doctor or nurse immediately after an exam about my health.

4. I usually ask the doctor or nurse lots of questions about the procedures during a medical exam.

5. It is better to trust the doctor or nurse in charge of a medical procedure than to question what they are doing.

6. I usually wait for the doctor or nurse to tell me the results of a medical exam, rather than asking them immediately.

7. I'd rather be given many choices about what's best for my health than to have the doctor make decisions for me.
가해 문장을 읽고 귀하의 견해와 일치하는 번호에 표를 하십시오.

| 1. 나는 보통 의사나 간호사가 나를 점검하는 동안 그들이 하고 있는 일에 대해 질문을 많이 하지 않는다. |
| 2. 나는 나에게 많은 선택권을 주는 것보다는 1 2 3 4 5 6 오히려 의사나 간호사가 나에게 최선인 것을 결정해 주면 좋겠다. |
| 3. 나는 보통 나의 건강에 대한 진찰이 끝나면 의사 또는 간호사가 결과를 알해줄 때까지 기다리는 대신 즉시 그 결과를 들어본다. |
| 4. 나는 보통 진찰을 받는 동안 의사나 간호사에게 그 절차들에 대해 많은 질문을 한다. |
| 5. 의사나 간호사가 어떤 의료시술시에 그들이 하고 있는 일에 대해 물어보기보다는 그들이 하는데로 믿고 말기는 것이 좋다. |
| 6. 나는 보통 의사나 간호사의 진찰이 끝나면 1 2 3 4 5 6 결과에 대해 즉시 물어보지 않고 오히려 감히 물어볼 때까지 기다린다. |
| 7. 나는 나의 건강을 위해 가장 좋은 것을 의사가 결정하도록 하는 것보다는 오히려 나에게 많은 선택권이 주어지면 좋겠다. |
APPENDIX I

DATA COLLECTION SHEET
Data Collection Sheet

1. Diagnosis: ________________________________

2. Surgery Type: ________________

3. Have received concrete objective information:  Yes: ______
                                                No: ______

4. SICU admission time: ________________

5. Extubated time: ________________

6. Medication received:

   Sedatives:  Yes: _____  No: _____
               Name: __________  Amount: ________________
               Name: __________  Amount: ________________

   Analgesics:  Yes: _____  No: _____
               Name: __________  Amount: ________________
               Name: __________  Amount: ________________
               Name: __________  Amount: ________________

   Beta-Blockers:  Yes: _____  No: _____
               Name: __________  Amount: ________________
               Name: __________  Amount: ________________
               Name: __________  Amount: ________________

7. Complications:  Yes: _____  No: _____

8. Diagnosis: ________________________________
APPENDIX J

BACKGROUND INFORMATION
Background Information Form

Please write in your answer or check your response for each question.

1. Current Age: ____________

2. Sex: Male: ____________ Female: ____________

3. Religious Preference:
   Catholic ____________ Protestant ____________
   Buddhism ____________ Others (please specify) ____________

4. Marital Status:
   Never Married ________ Married ________
   Widowed ________ Divorced ________
   Separated ________

5. Education:
   Elementary School ____________
   Middle School ____________
   High School ____________
   Jr. College ____________
   University & Over ____________
   Others ____________

6. Years of Disease ____________ years

7. Previous Surgery Yes ________ No ________
   Reason ____________________________

8. Previous Hospitalization Yes ________
   Reason ____________________________
   No ________

9. Occupation: Yes ________ No ________
   Retired ________
   Others (Please specify) ____________________________

10. Previous Experience with close friends or family members on ventilator
    Yes ________ No ________
APPENDIX K

SUBJECT CONSENT FORM
CONSENT FOR PARTICIPATION IN
SOCIAL AND BEHAVIORAL RESEARCH

I consent to participating in (or my child’s participation in) research entitled

The Effect of Concrete Objective Information on Emotional Distress and Communication

Difficulty of Ventilator Dependent Korean Patients after Cardiac Surgery.

Bonnie J. Garvin, Ph.D., R.N. (Principal Investigator) or his/her authorized representative has explained the purpose of the study, the procedures to be followed, and the expected duration of my (my child’s) participation. Possible benefits of the study have been described as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Further, I understand that I am (my child is) free to withdraw consent at any time and to discontinue participation in the study without prejudice to me (my child).

Finally, I acknowledge that I have read and fully understand the consent form and I sign it freely and voluntarily. A copy has been given to me.

Date: _____________/___________

Signed: _____________

(Principal Investigator)

Signed: _____________

(Person Authorized to Consent for Participant - If required)

Signed: _____________

(Witness)

MS-11* (Rev. 3/87) -- To be used only in connection with social and behavioral research.
APPENDIX L

PERMISSION TO USE THE STATE-TRAIT ANXIETY INVENTORY, POSITIVE NEGATIVE AFFECT SCALES, AND EASE OF COMMUNICATION SCALE
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MIND GARDEN, INC.

By Anne Tucker - Director

Date May 31, 1996

I AGREE TO THE ABOVE CONDITIONS

By Hwasoon Kim

Date May 13, 1996
Dear Hwa-Soon,

I am very sorry that it has taken me so long to respond to your letter, which I received in late August just as our fall semester began. Unfortunately, the beginning of the semester has been busier than most, and it is only now that I am getting to your request.

Enclosed is a revised copy of the Ease of Communication Scale. You should be advised that the instrument has, thus far, only been used in one study, and that it is in need of further testing. The instrument was used with 65 ventilated patients initially, with 13 of those subjects at a second time point, and with 3 subjects a third time. Thirty-four of the original 65 subjects responded to the instrument approximately 7 days after extubation, recalling the amount of difficulty that they had had with communication when they were intubated and ventilated.

I am happy to share the instrument with you and give my permission to use it in your research. My only condition is that you share the results of your study with me in abstract form and all reliability and validity information related to the use of the instrument in your study.

The following psychometric information is from my dissertation: "The instrument has begun content validity in that it was developed by three nurse experts with experience in ventilated patients and communication. The instrument was initially pilot tested with 15 subjects who expressed no difficulty responding to the items. The coefficient alpha for the instrument was .88. The results of my study supported the construct validity of the instrument. Difficulty with communication was found to be significantly related to patients' feelings of anger (r = .30) and worried fear (r = .47) at being unable to speak.

If you find this information helpful to you, please let me know if you have any other questions about the instrument. I wish you good luck in conducting your research, and I look forward to learning the results of your interesting study.

Sincerely,

Lori X. Menzel, RN, PHD, CNRN
Assistant Professor

October 29, 1995

Hwa-Soon Kim

Dae-Shik Park

NamYang Apt., Na-Dong 105-Ho

HoPyong-Dong, 196-1

Namyang-Ju City, Kyonggi-Du, 472-120

Republic of Korea
Ease of Communication Scale (revised September 1995)

1. In general, how hard has it been for you to communicate without being able to speak?

2. Think of the visitors (your family and friends) whom you've seen during the last day or two. In general, how hard has it been to communicate with them without being able to speak?

3. Think of nurses who have been caring for you during the last day or two. In general, how hard has it been for you to communicate with them without being able to speak?

4. In general, how hard has it been to communicate your physical needs, such as being suctioned, being turned, pain medication, etc.?

5. In general, how hard has it been for you to ask questions about care?

6. In general, how hard has it been for you to ask questions about your condition?

7. In general, how hard has it been for you to communicate your thoughts and feelings?

8. In general, how hard has it been for you to make yourself understood by other people without being able to speak.
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