COMPARISON OF TWO COMMUNICATION METHODS TOWARDS RESPONDED PROBLEMS, NEEDS AND SATISFACTION IN COMMUNICATION OF THE PATIENTS WITH OROENDOTRACHEAL TUBE

TREEYADA TOPRASERT

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ABATRACT

The objective of this study was to compare two communication methods, text illustrated communication boards and regular communication methods, on responses to the problems and needs as well as satisfaction on critical medicine patients who had oroendotracheal tubes for longer than 48 hours. The study was done at the intensive care unit, Bamrasnaradura Institute and the medicine intensive care unit, Phra Nang Klao Hospital with one group of 30 patients. Instruments used in this study consisted of a personal information questionnaire, an observation on responses to problems and needs, an interview on communication satisfaction, and a communication tool, which was text illustrated communication boards. The data were collected between October 2005 and May 2006 observing the number of times each communication method was used, and the time used for each method until their problems and needs were responded to by nurses. Their satisfaction with each method was evaluated using interview questions. The data were analyzed using frequencies, percentages, means, standard deviations, and T-tests.

The results showed that critical medicine patients with oroendotracheal tubes communicated with text illustrated communication boards more frequently than with the regular method ($p<.05$). The text illustrated communication boards were used to communicate 5 activities including “having a sore throat”, “hungry”, “thirsty”, “please change position”, and “tired” significantly more frequently than the regular communication methods ($p<.05$). It was also found that the patients used the text illustrated communication boards to communicate 3 other problems and needs (“want to remove the tube”, “need suction”, and “elevate the head part of the bed”) more frequently than the regular method with no statistical significance ($p>.05$). The patients used significantly less time to communicate their problems and needs with text illustrated communication boards ($p<.05$) as well as the satisfaction scores of using the communication boards were significantly higher than the regular communication methods ($p<.05$).

It is recommended that nurses who care for patients with oroendotracheal tubes should realize the importance of communication methods the patients used in order to effectively communicate and express their problems and needs. Text illustrated communication boards should be available in each unit and should be promoted for frequent use. The communication boards should be modified for better and more effective use and should be used by patients in other groups.

KEY WORDS: COMMUNICATION IN I.C.U. / INTUBATION COMMUNICATION METHODS / AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

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การเปรียบเทียบการสื่อสาร 2 วิธี ต่อการตอบสนองปัญหา ความต้องการและความพึงพอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก (COMPARISON OF TWO COMMUNICATION METHODS TOWARDS RESPONSED PROBLEMS, NEEDS AND SATIFACTION IN COMMUNICATION OF THE PATIENTS WITH OROENDOTRACHEAL TUBE)

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บทคัดย่อ

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อเปรียบเทียบการสื่อสาร 2 วิธี ต่อการตอบสนองปัญหาและความต้องการและความพึงพอใจในวิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความและวิธีการสื่อสารตามปกติของผู้ป่วยวิกฤตอายุรกรรมภายหลังใส่ท่อช่วยหายใจทางปากมากกว่า 48 ชั่วโมง ในหอผู้ป่วยหนักสถาบันบำราศนราดูรและหอผู้ป่วยหนักอายุรกรรม โรงพยาบาลพระนั่งเกล้า เป็นการศึกษาเชิงทดลองแบบหนึ่งกลุ่มจำนวน 30 คน เก็บข้อมูลโดยใช้เครื่องมือ 4 ชุด ได้แก่ แบบสอบถามข้อมูลส่วนบุคคล แบบสังเกตการตอบสนองปัญหาและความต้องการ แบบสัมภาษณ์ความพึงพอใจ และอุปกรณ์การสื่อสารคือ แผ่นภาพประกอบข้อความ เก็บรวบรวมข้อมูลระหว่างเดือนตุลาคม2548 – พฤษภาคม 2549 สังเกตการใช้วิธีการสื่อสารและระยะเวลาที่ใช้ในการสื่อสารของผู้ป่วยตามแบบสังเกตการตอบสนองปัญหาและความต้องการ และประเมินความพึงพอใจต่อวิธีการสื่อสารโดยการสัมภาษณ์ความพึงพอใจตามแบบสัมภาษณ์ความพึงพอใจ วิเคราะห์ข้อมูลโดยการแจกแจงความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐานและสถิติทดสอบที

ผลการศึกษาพบว่า ผู้ป่วยวิกฤตอายุรกรรมที่ใส่ท่อช่วยหายใจทางปากมีจำนวนครั้งของการใช้วิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความมากกว่าวิธีการสื่อสารตามปกติอย่างมีนัยสำคัญทางสถิติ ($p < .05$) และจำนวนครั้งของการใช้วิธีการสื่อสารจำแนกตามปัญหาและความต้องการพบว่า ค่าเฉลี่ยจำนวนครั้งของการใช้วิธีการสื่อสารใน 5 กิจกรรม คือ เจ็บคอ หิวข้าว หิวน้ำ พลิกตัว และเหนื่อย ของการใช้วิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความมากกว่าวิธีการสื่อสารตามปกติอย่างมีนัยสำคัญทางสถิติ ($p < .05$) ส่วนค่าเฉลี่ยจำนวนครั้งของการใช้วิธีการสื่อสารใน 3 กิจกรรม คือ เอาท่อช่วยหายใจออก ช่วยดูดเสมหะ และไขเตียงสูง พบว่า การใช้วิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความและวิธีการสื่อสารตามปกติไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p > .05$) ระยะเวลาที่ผู้ป่วยใส่ท่อช่วยหายใจทางปากสื่อสารจนได้รับการตอบสนองปัญหาและความต้องการโดยวิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความทุกกิจกรรมน้อยกว่าวิธีการสื่อสารตามปกติอย่างมีนัยสำคัญทางสถิติ ($p < .05$) ผู้ป่วยวิกฤตอายุรกรรมที่ใส่ท่อช่วยหายใจทางปากมีความพึงพอใจในวิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความมากกว่าวิธีการสื่อสารตามปกติอย่างมีนัยสำคัญทางสถิติ ($p < .05$)

จากการวิจัยครั้งนี้มีข้อเสนอแนะว่า พยาบาลที่ดูแลผู้ป่วยใส่ท่อช่วยหายใจทางปากควรเห็นความสำคัญของวิธีการสื่อสารของผู้ป่วยที่จะช่วยให้ผู้ป่วยสื่อสารกับพยาบาลได้อย่างมีประสิทธิภาพ มีการจัดเตรียมแผ่นภาพประกอบข้อความและส่งเสริมให้ผู้ป่วยในหอผู้ป่วยได้ใช้ ตลอดจนนำวิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความไปประยุกต์ใช้กับผู้ป่วยกลุ่มอื่น ๆ และมีการพัฒนาวิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความให้มีประสิทธิภาพยิ่งขึ้นต่อไป

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CHAPTER I
INTRODUCTION

Background and Significance

Communication is one of human basic needs. It is an essential part of life that no one can live without it. It is a process of transferring information, ideas, attitudes, or feelings from an individual to another individual or to a group of individuals. The process includes the exchange of experiences between individuals; under the shared common understandings of media or symbols that contain the information in the messages (Windahl, Sanitizer, & Olson, 1993; Tubbs & Moss, 1994). Communication can occur with at least 2 persons; each being both message senders and receivers simultaneously through the interchanging of these 2 roles. Sending or receiving messages can both be in verbal and nonverbal forms (Bevis, 1996). The verbal communication is considered the basic form of communication (Peel, 1995; Sundeen, Rankin, Stuart, & Cohen, 1998).

In verbal communications, an individual needs to use several organs such as larynx, vocal cords, tongue, mouth, lips, teeth, and jaws, in order to produce sounds (Ruben, 1983). One can express one's needs to others with the verbal communications. They require fewer interpretations, given that both parties use the same language. Nonverbal communications, on the other hand, include communications through gesturing, nodding, or shaking one's head, touching, facial expressing, moving lips, writing on paper, using pictures, having eye contacts, and etc. They are used as a complimentary of the verbal communications, or are used when verbal communication is impossible (Peel, 1995; Beis, 1996; Sundee, et al., 1998). The nonverbal communications may occur when persons are in quiet places where no voice is allowed, when both parties are in distant and sound cannot be sent from one to another, or when a person has physical conditions that ability to speak is limited, for example in patients on respirator with endotracheal tubes (Verity, 1996; Happ, Garret, & Roesch, 2003). Normally, the vocal cord vibrates and produces sound when the air flows through it. When the endotracheal tube is inserted, air will flow through the tube

not through the trachea and the vocal cord (Ruben, 1984; Guyton & Hall, 2000) obstructing the sound making process (Sitzer, 1993; Hafsteindottir, 1996). Patients with good conscious, who cannot verbally communicate, are affected both physically and emotionally by inability of speaking.

Hafsteindottir (1996) examined physical effects in conscious patients with respirators and found that some of them reported tremors due to muscle weakness, blurred visions, and fatigue, causing difficulties in writing or gesturing when they want to communicate. A study by Pataraporn Chanpradit (2000) showed that patients with respirators experienced pain and discomforts. Several complications that can occur include injuries and irritations of the oral mucosa, throat, trachea, pharynx, and larynx. Psychological effects included anxiety, stress, fear, sleeplessness, decreased self-esteem, and in some patients the feeling of social separations (Salyer & Stuart, 1985; Menzel, 1998). Similarly, two studies done by Bergbom-Engberg & Haljamae (1989) and Happ, Roesch & Garrett (2004) showed that patients with endotracheal tubes developed both physical and psychological effects including pain, discomforts, sense of insecurity and loss of self-worth, frustrations, anger, depressions, and restlessness. It was reported that the patients also tried to remove the tubes. They did not cooperate well with nurses, making it difficult for nurses to provide effective nursing care that respond to patient needs. These actions would make the patients' symptoms worse. Based on the researcher's experiences in caring for patients with endotracheal tubes, the endotracheal tubes inserted in patients who underwent surgery under anesthesia were normally placed for a short period of time. The tubes are usually removed once the patients regain consciousness and are able to breathe normally. Therefore, anxiety and stress from inability to communicate among postoperative patients during the first 48 hours are less, comparing to patients with critical conditions in medicine where the endotracheal tubes are inserted for a longer period of time. Due to the pathology and the severity of the disease, the endotracheal tubes are usually inserted for a longer period of time. Sometimes physicians need to change from oroendotrecheal to tracheostomy tubes to reduce the risk of infection from placing the endotracheal tubes for too long. Moreover, most patients are not informed beforehand about the endotracheal intubation due to the emergency nature of the disease, therefore anxiety and stress from communication barriers among these

patients are higher comparing with those who are on tubes for a shorter period.

Communication is important in order to provide effective nursing care that respond to patients' needs. Effective communication improves the quality of care (Caris-Verhallen, de Gruijter, Kerkstra & Bensing, 1999). Communication is viewed as the fundamental of nursing and the arts of patient care, especially when communications take place between nurses and patients during critical period (Verity, 1996; Carty, 1998; Happ, Tuite, Dobbin, DiVirgilio-Thomas & Kitutu, 2004). Patients in critical conditions experience pain, fear, anxiety, and stress. These patients are usually on endotracheal tubes while they are fully conscious when they can feel the pain from tube insertions. Intubation of endotracheal tubes prevents patients from communicating verbally, causing difficulties in expressing their problems and needs. Nurses needed to find another means of communication for patients in this situation beyond verbal communication.

One of the barriers the researcher found when caring for patients with endotracheal tubes is limitation in communications. The patients usually use simple methods to communicate with nurses and their care providers. They might knock or shake the side rails, or make various sounds to get others' attention and call for help. Popular means of communication found among patients, according to Menzel (1998) and Leathart (1994, cited in Wojnicki-Johansson, 2001) included gesturing, using facial expressions, nodding or shaking their heads in responding to questions that need 'yes' or 'no' for answers, using eye contacts, using paper and pen, and other kinds of expressions. Nonetheless, the communication methods mentioned previously are not very effective in expressing their needs and concerns because they require a lot of patients' efforts and usually take a long time for the patient care team to understand what patients need. When patients experienced pain, fatigue, or when symptoms became more severe, it is more difficult for them to communicate (Hafsteindottirr, 1996). Nurses need skills and experiences to effectively communicate and respond to patient needs. A study by Tharnthip Wisettharn (1998) on patients with respirators showed that patients needed helps in finding the way to express their feelings and to communicate problems and needs. Therefore nurses needed to help the patients search for different ways of communication (Happ et al., 2003). This would help patients in communicating their problems and needs as soon as possible.

Communication with assistive equipments is another solution that might help patients with endotracheal tubes in communicating with nurses. Using pictures especially cartoons as communication equipment would draw interest from patients and would help them remember the information better because pictures can provide more details as well as they are easier for patients to memorize (Rankin & Stallings, 1900; Redman, 1993). In Happ's (2001) study, it was found that using pictures that expressed patients' basic needs and concerns, such as pain, fear, feeling hot or cold, feeling thirsty, or needs for urinating or defecating, helped improve effectiveness of communications between patients and nurses. According to Plambeck (2006), methods that patients choose to communicate help them express their concerns and needs. Communication boards such as text illustrated with pictures that communicate patients' problems and needs is a communication alternative.

Several studies compared communication methods in patients with endotracheal tubes. A study by Stovsky, Rudy, and Dragonette (1988) compared two communication methods in patients with post-operative heart surgeries within the first 48 hours. The communication method using illustrated communication board was compared with regular communication method. The regular communication method included using hand signals, using text boards, using paper and pen, reading from lips, using gestures such as shaking head. The study showed that patients' satisfaction with illustrated communication board were higher than those used the regular communication method. Similarly, Thitinat Sasichay (1990) examined satisfactions on two communication methods in post-operative patients between their first 12 and 48 hours after operations. The patients, after regaining consciousness from operations until having their endotracheal tubes removed, were asked about their satisfactions of the two communication methods: regular communication included using hand signals, symbols, reading from lips, using open-ended questions, using paper and pen and using gestures i.e. nodding or shaking heads and using the press-down button electronic device. The study showed that patients were more satisfied with using a combination of regular communications and electronic devices than using only regular communication method.

In trying to draft a caring guideline for patients with endotracheal tubes, Suthada Kanha (2003) applied two communication methods: a regular and an integrative

communications which included using gestures, movements of head, hand signals, paper and pens, text illustrated showing needs often found in critical medicine patients, and using cards containing 44 Thai letters, vowels, and consonants. This study was piloted with 10 critical medicine patients. Results showed that the practice guides created by the researcher can be applied in nursing practices and helped promote communications in patients with endotracheal tubes. This measure helped improve patient satisfactions and reduced communication difficulties.

In this study, the researcher is interested in applying the communication guidelines created by Suthada Kanha (2003), especially using text illustrated communication boards, in communicating needs among critical medicine patients through the comparison of the two communications methods in responding to needs and concerns among critical medicine patients who were intubated for longer than 48 hours. The 2 communication methods used in this study were regular communication and text illustrated communication board. Findings from this study can be used to develop communication guidelines in patients with endotracheal tubes and will ultimately provide us better understandings in caring for effectively communicating and caring for patients with endotracheal tubes.

Conceptual Framework of the Study

Endotracheal tubes can disrupt voice generation process because any sound can be produced only when the air flows through the vocal cord. The sound is made when the vocal cord vibrates. Insertion of endotracheal tube presses both trachea and larynx. In patients with endotracheal tubes, the air does not flow through the trachea. When the air does not flow through the vocal cord, the patients' sound cannot be made. Inability to perform verbal communication is one of the problems, on one hand, among patients when they experience difficulties in expressing their problems and needs for care, causing low compliance. Nurses, on the other hand, cannot effectively respond to patients' needs. Upon reviewing clinical problems, literatures, and related research studies, it was found that patients with endotracheal tubes in wards still use regular communication methods such as gesturing, facial expression, nodding and shaking heads, using lips, and writing in a piece of paper. Although frequently used, using regular communication methods might not be an effective way to communicate

patients' problems and needs since these methods are time consuming, causing frustrations and stress on both parties-patients and nurses.

Using communication devices is another solution for patients to communicate their problems and needs. A study by Suthada Kanha (2003) reviewed approximately 20 research studies and suggested a communication guides for patients with endotracheal tubes. The study was piloted on 10 critical medicine patients. The communication guide helped improve patients' satisfaction and reduced communication difficulties. The text illustrated communication boards can be described as using pictures with texts. The information provided in the boards were about problems, needs, and issues critical medicine patients needed to communicate while the endotracheal tubes were placed with the patients. Patients communicating with this device can express their problems and needs more effectively and effortlessly, resulting in improvement of patients' satisfactions and nurses' effectiveness of nursing care. The conceptual framework of this study can be shown as follows:

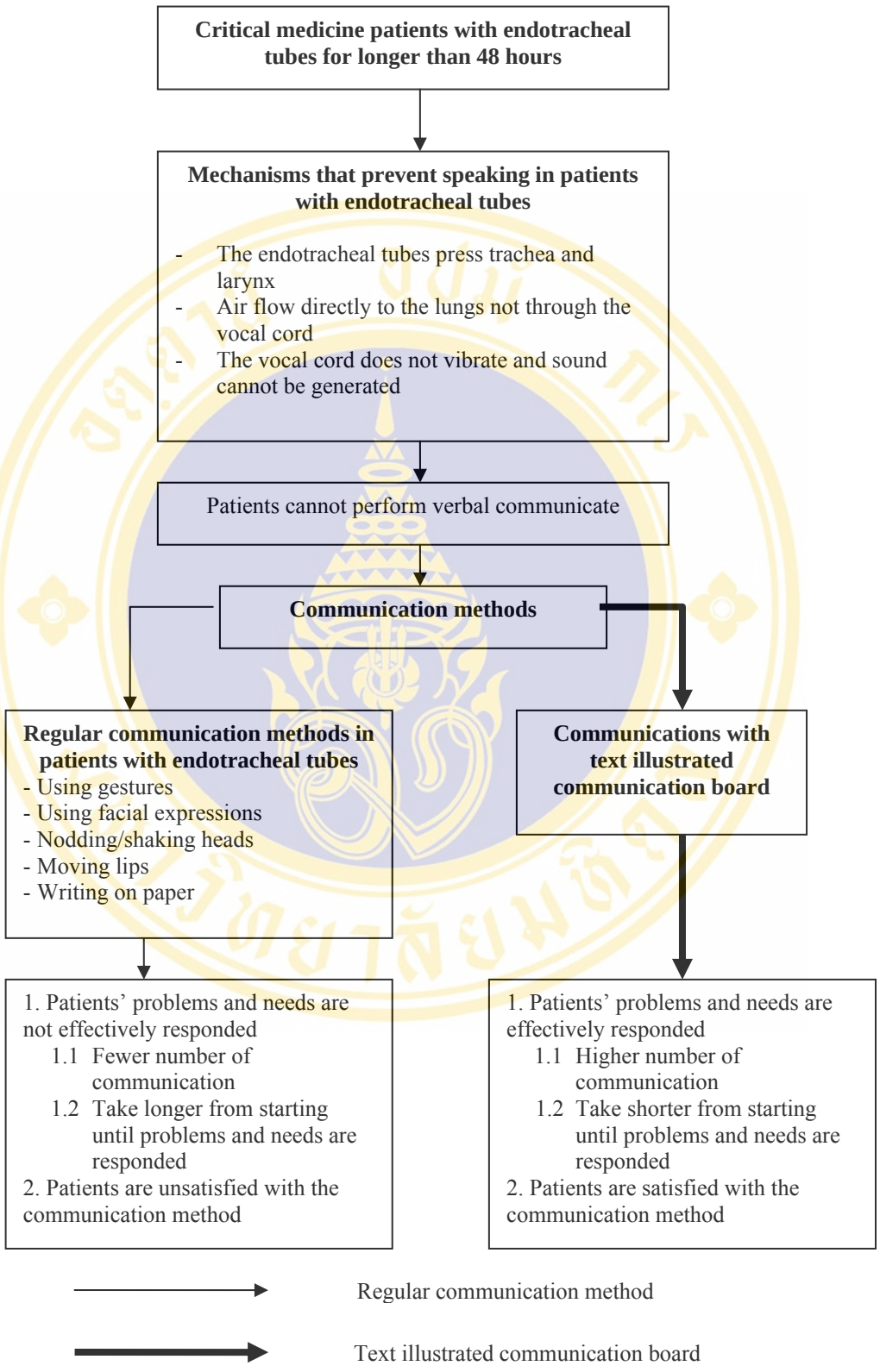

Figure 1 Conceptual framework of the study

Research Questions

Is using text illustrated communication boards more effective in responding to problems and needs as well as creating satisfactions among patients with oroendotracheal tubes than regular communication method?

Research Objectives

The objectives of this study were to:

1. Compare the number of times that patients with oroendotracheal tubes used for communication between text illustrated communication boards and regular communications

2. Compare the length of time that patients with oroendotracheal tubes used for communication between text illustrated communication boards and regular communications

3. Compare the satisfaction levels in patients with oroendotracheal tubes between using text illustrated communication boards and regular communications

Hypotheses

1. Patients with oroendotracheal tubes communicated with text illustrated communication boards more frequently than the regular communications.

2. Patients with oroendotracheal tubes communicated with the text illustrated communication boards used the length of time less than the regular communications.

3. Patients with oroendotracheal tubes communicated with the text illustrated communication boards more satisfied than the regular communications.

Scope of the Study

This study compares the effectiveness of two communication methods in responding to patients' problems and needs and in improving patients' satisfactions among patients with oroendotracheal tubes. Both communication methods included using text illustrated communication board versus using regular communication method. The study was done with critical medicine patients with oroendotracheal tubes who were intubated for longer than 48 hours at the intensive care unit, the

Bamrasnaradura Institute and at the medicine intensive care unit, Phra Nang Klao Hospital between October 2005 and May 2006.

Expected Benefits from the Study

1. Results from this study can be used as guidelines for effective communication methods in patients with endotracheal tubes and can be further developed as a standard care guide for nursing care.

2. Results from this study can be used as a guide for future research studies on patients with endotracheal tubes.

Definitions of Terms

1. Communication Methods are the process in which information, thoughts, feelings, as well as problems and needs are exchanged between patients and nurses for better understanding and greater satisfaction between two parties (Bevis, 1996). The nurses can correctly respond to their problems and needs, making patients more satisfied in the communication methods used (Wongduan Suwanakeeree & Chuleekorn Dandyuthasilp, 2001). This study used 2 communication methods:

1.1 Regular communication method is the method frequently used in patients with endotracheal tubes. These methods include using gestures, facial expressions, nodding or shaking heads, moving lips, and writing on a piece of paper (Manzel, 1998; Happ, 2001)

1.2 Text illustrated communication board method is the tool consisted of the pictures with text indicating important problems and needs in critical medicine patients with endotracheal tubes. The researcher developed equipments from a study done by Suthada Kanha (2003) where illustrated texts were used to communicate problems and needs in critical patients in medicine. The text illustrated communication boards used in this study were consisted of 10 charts of cartoons with texts grouped in different categories, totaling 32 pictures:

Chart 1 indicates changing of positions i.e. “please change position”, “elevate the head part of the bed”, “lower the head part of the bed”, and “want to sit” for the total of 4 pictures

Chart 2 indicates daily activities i.e. “thirsty”, “hungry”, “want to urinate”, and “want to defecate” for the total of 4 pictures

Chart 3 indicates changing of body temperature i.e. “cold”, “put the blanket on”, “hot”, and “remove the blanket” for the total of 4 pictures

Chart 4 indicates changing of body temperature (continued) i.e. “having a fever” and “want a tepid sponge bath” for the total of 2 pictures

Chart 5 indicates symptoms i.e. “dizzy”, “having nausea and want to vomit”, “tired”, and “having abdominal distension” for the total of 4 pictures

Chart 6 indicates symptoms (continued) i.e. “feeling pain”, “feeling sore”, “feeling itchy”, and “hurting” for the total of 4 pictures

Chart 7 indicates problems from the endotracheal tube i.e. “cannot breath”, “need suction”, “having sore throat”, and “want to remove the tube” for the total of 4 pictures

Chart 8 indicates time and environments i.e. “what time is it?” and “too noisy” for the total of 2 pictures

Chart 9 indicates psychological concerns i.e. “fear”, “worry or tense”, “cannot sleep” for the total of 3 pictures

Chart 10 indicates psychological concerns (continued) i.e. “want to see relatives”, “want to talk to a doctor”, and “want to go home” for the total of 3 pictures

2. Response to problems and needs are the effectivesness of each communication that show the difficulty or the distress or the desire of the patient with endotracheal tube. Patients in this study communicated through 2 communication methods: using text illustrated communication board and using regular communication method. This effectiveness is represented by 2 indicators from both communication methods:

2.1 Number of time patients with endotracheal tubes used for each communication methods in communicating problems and needs

2.2 Length of time patients with endotracheal tubes used for each communication methods from starting the communications until the problems and needs are responded

The effectiveness of each communication method was evaluated by using the observations form covering the problems and needs in patients with endotracheal tubes,

communication methods used, responses to problems and needs, and time used in communication from start until problems and needs were responded.

3. Satisfaction to communication method is a positive feeling towards communication methods used in patients with endotracheal tubes by allowing them to express their problems and needs to nurses (Avis, Bond & Arther, 1995; Best, 1999).

CHAPTER II
LITERATURE REVIEW

This study compares the effects of two methods of communication, using communication board versus regular communication methods, on responses to problems and needs and communication satisfactions among patients with oroendotracheal tubes. The concepts and theories reviewed from literatures and related research studies are outlined as follows:

1. Inability to communicate verbally in patients with endotracheal tubes
   - 1.1 Characteristics of patients with endotracheal tubes
   - 1.2 Impacts of endotracheal tubes on patients
   - 1.3 Mechanism of inability to communicate
2. Communications in patients with endotracheal tubes
   - 2.1 Communication Theories
     - 2.1.1 Definitions
     - 2.1.2 Components of communication
     - 2.1.3 Types of communication
     - 2.1.4 Barriers in communication
   - 2.2 Communication methods between nurses and patients with endotracheal tubes
3. Responses to different communication methods
   - 3.1 Responses to patients' problems and needs
   - 3.2 Satisfactions to communication methods
4. Conclusion

1. Inability to speak in patients with endotracheal tubes

Intubations of endotracheal tubes and ventilators are frequently used in caring for critical patients (Coppolo & May, 1990; Barnasaon, Graham, Wild, Jensen, Rasmussen, Schulz, Woods & Carder, 1998). They help controlling the flow of air, especially oxygen, into the respiratory system, promoting sufficient gas exchange (McCann Flynn & Bruce, 1993; St. John, 1999). This is the best way in keeping patient safe through the control of air flow (Barnason et al., 1998). However, the endotracheal tube disrupts the speaking mechanism. Patients cannot verbally communicate, affecting patients and families both physically and mentally.

Characteristics of patients with endotracheal tubes

Endotracheal intubations means inserting the artificial airway, made from rubber or plastic components, into trachea through nasal or oral route (Dettenmeier, 1992; Hartshorn, Lamborn & Noll, 1993; Schapira, 2003). It is done to promote the airflow to the lungs in patients who cannot breathe by different causes.

The characteristics of patients who require endotracheal intubations while being conscious include patients with critical conditions in medicines such as respiratory failure, areflexia (McCann Flynn et al., 1993), lower airway obstruction, including patients who require endotracheal suctioning, patients with respiratory insufficiency after failure in treatments with other noninvasive methods (Dettenmeier, 1992; Mc Flynn et al., 1993), as well as preventing patients from aspirations (Mc Flynn et al., 1993; Hartshorn et al., 1993).

Impacts of endotracheal tubes on patients

Although the purpose of endotracheal intubations is to save patients' lives, several impacts might occur to patients both physically and psychosocially.

Physiological impacts

Endotracheal tubes are usually made of polyvinylchloride (PVC) with ability to bend into curved shape without kinking. The PVC tubes usually stands on heat better than the metal tubes. There are several types of endotracheal tubes. Adult endotracheal tubes have balloons or cuffs around the tips for putting the air inside. The cuffs help buffer the direct pressure from the tubes onto the trachea, preventing pressure necrosis (St. John, 1999). They also help prevent air leakage (McCann Flynn et al., 1993). Inserting the endotracheal tubes affects the body systems in several ways.

1. Trauma to upper airway structure such as nose, mouth, pharynx or throat, epiglottis, larynx, and trachea through several ways: 1) procedure of intubations causing the irritations or traumas of tissues or organs (McCann Flynn et al., 1993) and 2) putting high balloon pressure or hard cuff causing trachea tissue ischemia and necrosis. Normally the air pressure in balloons or cuffs should not exceed 20 mmHg (St. John, 1999) in order to prevent tissue ischemia and tissue necrosis. Putting too much pressure into the balloons or cuffs can affect tissues around tracheal for example pressure of 22 mmHg limits blood circulation around trachea and pressure of 37 mmHg blocks the blood circulations around trachea. Other factors that increase the chance of trauma to upper airway structure include frequent intubations, tubes shifting up and down or pulling because of body movements or using of self-inflating resuscitation bags (Ambu bags) (Dettenmeier, 1992).

2. endotracheal tube placement impact such as endotracheal tube out of position, unplanned extubation, or movement of endotracheal tube towards the lower part of trachea or even to esophagus (Hartshorn et al., 1993); causing hypoxemia (Dettenmeier, 1992) and abnormal nerve impulses causing cerebral edema (Liwan Unnapirak, Chanthana Ronritwichai, Wilaiwan Thongcharoen, Venus Leelahakul, and Passamon Koomthaweepron, 2000). Patients experience headaches, changes of moods, restlessness, confusions, stupors, loss of conscious, and even coma and death (Liwan et al, 2000; Guyton & Hall, 2000). These impacts cause limited or no ability to communicate.

3. Infection. Intubations increase the greater chance of bacterial infections at the lungs through to the opening. The incidence of gram-negative bacterial infections at the upper respiratory tract in patients with endotracheal tubes admitted in the intensive care unit was as high as 45% (Barnason et al., 1998). Lung infections also found more frequently especially ventilator associated pneumonia (VAP) (Hartshorn et al., 1993; McCann Flynn et al., 1993; St. John, 1999). Infections affect patients' consciousness and cause ability to communicate.

4. Inability to communicate. Intubations limit patients' ability in communication because the tubes press on trachea and larynx. The air flow through the tube not through the trachea. Air does not flow through the vocal cord which is the organ that produces sound, therefore patients with endotracheal tubes cannot verbally

communicate and cannot easily express their needs or concerns.(Sitzer, 1993, Hafsteindottir, 1996)

Psychosocial impacts

Intubations of endotracheal tubes not only affect patients physically, they also have great impacts on psychosocial aspect of the patients and this is perhaps a factor that is associated with patients' suffers with the use of ventilators (Johnson & Sexton, 1990). Several studies examined the psychological impacts of patients with endotracheal tubes. Bergbom-Engberg & Halijamae, 1989 examined discomforts among 158 patients with ventilators and found that 46% reported having frustrations due to inability to communicate. Similarly, Penock (1994) looked at stress among patients with coronary artery bypass graft (CABG) after intubated for longer than 48 hours and found that intubations prevented patients from speaking and increased stress level. Hafsteindottir (1996) did a study on communication experiences among 8 patients with ventilators from medicine intensive care units and found that an important experience among these patients was the inability to communicate. Moreover, it was found that patients had negative emotional responses, felt bored and exhausted. Menzel (1998) surveyed factors associated with emotional responses among patients with endotracheal tubes for longer than 24 hours from medicine and surgical intensive care units and reported that the patients had low self-esteem. Severe illness and difficulties in communication cause angers because of inability of speaking. The longer the limitations in communication persist, the higher the anxiety and fear among patients that their inability of speaking would be permanent.

In 1999, Menzel researched on the self-esteem in 48 patients with endotracheal tubes for longer than 24 hours and those who were extubated in medicine intensive care units and found that self-esteem among patients' after extubations were significantly higher than those with endotracheal tubes. Similarly, Russell (1999) looked at knowledge, memories, and experiences among 370 patients in intensive care units. It was found from the study that intubations are the cause of patients' speaking inability, fear, knowledge and information deficits, including loss of power. It was also found that ineffective communication not only increased patients' anxiety during hospitalization, but it also caused slow rehabilitation after being discharged from the hospitals. Patients still recalled activities and situations at the hospital and caused

anxiety among patients for as long as 6 months after discharge. Additionally, a study by Rotondi et al. (2002) on stressful experiences when intubated for longer than 48 hours in 150 patients admitted in medicine and surgical intensive care units showed experiences most patients could recall during intubated were inability to speak (82.7%), followed by pain and discomforts (68%) and anxiety (68%).

Mechanism of inability to communicate

Speaking is human's physiological mechanism. Sound is made by first the air flow through the vocal cord located at the lower part of upper trachea with higher force than normal breathing, causing the vibrations of the vocal cord. The vibrations of the vocal cord, together with functions of mouth, neck and glottis, make the sound. The tense vocal cord produces high pitch sounds. The loose vocal cord product low pitch sounds. The air flow also contacts lips, mouth, teeth, jaws, and different positions of tongue, making different sounds. When the tube is inserted, the functions of these organs are blocked, loosing the ability to speak (Ruben, 1984; Guyton & Hall, 2000).

Insertion of endotracheal tubes interrupts the sound producing mechanism because the tubes will press on the trachea and larynx. The air cannot flow directly through the tracheal, preventing from contacting the vocal cord. Without air, the vocal cord does not vibrate and persons cannot make sound. Patients with endotracheal tubes cannot verbally communicate thus cannot express their problems and needs to nurses and others (Kathol, 1999).

2. Communications in patients with endotracheal tubes

2.1 Communication Theories

Communication is important for human cohabitation. It helps a person or a group of persons to receive information, news, opinions, knowledge, and needs (Boonsri Prabnasak and Siriporn Jirawatkul, 1988). Effective communication makes groups or organizations to understand and cooperate with each other, leading to the achievements of groups or organizations (Ceccio & Ceccio, 1982).

2.1.1 Definitions

Communication comes from Latin as "Communis" which means the same or together. It is the process of sharing and exchanging information with the shared

understanding of symbols that describes the information or stories (Boonsri Prabnasak and Siriporn Jirawatkul, 1988). Carr (1984) defined communication as the way people share information. Tubbs & Moss (1994) stated that human communication is the process of sharing meanings between 2 or more persons, like sharing experiences.

Communication in human is therefore the process that attitudes, information, thoughts, emotions, and feelings between 2 persons or more are shared through symbol and information systems that include senders, message, channel, and receivers (Sitzer, 1993; Windahl et al., 1993; Wirat Lapiratanakul 2000). Some characteristics of communication include the shared rules, on-going, continuous, dynamic and ever-changing (Northouse & Northouse, 1992; Carty, 1998; Sundeen, 1998).

In conclusion, communication is the process that message or information is exchanged or transferred from the source or sender to receiver through different channels such as speaking, writing, gesturing, symbolizing, or signaling. Several factors such as beliefs, attitudes, feelings, thoughts, including values in both sender and receiver play a role in making sender and receiver understood in the same contents. Communication is an on-going, ever-changing, and continuous process.

Communication is an important tool for making good relationship between nurses and patients (Boonsri Prabnasak and Siriporn Jirawatkul 1988; Bulechek & McCloskey, 1988; Verhallen et al., 1999). It is not only a part of care, but it is the center of care. It helps reduce patients' stress and anxiety (Westcott, 1995; Wilkes & Wallis, 1998). The essence of communication is to create understandings between nurse and patients (Bevis, 1996).

Definitions of communication in nursing

Bevis (1996) defined communication in nursing as

1. The intermediate that keeps the relationship of care

2. The action that influences other's behaviors and a tool for effective nursing care

3. The action that helps maintain relationships between nurses and patients that are without communication, relationships between nurses and patients that would lead to therapies will not happen.

Suthada Kanha 2003 also provided a meaning of communication that is an interaction between nurses and patients. It exchanges thoughts, beliefs, attitudes

between 2 parties with clear objective. It improves acceptance, awareness, feelings, emotions, or behaviors of the message receivers who can be either nurses or patients. Communication is an ever-changing process. Interpretation of the message depends on social and cultural backgrounds for both patients and nurses.

It can be concluded that communication is an action or tool that helps increase understanding between patients and nurses. It helps improve cooperation in holistic care including physical, mental, emotional, and social aspects of cares. Patients' needs are also responded through communications.

2.1.2 Components of communication

Based on the definition of communication, sending message or message exchange is important in help promoting understanding. Communication is comprised of 5 components.

1. **Sources or Senders** are the persons who want to send or exchange opinions, feelings, including needs to others (Ratchanee Sujijantharat, 1988). The sources or senders might or might not know the receiver; might be an individual, a group of persons, or even an organization (Dominick, 2002). Any communications require the least 2 parties. The senders might be the receivers at the same time (Boonsri Prabnasak and Siriporn Jirawatkul 1988). Senders will select information or message they intend to send, as well as channel and methods. They will select the best channel or method and use skills and efforts to communicate so that receivers receive are clear and understand the message (Peel, 1995; Bevis, 1996).

2. **Message** is what the senders and receivers want to exchange and try to understand together (Windahl et al., 1993) or is the content, symbols, language, signal that will lead both parts (senders and receivers) to the same understanding (Wirat Lapiratanakul 2000) or is the product of the senders or sources in the format than can be transferred to others (Boonsri Prabnasak and Siriporn Jirawatkul 1988; Dominick, 2002). Message can be both verbal and nonverbal. In verbal communication, senders' thoughts and feelings are sent through words, changes in tones and pitches. In nonverbal communication, thoughts and feelings are sent through expressions such as blinking of eyes, facial expressions, and gestures (Bevis, 1996). Therefore message is consisted of 2 parts that are coding and contents. Coded information includes signs, symbols, or language that receiver need to interpret. Contents are stories, information,

knowledge, opinions, feelings, needs, etc. that senders need to send. For this part, receiver translates the meaning straightforwardly based on information received (Boonsri Prabnasak and Siriporn Jirawatkul 1988; Ratchanee Sujijantharat, 1988)

3. Channel is the media in senders and receiver information exchange process, leading to changes in behaviors and knowledge. Effective channels will determine the effectiveness of changes in behaviors and knowledge (Windahl et al., 1993). Messages might be sent through different channels such as in speaking or in writing. Selection of appropriate channel is based on senders' decision in order to choose the channel that best fit the message, including knowledge, backgrounds and experiences of the receivers (Ratchanee Sujijantharat, 1988) Channel is closely associated with the receiving organs which are stimulated by 5 senses including hearing, seeing, touching, smelling, and tasting. The most frequently used of the 5 senses are hearing, seeing, and touching (Sherman, 1994; Tubbs & Moss, 1994).

4. Receiver is the end target of the message. The receiver might be individuals, institutions, or even a collective of people unknowing of each other (Dominick, 2002). Receivers might get message in different forms including words, facial expressions, and gestures, as well as signals that senders want to send. Interpretations of the messages are dependent greatly on beliefs, self-esteem, knowledge, and self concepts of both senders and receivers (Carty, 1998). When receivers receive the message, they might provide feedback in forms of words, facial expressions, or gesture (Bevis, 1996).

5. Feedback shows that after receivers receive the message from senders, they switch their roles. The receivers become the senders and vice versa (Bevis, 1996; Dominick, 2002). Feedback can be divided into 2 types: positive and negative feedbacks. Normally positive feedbacks encourage communication behaviors while negative feedbacks discourage or disrupted the communications. Feedbacks can occur right away or later on (Dominick, 2002). Feedback might not be the information that confirms the senders whether or not the communication has failed but they help recheck whether both senders and receivers understand the message. It makes communications successful and effective. Rechecking can be done in several ways such as direct questioning, repeating, and reflecting the information (Carty, 1998).

6. Noise or Interference is anything that disturbs the communication process or anything that causes the distortions the message received (Gibson & Hanna, 1992;

Tubbs & Moss, 1994; Dominick, 2002). Interference is usually found in human communications. We might find it in the communication context or channel or even in senders and receivers (Tubbs & Moss, 1994). Interference or noise is consisted of 2 types: physical noise and psychological noise (Boonsri Prabnasak and Siriporn Jirawatkul 1988). According to Supratra Yousook's study (1993) on factors disturbing medicine patients with respirators, the patients reported that the most disturbing noises were from people talking, working and from the machine. Russell (1999) also found that ICU patients recalled that noise from conversations between staffs caused psychological problems.

2.1.3 Types of communication

There are different types of communication depending on the criteria of classification. In this study, types of communication are classified based on language. There are 2 types of communication.

1. Verbal communication is the communication with words and sounds or symbols created by human. Whether they are speaking words or written language, they have to have constant meanings (Somjit Hanucharoenkool, 2001). Using spoken languages deals with physiological and cognitive process. Although verbal communication is most frequently used in human communication, it is only a part of the whole human communication (Sundeen et al., 1998)

2. Nonverbal communication is the communication process through symbols or behaviors (Ceccio & Ceccio, 1982) such as gesturing, facial expressions, communication boards, etc. Formats of nonverbal communications used depend on time place and socio-economic factors. The objective of nonverbal communication is to make the exchange of information or message between both parties interacted becomes more effective (Northouse & Northouse, 1992). In interpersonal communication, especially communication during nursing care between nurses and patients utilize both verbal and nonverbal communications so the communication is more effective and help them reach their health goals.

2.1.4 Barriers in communication

Based on communication theory, continuum is nature of communication. Interruptions of communication may occur at any point in the communication process. The interruptions are caused by different causes and they may disrupt the message

sending. With recognizing factors in communication barriers, nurses and critical patients may therefore create effective communications. The factors include the following (Clochesy et al., 1993)

1. Physiological factors

Physiological factors that interfere the communication process include

1.1 Injuries of the speech areas of cerebrum affect the ability to communicate. Loss of ability to communicate might be temporary or permanent, depending on the type of injuries.

1.2 Hypoxemia occurs in patients with low oxygen saturation level. It causes confusions, restlessness, and loss of ability to control body movements (Pongthara Wijitwechpaisarn, 2002).

1.3 Electrolyte imbalance frequently found in Potassium and Calcium imbalance. Potassium imbalance causes weakness and muscle cramps Hypocalcemia (lowering level of calcium) causes spastic while hypercalcemia causes flaccid (Chalermsri Suwanajadee, 2002) Critical patients with endotracheal tubes usually experience electrolyte imbalance and temporarily lose ability to communication (Clochesy et al., 1993).

1.4 Medications used during patients on ventilators usually cause temporary communication dysfunction (Herrold, 1984). Medications used while patients are with ventilators include:

- Neuromuscular blockers such as Anectine and Pavulon which are skeletal muscle relaxant and can lead to paralysis
- Sedatives such as Morphine which cause stupors, change in moods and consciousness (Kamphol Sriwatanakul, 1995)
- Bronchodilators such as Xanthine derivatives i.e. Theophylline and Aminophylline which relax bronchial smooth muscles and reduce tracheal spasms. However the adverse reactions include sleeplessness, restlessness, agitation, and severe seizures
- Corticosteroids affect central nervous systems. In high dose, it can cause change in personality and moods, sleeplessness, restlessness, and psychological disturbances (Herrold, 1984; Kamphol Sriwatanakul, 1995).

1.5 Endotracheal tube insertions in critical patients. Intubations affect vocal cord's function. Patients cannot speak temporarily until the endotracheal tubes are removed. What patients with this condition usual use for communication was gesturing and writing to express their needs to nurses. It was found that nurses usually take silence as an answer to patients' requests. These actions cause negative impact on both patients and nurses. Salyer & Stuart (1985) examined relationships between patients and nurses in intensive care units, especially in patients with endotracheal tubes and found that nurses' positive actions including praising and encouraging patients would yield positive responses from patients. Patients would continue their praised behaviors or showed nonhostile physical gestures. In contrary, if nurses' negative actions such as giving commands, using silence during administration of patient care, showing hostile physical gestures, or turning away would receive negative feedback from patients.

2. Psychological factors

Psychological factors impact nurses-patients communications. Patients with endotracheal tubes who are in good conscious but are unable to speak would experience several psychological situations.

2.1 Anxiety and fear increases as life threatening situations occur. Anxiety occurs as persons' perceptions of wellbeing are threatened. Anxiety affects effectiveness of communication. Severe anxiety occurs with severe stress, causing limited interests and perceptions. Severe stress has the highest level of negative impact and it lowers the effectiveness of communication.

2.2 Critical illness and admissions to critical care units or intensive care units are an predisposing factors leading to loneliness from separations from love ones and families. Patients experienced loneliness are apathy or indifferent. They might cry or agitate. This may found with anxiety.

3. Environmental factors

Some characteristic of intensive care units create barriers in communication such as lack of privacy, noise, use of technical terms among staff, and nurses' routines.

3.1 Lack of privacy from several activities in the unit such as frequent examinations and procedures, professional rounds, and bedside or nearby consultations and discussions of health professionals. Studies on experiences in

patients in intensive care units by Logan (1997) and Russell (1999) found that patients loss their privacy during admitted in intensive care units. This factor affected patients' anxiety level, cooperation, and recovery. Understanding patients' privacy and frequently providing information for patients were significantly associated with interactions and communication.

3.2 Noise is a communication barrier in intensive care units. Noises created by normal and high tech equipments like carts, monitor alarms, ventilators (Oglivie, 1980; Clochesy et al., 1993), including noises from staffs' conversations, frequent patient rounds, and nurses routine duties (Clochesy et al., 1993) cause stress among patients and their relatives as well as interrupt patients' rest and recovery (Oglivie, 1980). A study by Russell (1999) on perceptions, memories, and experiences in intensive care units found that noise from nurses' conversations caused patients' stress. Supratra Yousook (1993) also examined factors that created difficulties in patients and found that top factors were noises from conversations, followed by noises from works, and noises from monitors' and equipments' alarms. According to Williams (1988), patients mostly disturbed by noises included premature babies in incubators, critical patients with high technology equipments, and patients receiving medication affecting ear functions.

Noise is an environmental factor that disrupts effectiveness of communication among professionals and between professionals and patients (Northouse & Northouse, 1992). If nurses realized about noises in critical care units, they would try to control noises that would affect critical patients by reducing noise around patients' environments (Northouse & Northouse, 1992; Zori, 1984) encouraged other staffs to use normal voice for their conversations, limited conversations during nighttime or while patients are asleep, and if possible, tried to place equipment as far away from patients as possible (Northouse & Northouse, 1992; Clochesy et al., 1993)

3.3 Use of technical terminologies

Medical technical terms are parts of conversations among health care professionals. However in talking with patients, technical terms are still strange and distant for both patients and their relatives. Without proper and adequate explanations, misunderstandings might occur. Nurses caring for critical patients nee to check for

patients' understandings when communication with patients. Nurses should encourage patients to ask questions if they do not understand.

3.4 Nurses' routines are works nurses usually do with patients such as checking vital signs or providing scheduled nursing care. Frequent patient rounds, regardless of concerns about patients (Clochesy et al., 1993), not only disrupt patients' rests (Salyer & Stuart, 1985), they also caused less frequent or no communications with nurses (Salyer & Stuart, 1985; Clochesy et al., 1993). Additionally, no interactions, especially inappropriate communications between nurses and patients, are frequently found. In order to prevent any interruptions on communication process and to promote communication between nurses and patients, environmental factors needed to be resolved (Caris-Verhallen et al., 1999).

4. Sociocultural factors

Each patient varies greatly due to differences in cultural backgrounds, languages, and ethnicities. Differences in cultures affect emotions and behaviors. Communications in patients with different cultural backgrounds in critical care units are challenging to nurses. Language difficulties, such as patients cannot communicate with normal language, might limit patients from effectively communicating their needs. Patients develop fears and anxiety. Nurses might also develop frustrations when trying to interpret meanings from what patients have communicated.

2.2 Communication methods between nurses and patients with endotracheal tubes

Formal communications are associated with effective communications (Wojnicki-Johansson, 2001). Patients in several situations are unable to communicate effectively i.e. patients with endotracheal tubes; patients with respiratory failure or with required surgery and needed to put endotracheal tubes and ventilators on. Nonverbal communication is required in these cases. However, patients might not be familiar with nonverbal communication (Menzel, 1998). Different nonverbal communication techniques fully conscious patients use with nurses include:

1. Gestures

They are body movements such as shaking heads and using hands legs or feet. They play a key role in human communications. People could interpret immediately the meanings. Using gestures vary depending on genders, ethics, stress levels,

educations, professions, and socioeconomic status (Ruben, 1984; Ceccio & Ceccio, 1982). Gesturing is a most frequent used style of nonverbal communication. It can substitute verbal communications and can help clarify the message (Northouse & Northouse, 1992). Hand gestures, frequently used in nonverbal communication, are frequently used with normal communication; sometimes are used solely. However, health providers may need to guess sometimes due to different experiences in interpretation. Also some problems or needs may not be able to communicate with hands.

2. Facial expressions

Facial expressions show emotions such as happy, interest, sad, surprised, fear, angry, and discriminated both intentionally and unintentionally. They are used during conversations to help maintain relationships between message senders and receivers. In health professions, facial expressions are an important part of nonverbal communications because they help health professionals understand patients' emotions and feelings (Ruben 1984; Northouse & Northouse, 1992). It is also an easy form of communication in patient who cannot speak like patients with endotracheal tubes.

3. Gaze or eye contacts

Using eye contacts are easy to communicate and are used closely with facial expression (Northouse & Northouse, 1992) because they can be used simultaneously with facial expression to express anger, fear, anxiety, etc.

4. Mouthing words

In critical patients who cannot speak, slowly and repeatedly using mouthing words help nurses and other health providers understand what patients have to say. However, sometimes it is hard to interpret especially with patients with endotracheal tubes. Using mouthing words in this situation might create frustrations for both patients and nurses except nurses are skillful and experienced in interpretations.

5. Touch

Touching is a special form of nonverbal communication. Meanings are communicated through different touching styles. Touching helps improve personal relationships. Use of touching with verbal communications help create positive relationships. Touching helps reduce anxiety from discriminations and separations and helps patients with orientation of time and place (Northouse & Northouse, 1992).

Touching with speaking in intensive care units help understand patients better and make patients and nurses become harmony (Verity, 1996). Touching expresses love and empathy. Touching is also an important tool in diagnosis. Factors influencing touching include gender, sociocultural backgrounds, the type of touching used, and relationships between the touched and the person who touch (Northouse & Northouse, 1992).

6. Paper and pencil

This method, patients need to be able to write and read, see and understand (Stovsky et al., 1988). Arms need to be unrestrained by any equipments including saline. It is frequently found that words written by patients are usually strange because of writing positions. Nurses have to try to read what patients have written.

7. 'Yes' or 'No' question

Using close-ended questions with 'yes' or 'no' as an answer is used to assess problems and needs based on nurses' understanding or guess. Patients cannot explain their problems and needs in details (Stovsky et al., 1988).

8. Electronic communication devices

Electronic communication devices are another fast and convenient option. Limitations, however, of this method, deal with patients ability to use hands and eyes. Additionally, trainings are needed so patients are familiar with the devices. The devices might be expensive. A pilot study on using Electronic Voice-Output Communication Aids (VOCAs) by Happ, Roesch, & Garrett (2004) in 16 critical medicine patients who temporarily loss their ability to speak due to endotracheal tubes found that VOCAs make communications in patients better. Patients used VOCAs to communicate with their families and used VOCAs more frequently than other methods of nonverbal communication. However, the study found some difficulties such as poor device positioning, symptoms becoming worse, limited time, nurses being not familiar with the device, and all information being displayed in one screen.

9. Picture board

Using picture board or communication board is pictures illustrated by text describing patients' problems and needs. It helps patients expressing their problems and needs. Patients can choose what to communicate to nurses by pointing at picture indicating their problems or needs. This method can be used with patients who cannot

read, write, or understand language. However, limitations include patients need to use arms or hands for pointing and need to be able to see. In addition, patients' problems and needs might be more than what presented in the communication boards.

Nonverbal communication is important for nursing practice in order to communicate patients' problems and needs. Patients have more options to choose from different methods based on their ability and several personal factors such as medications received and illness status (Russell 1999; Hafsteindottir, 1996). In patients with endotracheal tubes, writing or mouthing words might be difficult to communicate because they depend on strength of muscles. With fatigue, weakness, or visually impaired, communication is more difficult. It was found that only a few studies examined differences in communication methods (Stovsky et al., 1988). Most studies found looked at different methods used in communications among patients with endotracheal tubes. Wojnicki-Johansson (2001) surveyed communication methods used in 22 patients with ventilators and found that the least frequently used method was gesturing and touching (54%, n=12), followed by using pen and pencil (32%, n=7), using closed ended questions (23%, n=5), and mixed methods (36%, n=8). According to Menzel's study (1998) on factors associated with emotional responses in patients with endotracheal tubes who were unable to speak, regular communication patients used most frequently was gesturing, pointing, and using hands (89.6%, n=43), followed by writing (50%, n=42), mouthing words (50%, n = 24), facial expressions (50%, n=42), shaking heads (39.6%, n=19), using text communication board (18.8%, n=9), text illustrated with pictures communication board (6.3%, n=3), and squeezing hands (2%, n=1).

It was also found that patients usually communicate their body needs, questions concerning their families, care and treatment received, and status or prognosis of illness. Thipporn Sae-chern (2002) studied nurses-patients interactions in 40 patients with endotracheal tubes and found that patients used mixed communication methods. The 4 methods most frequently used included nodding/shaking heads (100%, n=40), using facial expressions (97.5%, n=39), pointing and using hands (92.5%, n=37), and using eye contacts (90%, n=36). Problems and needs frequently found, in this study, were needs to change position (67.5%, n=27), needs to obtain treatment information (40%, n=16), needs for suction (35%, n=14), needs to control body temperature (30%,

n=12), needs to relieve pain and discomfort (22.5%, n=9), needs to contact with families (15%, n=6), needs for food (15%, n=6), needs to reduce fear and anxiety (12.5%, n=5), needs to control environments (12.5%, n=5), and needs for water (10%, n=4). A study by Happ, Tuite, Dobbin, DiVirgillo-Thomas, & Kiitutu (2004) on ability, methods, and contents of communication in 50 patents with ventilator in intensive care units and found that communication methods patients used during early period were shaking heads, mouthing words, gesturing, and writing. They also found that problems and needs patients communicated during the first period were about pain, signs, body feelings and needs.

In this study, the researcher adapted the equipments from a study done by Suthada Kanha (2003) where illustrated texts were used to communicate problems and needs in critical patients in medicine. The text illustrated communication boards used in this study were consisted of 10 charts of cartoons with texts grouped in different categories, totaling 32 pictures:

Chart 1 indicates changing of positions i.e. “please change position”, “elevate the head part of the bed”, “lower the head part of the bed”, and “want to sit” for the total of 4 pictures

Chart 2 indicates daily activities i.e. “thirsty”, “hungry”, “want to urinate”, and “want to defecate” for the total of 4 pictures

Chart 3 indicates changing of body temperature i.e. “cold”, “put the blanket on”, “hot”, and “remove the blanket” for the total of 4 pictures

Chart 4 indicates changing of body temperature (continued) i.e. “having a fever” and “want a tepid sponge bath” for the total of 2 pictures

Chart 5 indicates symptoms i.e. “dizzy”, “having nausea and want to vomit”, “tired”, and “having abdominal distension” for the total of 4 pictures

Chart 6 indicates symptoms (continued) i.e. “feeling pain”, “feeling sore”, “feeling itchy”, and “hurting” for the total of 4 pictures

Chart 7 indicates problems from the endotracheal tube i.e. “cannot breath”, “need suction”, “having sore throat”, and “want to remove the tube” for the total of 4 pictures

Chart 8 indicates time and environments i.e. “what time is it?” and “too noisy” for the total of 2 pictures

Chart 9 indicates psychological concerns i.e. “fear”, “worry or tense”, “cannot sleep” for the total of 3 pictures

Chart 10 indicates psychological concerns (continued) i.e. “want to see relatives”, “want to talk to a doctor”, and “want to go home” for the total of 3 pictures.

3. Responses to different communication methods

3.1 Responses to patients’ problems and needs

One of the problems patients with endotracheal tube usually have is communication. Due to the inability to speak therefore they cannot express their feelings in needs. Maslow (1970) grouped 7 basic human needs from the lowest level to the highest level called Maslow’s hierarchy of needs.

1. Physiological needs

Needs at this level are the basic needs and are the beginning of the Maslow‘s Motivation theory (1970). They are also called physiological drives. They enable the body to maintain homeostasis. Examples of needs in this level are the need to eat, the need for water, and the need to breathe.

2. Safety needs

Safety needs include needs for security, stability, protection, freedom from fear, anxiety, and chaos. Safety needs impact persons’ ability and behaviors.

3. Love and belonging needs

When physiological and safety needs are fulfilled, the third layer of human needs is the needs for love and belongings or social needs. Love needs in this level are the need to love and to be loved from others. If persons are not fulfilled at this level, they will feel alienated, along, strange, and lonely.

4. Esteem needs

This needs is based on stability including respect or esteem from others. If needs at this level are not fulfilled, persons will feel worthless and aimless.

5. Self-Actualization needs

At this level, persons need to realize and understand the true ability of oneself; what they need to become; what one is doing; and what does not fit to oneself.

6. Desire to know and to understand

Persons need to know and understand what make ones satisfied and worthy.

7. Aesthetic needs

Aesthetic needs are the highest level of needs. At this level, persons need to acquire something beautiful or satisfactory.

Human needs are different in their basic needs. When the basic needs are fulfilled, their needs move the next higher level. Barrett (1975) described 4 needs when persons were sick and needed to be hospitalized as follows:

1. Basic human needs that were controlling of body functions and emotional needs such as needs for love and pride

2. Needs to be accepted from society

3. Needs to conserve body energy that were resting both physically and emotionally

4. Needs to cure and rehabilitate body organs for normal functions.

Needs in patients with endotracheal tubes are not different from general patients. Effective communications between nurses and patients would assist with quick assessments of problems and needs and improve satisfactions (Megivern et al., 1992). According to the practice guideline to promote communications in patients with endotracheal tubes by Suthada Kanha (2003) through a pilot study with critical medicine patients, using assistive devices such as writing pens, text illustrated communication board displaying important problems and needs among critical medicine patients, and using Thai letters, vowels, and consonants cards not only improved patients satisfactions in communication, but they also reduced difficulties in patient communications. Happ et al. (2004) examined assistive communication devices for critical medicine patients with endotracheal tubes and found that using Electronic Voice-Output Communication Aids (VOCAs) helped patients reduce difficulties communicating with health care team. The patients used VOCAs to communicate problems and needs more frequently than communicating without assistive devices.

This study looked at responses to patients' basic needs. Based on literature reviews incorporating with observations of problems and needs frequently found in the intensive care units, eight activities were frequently found among patients in this group: need to change position, need to suction, sore throat, want to remove tube, thirsty, hungry, need to urinate, and need to defecate.

3.2 Satisfactions to communication methods

3.2.1 Definitions of Satisfaction

Satisfaction is abstract. It is a favor or good attitude a person has on something. Satisfaction occurs when a person fulfill their basic needs or expectations. It helps reduce stress both on body and in mind (Mullins, 1985). Additionally, satisfaction is an important component for persons to evaluate and compare previous experiences and expectations and what actually receive at present (Loudon & Bitta, 1993; Thitinan Dechakoop, 1995). Satisfactions not only vary among people, environments, and society, they are also different depending on basic needs. After needs being fulfilled, persons will gain satisfactions in different levels based on personal values and cultures (Wongduan Suwannakeeree and Chuleekorn Danyuthasilp, 2001).

It can be concluded that satisfaction is a positive feelings persons have when their problems and needs are fulfilled or their goals are achieved.

In nursing, Risser (1975 cited in Megivern, Halm, & Jones, 1992) provided a definition of satisfaction that it is a relationship between patients expectations in nursing cares and the actual nursing cares received. Lamonica, Oberst, Madea & Wolf (1986) defined satisfaction as patients' a relationship between expected nursing cares and what really received. Similarly, Avis, Bond & Arthur (1995) stated that patients' satisfaction is the results from perceptions about nursing cares that meet the expectations. Best (1999) said that nursing care that create patients' satisfactions occurs when nursing care or information provided are accordance with expectations, with what one should be or should receive.

In conclusion, patients' satisfaction is the feeling that relates patients' expectations and what patients actually received.

Patients' satisfaction is important. Satisfied patients will comply with treatment and nursing care. Care providers should understand what make clients satisfied. It is believed that client satisfactions are professional standards and is an assessment tool for patients' needs (Megivern et al., 1992). Care providers play a role in making patients satisfied, and eventually lead to patients' compliance to treatment and care plans (Loeken, Steine, Sandvik & Laerum, 1997)

3.2.2 Components of Satisfaction

Based on Maslow (1970) Motivation Theory, human is a living organism with

continuing needs. Human never reach the peak of satisfaction, only for a short period of time. When desires or needs are fulfilled, another needs or desires will occur.

Lamonica, Oberst, Madea & Wolf (1986) stated that satisfaction is consisted of 3 areas: general satisfaction, impressions, and personal supports. Additionally, Naumann & Giel (1995) also said that clients' satisfactions depend on previous experiences.

In conclusion, satisfaction is consisted of 3 areas: general satisfaction, impressions, and personal supports. It is dependent upon responses to needs and previous experiences.

3.2.3 Quality of Care and Evaluation of Satisfaction

Evaluation of satisfaction is a criteria for measuring quality of services or care (Scardina, 1994; Avis et al., 1995). Measurement of satisfaction is an important research, administrative, and planning tool because it show the results of what service that make clients satisfied. It is an important input for quality improvement. Patient satisfaction survey is an important tool for care management (Thomas & Earl, 1995).

Furthermore, in evaluation of personal satisfaction, Kane, Maciejewski, & Finch (1997) said that patient satisfactions and patient care are important components for evaluation of quality of care through process, structure, and health outcomes evaluation. Similarly, Loeken et al. (1997) proposed concept on evaluation of client satisfaction as follows:

1. Structure includes physical environment, convenience, and ability to access care.
2. Process includes providers' human relationship skills, cooperation, and ability in service technique.
3. Discomfort includes both physical and emotional discomfort.
4. General Satisfaction includes satisfactions on one particular subject at present and in the future.

Satisfaction is an important component in evaluating personal feelings. After persons' needs have been fulfilled, satisfactions can be assessed, from different situations or events, what level of responses to needs persons have been reached. The more the needs fulfilled, the higher the satisfaction and vice versa (Jittawadee Hreanthong, 1999)

3.2.4 Assessments of Satisfaction

Several methods are used to assess satisfaction, however most frequently used methods include:

1. Interviews are done with valid and reliable interview forms. Researcher interviews the samples or interviewee and mark in the box or space corresponding to the satisfaction level. Benefits of interviews are that when questions are unclear, samples can ask the researcher directly. The drawback of this method is that samples might not provide the true answers in some types of questions.

2. Questionnaires are done with valid and reliable questionnaires. This is the most frequently used format. It is done by respondents answer to questions. Benefits of this method are that samples can respond or mark their answers on satisfactions by themselves. The limitations include that samples do not have an opportunity to clarify or as questions in case the questions are unclear.

3. Rating Scales is used by having patients compare their satisfactions with a visual scale which can be divided to percentages, numbers or range of satisfaction levels such as low medium and high.

This study used an interview to assess satisfaction in patients with endotracheal tubes. The interview form is adapted from communication satisfaction evaluation developed by Suthada Kanha (2003) due to the fact that the samples in these 2 studies were similar that are critical medicine patients with endotracheal tubes.

3.2.5 Satisfactions to Communication Methods

Patients with endotracheal tubes are unable to verbally communicate. They try different ways to communicate such as using gestures, facial expressions, nodding or shaking heads, writing on paper, etc. to express their problems and needs to nurses and others. However, their problems and needs are not effectively communicated and their problems are not totally solved. Nurses cannot truly respond to patients' problems and needs. Communication methods that will help patients communicate their needs with less effort and time would create satisfactions and help patients received correct and effective cares.

There are several studies compare satisfactions among different communication methods in post-operative patients with endotracheal tubes. Stovsky, et al. (1988) compared 2 communication methods in order to find effective communication

methods for post-operative heart surgery patients with ventilators within the first 48 hours after operations. The researchers started the study when patients were admitted to the intensive care units and ended when the endotracheal tubes were removed from the patients. Samples were divided into 2 groups: 40 patients and 22 nurses. In the patient group, the patients were randomly assigned to a control and an intervention groups, with 20 patients for each group. The group of 22 nurses were both control and intervention groups. Before surgery, every patient was trained on how to use text illustrated communication boards and regular communication methods including using hands, using letter cards, using paper and pen, reading from lips, gesturing such as nodding. The group of nurses communicates with the patients. The patients were evaluated on their satisfaction 1-2 days after they were transferred out of the intensive care units. The study found that patients were more satisfied with the text illustrated communication boards than with the regular communication methods at the .05 significance level. Among the nurse group, using the text illustrated communication board did not improve satisfactions among nurses.

Another study by Thitinat Sasichay (1990) was on satisfactions of 2 communication methods in 20 post-operative patients after regaining conscious until the endotracheal tubes were removed within 12-48 hours after operation. The patients were randomly assigned to a control and an intervention groups, with 10 patients for each group. Before operation, the samples in intervention group were taught and given an opportunity to try the regular communication method and the press-down electronic communication device. The device contained pictures and texts. The regular communication methods included in the study were reading from lips, using close-ended questions, using paper and pen, and using gestures such as nodding or shaking heads. The control group used only the regular communication methods. After the endotracheal tubes were removed, the researcher interviewed the samples by marking samples' responses in the corresponding space. Results from the study showed that patients were significantly more satisfied with the combination of regular communications and the communication device than with regular communication only at the .0005 significance level. And from Suthada Kanha's (2003) communication guidelines in patients with endotracheal tubes based on a pilot study done with 10 critical medicine patients, it was found that the communication guidelines were

feasible and promoted communications in patients. The guidelines improved satisfactions and reduced difficulties in 2 communication methods: 1) a mixed regular communication methods with gesturing and head movements with hand signaling and 2) assistive communication methods with text writing pens, letters, vowels, and consonants cards, and picture chart showing needs in critical medicine patients.

4. Conclusion

Critical medicine patients, especially patients with endotracheal tubes, usually have difficulties in communication because they are unable to speak. Endotracheal intubations either orally or nasally disrupt the speaking mechanism, impacting patients both physically and psychologically. The most important physical impacts are discomforts and inability to speak. Psychological impacts among patients include anxiety, fear, panic, insecurity, and decreased self-worth and self-esteem. All impacts are associated with patients' inability of speaking. Problems found in the patients usually deal with illness and human basic needs. When the patients cannot speak, ability to communicate or express their problems and needs are drastically limited.

Normally, patients' selection of communication methods is dependent on their illness, patients' ability, and other factors associated with each individual. Nurses who are the patients' closest care providers need to find communication methods that help patients with endotracheal tube communicate their problems and needs quickly, with less efforts, and direct to their problems and needs. This would help improve satisfactions among patients.

Based on literature review, one communication method that will help patient communicate their problems and needs is the text illustrated communication board because it represents patients' problems and needs, is easy to use, is convenient, and is inexpensive. It contains important problems and needs for patients with endotracheal tubes and will help improve their satisfaction. Researcher is interested in comparing the text illustrated communication boards and the regular communication methods in order to find the best yet most convenient and satisfying communication methods for patients with endotracheal tubes. The benefits from this study would yield to the improvement of effective patient care and the development of institutions and professional organization.

CHAPTER III
METHODOLOGY

This research study examined the effectiveness of the text illustrated communication board in critical medicine patients with oroendotracheal tubes. The study used a one-group-experimental research with a change-over design.

Population

Population in this study was the patients who admitted to intensive care unit with oroendotracheal tubes both males and females with ages 18 years old and above. The patients were admitted in the intensive care unit at Bamrasnaradura Institute and the medicine intensive care unit at Phra Nang Klao Hospital.

Samples

Samples in this study included critical patients in medical department with oroendotracheal tubes who were admitted in the intensive care unit at Bamrasnaradura Institute and the medical intensive care unit at Phra Nang Klao Hospital between October 2005 and May 2006. The sample size was determined by power calculation using .80 as an effect size and .05 as a significance level. The power calculation with effect size of .80 yields the sample size of 25 (Lipsey, 1990; Polit, 1999). In adjusting for possible sample attritions, five additional samples were added to make up the total sample of 30. Among the patients participated in this study, eight patients were from Bamrasnaradura Institute and the rest (22 patients) were from Phra Nang Klao Hospital.

Sample Inclusion Criteria

Criteria for selecting patients into the sample included the following:

1. Patients participated in this study were intubated orally (with oroendotracheal tubes) for longer than 48 hours.

2. Patients needed to be fully conscious. The consciousness level was determined by using 2 areas from Glasgow Coma Scale (GCS) that were eye opening: E (total = 4 points) and motor response: M (total = 6 points). Patients were evaluated as fully conscious when scoring the total of 10 points from these areas, meaning that they were able to open their eyes and move their limbs by themselves or as instructed.

3. Patients could see and hear normally.

4. Physicians provided consents for patient participations

Sample Exclusion Criteria

Patients were excluded from the study when showing one or more of the following:

1. Patients had a history of mental illness

2. Score from Glasgow Coma Scale (GCS) especially in 2 areas: eye opening and motor response was lower than 10.

3. When patients had complications such as infection by showing one or more signs and symptoms i.e. temperature of higher than 38.5°C, systolic blood pressure of lower than or equal to 90 mmHg, or lab test show positive results such as tested positive on specimen culture. Additionally, if patients showed signs and symptoms of respiratory failure such as tachypnea with respiratory rate of higher than or equal to 28 breaths/minutes, restlessness, confusions, or when oxygen saturation (SaO_2) was lower than 90 percent.

Sample Assignment

Each of 30 samples received two communication programs by random assign in the following table 1.

Table 1 Random assignment of the sample to receive programs A and B

Samples	1	2	3	4	5	6	7	8	9	10
Day 1	A	A	B	A	A	B	B	A	B	B
Day 2	B	B	A	B	B	A	A	B	A	A

Samples	11	12	13	14	15	16	17	18	19	20
Day 1	A	B	B	A	B	A	A	B	B	A
Day 2	B	A	A	B	A	B	B	A	A	B

Samples	21	22	23	24	25	26	27	28	29	30
Day 1	B	A	B	A	A	A	B	B	B	A
Day 2	A	B	A	B	B	B	A	A	A	B

A stands for regular communications

B stands for text illustrated communication board

In this study, the researcher met with 39 patients who met the inclusion criteria and can be concluded that

1. Thirty patients agreed to join the study

2. Three patients did not finish the study due to the severity of the disease. Two patients passed away while another patient dropped out from the study.

3. Six patients refused to join the study. Two patients explained that they were intubated for more than 2 times. They could communicate effectively with nurses. Two patients had vision problems and other two did not provided reasons for not joining the study.

Settings

The study on communications in patients with oroendotracheal tubes was conducted in 2 settings:

1. Intensive care unit at Bamrasnaradura Institute

This institute was a 600-bed tertiary care center. The intensive care unit admitted

critical medicine patients with endotracheal tubes ages 18 years old or more. The nurse to patient ratio was 1:2. Each month, there were approximately 7-10 patients with endotracheal tubes. Communication methods these patients regularly used with nurses included gesturing, using facial expressions, nodding or shaking heads, moving lips, and writing on pieces of paper. Other than these methods, nurses did not have communication method that had assistive devices.

2. Intensive care unit (ICU) at Phra Nang Klao Hospital

This hospital was a 450-bed tertiary care hospital. The intensive care unit admitted critical medicine patients with endotracheal tubes ages 18 years and over. The nurse to patient ratio was 1:2. There were approximately 20 patients with endotracheal tubes each month. Communication methods regularly used among these patients included gesturing, using facial expressions, nodding or shaking heads, moving lips, and writing on pieces of paper. Additionally, nurses had tools that would help in communication consisted of 10-15 ungrouped pictures with texts showing problems and physical needs. The pictures were posted on the wall in patients' rooms. While the research had been conducted, nurses removed these pictures to prevent the confusions among patients.

Instruments

Instruments used in this study were consisted of 2 parts.

1. Instruments used for data collection were divided into 3 sections:

A questionnaire for personal information

The personal information section was developed by the researcher. It contained one-answer multiple choice and fill-in-the-blank type of questions. This section was divided into 2 subsections:

a) General information subsection included gender, age, marital status, educational level, occupation, monthly income, and literacy for the total of 7 items.

b) Illness information subsection included diagnosis, date endotracheal tube inserted, conscious-altered medications received, consciousness level, and communication used during intubation for the total of 5 items.

1.2 An observation form on responses to problems and needs in patients with endotracheal tubes

The observation form was developed by the researcher and was used to record number of time the samples used for each communication method on 8 activities included needs for position change, suction, hurt at throat, remove the tube, thirsty, hungry, urinate, and defecate. Additionally, the form was used to record responses to problems and needs including length of time the samples used from start communication until the needs were responded.

1.3 An interview on satisfactions on communications with text illustrated communication board and with regular communication

This sections measured satisfactions on communication methods that helped patients successfully communicate their problems and needs to nurses. Questions contained in this section were adapted from a measurement of satisfaction on communication developed by Suthada Kanha (2003). This section contained 3 questions regarding satisfactions on 2 communication methods, text illustrated communication board and regular communication. The samples were asked to rate their satisfaction based on their true satisfactory according to each question, using 5 rating scales including highest, high, moderate, low, and unsatisfied. The satisfaction scales were interpreted as follows.

Interpretation of the scales used in the instrument

Highest	=	Satisfied with the message in the question at the highest level
High	=	Satisfied with the message in the question at high level
Moderate	=	Satisfied with the message in the question at moderate level
Low	=	Satisfied with the message in the question at low level
Unsatisfied	=	Not satisfied with the message in the question

Scoring of the satisfaction scale

Highest	5	points
High	4	points
Moderate	3	points
Low	2	points
Unsatisfied	1	points

In addition, one multiple-choice question asking about most satisfied communication method and three close-ended questions asking about opinions on text illustrated communication board were asked from the samples. The 3 opinion questions asked about size of the communication board, color of the communication board, and whether or not the communication board communicated their problems and needs.

2. Instruments used in communication programs

Communication tool used in this study was the text illustrated communication board. They were pictures with text indicating important problems and needs in critical medicine patients with endotracheal tubes. The researcher developed equipments from a study done by suthada Kanha (2003) where illustrated texts were used to communicate problems and needs in critical patients in medicine. The text illustrated communication boards used in this study were consisted of 10 charts of cartoons with texts grouped in different categories, totaling 32 pictures:

Chart 1 indicates changing of positions i.e. “please change position”, “elevate the head part of the bed”, “lower the head part of the bed”, and “want to sit” for the total of 4 pictures

Chart 2 indicates daily activities i.e. “thirsty”, “hungry”, “want to urinate”, and “want to defecate” for the total of 4 pictures

Chart 3 indicates changing of body temperature i.e. “cold”, “put the blanket on”, “hot”, and “remove the blanket” for the total of 4 pictures

Chart 4 indicates changing of body temperature (continued) i.e. “having a fever” and “want a tepid sponge bath” for the total of 2 pictures

Chart 5 indicates symptoms i.e. “dizzy”, “having nausea and want to vomit”, “tired”, and “having abdominal distension” for the total of 4 pictures

Chart 6 indicates symptoms (continued) i.e. “feeling pain”, “feeling sore”, “feeling itchy”, and “hurting” for the total of 4 pictures

Chart 7 indicates problems from the endotracheal tube i.e. “cannot breath”, “need suction”, “having sore throat”, and “want to remove the tube” for the total of 4 pictures

Chart 8 indicates time and environments i.e. “what time is it?” and “too noisy” for the total of 2 pictures

Chart 9 indicates psychological concerns i.e. “fear”, “worry or tense”, “cannot sleep” for the total of 3 pictures

Chart 10 indicates psychological concerns (continued) i.e. “want to see relatives”, “want to talk to a doctor”, and “want to go home” for the total of 3 pictures

Validation of the Instruments

Three instrument that were tested for validity included Instruments used for communication programs, the observation form on responses to problems and needs in patients with endotracheal tubes, and the interview on satisfactions on communications with text illustrated communication board and with regular communication. The instruments were tested for content validity and were tried out.

Content Validity of the Instruments

1. Instruments used for communication programs developed from Suthada Kanha’s illustrated texts used to communicate problems and needs in critical medicine patients with endotracheal tubes (2003). The adapted text illustrated communication boards were tested for content validity and clarity with 5 experts before tryout. The experts validating the content of the instruments were consisted of:

- One physician at an intensive care unit (ICU)
- Two nurse instructors specialized in nursing care for critical patients in medicine
- Two nurse specialists in caring for critical patients in medicine

2. An observation form on responses to problems and needs in patients with endotracheal tubes was reviewed for content validity and clarity by the same group of 5 experts. The researcher made changes based on experts’ comments and recommendations.

3. An interview form of satisfaction communications with text illustrated communication board and with regular communication was reviewed for content validity and clarity by the same group of 5 experts. The researcher made changes based on experts’ comments and recommendations.

Instrument Tryout

The three instruments, after reviewed for content validity, were tested for instrument objectivity with 10 patients with endotracheal tubes who had similar

characteristics to the samples before they were revised and used in this study.

Data Collection

All the data were collected by the researcher with the following steps:

1. An introduction letter and request for permission for data collection, issued by the Graduate School, Mahidol University, was presented to the directors of the Bamrasnaradura Institute and Phra Nang Klao Hospital.

2. After permissions were granted, the researcher met with the nursing directors, head nurses of the intensive care units, and staff from both locations in order to explain research objectives and description of data collection.

3. The researcher conducted a workshop to get the staff nurses in both intensive care units familiarized with the text illustrated communication board. The boards were kept in patients' beds or at bedside tables so it was convenient to use them whenever the patients wanted to communicate their problems and needs. The researcher observed and recorded activities and collected information on patients' satisfactions on communication methods.

4. The researcher introduced herself, explained the research objectives, the data collection methods, and rights to participate the study to both patients and their relatives once found the patients that matched the study inclusion criteria. The patients and their relatives, once agreed to participate the study, were asked to either sign or press their thumbs' fingerprints on the informed consent, agreeing to participate and understanding the participants' rights.

5. The researcher collected personal information from the medical records and patients' relatives.

6. Data collection methods (shown on Figure 2)

The data collection methods in both Bamrasnaradura Institute and Phra Nang Klao Hospital were identical. It can be described as follows:

6.1 For patients who received communication plan A (Regular Communication) between 8:00 AM until 4:00 PM on day 1, the researcher observed and recorded responses to patients' problems and needs (as shown in Appendix E Section 2) on all activities. If there were a few activities, the researcher would continue to collect the data until 8:00 PM. The researcher recorded additional

information or patients' needs if found. At the end of the observations, the patients were interviewed on satisfactions with the regular communication methods using the interview on satisfaction with patients' communication form (as shown in Appendix E Section 3). All the data were collected while the endotracheal tubes were still on.

6.2 On day 2, the patients switched to communication plan B which was text illustrated communication boards (Appendix F) between 8:00 AM and 4:00 PM. Before start collecting the data, the patients practiced using the communication boards until they were more comfortable. Then the patients used the text illustrated communication boards to communicate and express their problems and needs in every activity. If there were a few activities, the researcher would continue to collect the data until 8:00 PM. The researcher recorded additional information or patients' needs if found. At the end of the observations, the patients were interviewed on satisfactions with the text illustrated communication boards using the interview on satisfaction with patients' communication form (as shown in Appendix A Section 3). All the data were collected while the endotracheal tubes were still on.

6.3 For patients who were randomly assigned to use communication plan B (the text illustrated communication boards) on day 1 and plan A (the regular communication) on day 2, the researcher both observed their responses to both types of communications and interviewed their satisfactions using the instruments explained in 6.1 and 6.2 until the total sample reached 30. The data then were analyzed, discussed and concluded.

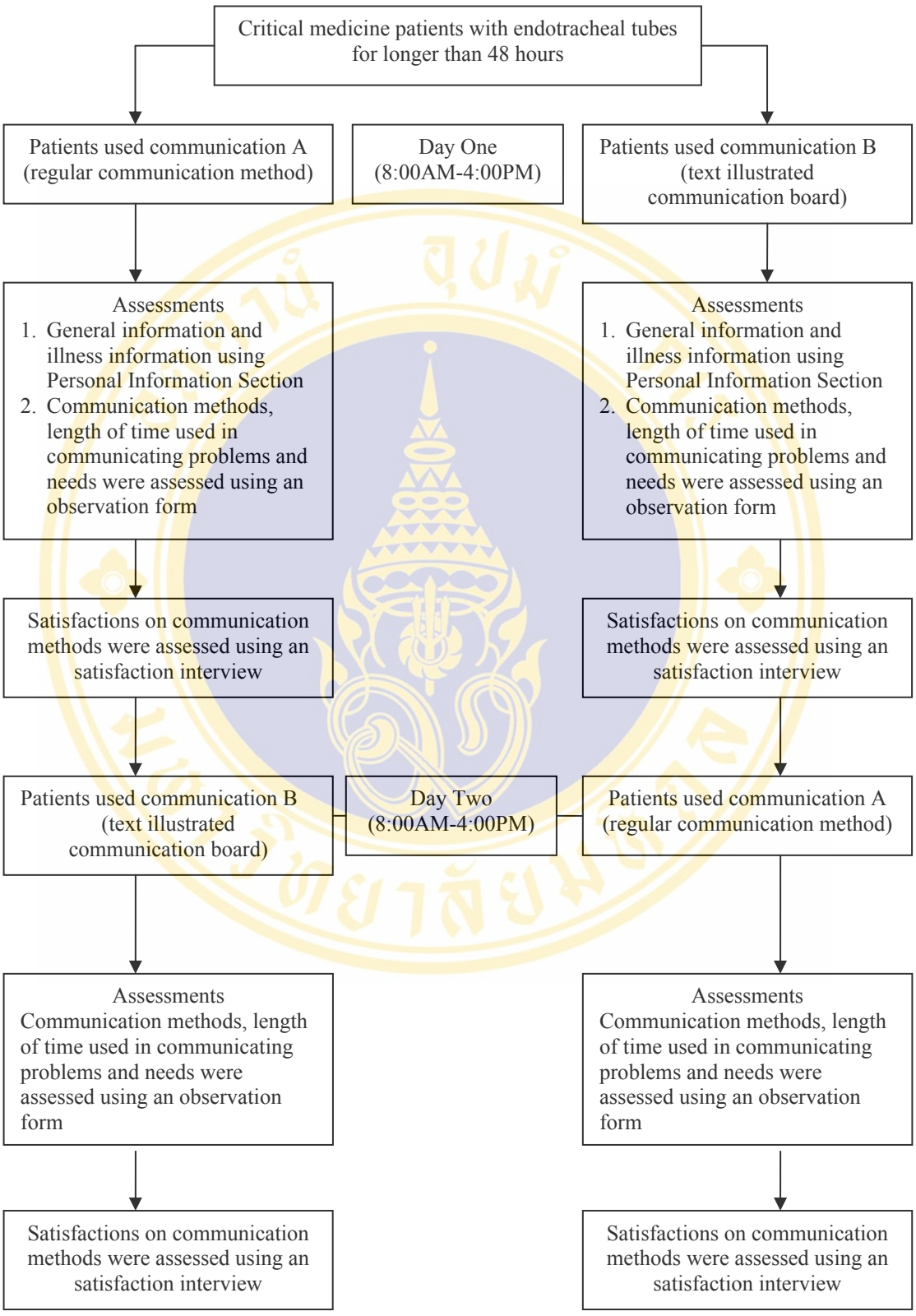

Figure 2 Data collection Method

Data Analysis

The data were collected using a statistical software with details of analyses as follows:

1. Data on personal information were analyzed using frequencies and percents.

2. Number of times of communications in patients with oroendotracheal tubes was described with means and standard deviations. The comparisons of differences between means from both communication methods were tested with the Paired T-test with 95% confidence level.

3. Length of time patients used until their problems and needs were responded in both communication methods was presented with means and standard deviations. The comparisons of differences between means of time used in both communication methods were tested with the Paired T-test with 95% confidence level.

4. Mean scores on satisfactions on both communication methods were compared using the Paired T-test with 95% confidence level.

Protection of Human Subjects

Patients participated in the study were protected according to human subject rights in conducting research on human. The researcher explained the descriptions of this study prior to the data collection process began as well as asked for permissions to observe and interview the samples and their relatives. The samples, including their relatives, could make decision whether or not to participate in the study at any time, without any effects on treatments and cares the patients were receiving or were planned to receive. The informed consent was prepared and signed before the study began. All information collected form the samples were kept confidential. The data were reported as a group of the sample with no samples' identifiers.

Conditions of Termination

The researcher terminated the study on the sample on situations as follows:

1. Physicians removed the endotracheal tubes during the data collection process.

2. Physicians changed from oroendotracheal tubes to nasoendotracheal or tracheostomy tubes.

3. The sample requested to discontinue to participate the study.

4. Physicians recommended the termination of the study such as complications from infections or respiratory failure.

CHAPTER IV
RESULTS

This study compared the effects of 2 communication methods on responses to problems and needs as well as satisfactions in communication among patients with oroendotracheal tubes. The two communication methods were using text illustrated communication board and regular communication. In responding to problems and needs, this study looked at the number or frequency of communication used on each method and length of time used to communication until the problems and needs had been responded. Results from the study can be presented in 4 sections.

Section 1 Personal information divided into general and illness information

Section 2 Comparison of number of communications patients with oroendotracheal tubes used until problems and needs were responded between using text illustrated communication board and regular communication

Section 3 Comparison of time of communications patients with oroendotracheal tubes used until problems and needs were responded between using text illustrated communication board and regular communication

Section 4 Comparison of patients with oroendotracheal tubes' mean satisfaction scores between using text illustrated communication board and regular communication

Section 1 Personal information

1.1 General information

Patients in this study were one group of 30 critical medicine patients with oroendotracheal tubes. Personal information of the patients categorized by gender, age, marital status, educational level, occupation, income, and reading ability were displayed in Table 2.

Table 2 Demographic information of critical med7icine patients with oroendotracheal tubes

Demographic Information	Number (total = 30)	Percentages
Gender		
Female	17	56.67
Male	13	43.33
Age (years)		
18-20	2	6.67
21-40	6	20.00
41-60	5	16.67
More than 60	17	56.66
Marital status		
Married	15	50.00
Divorced, widowed, separated	10	33.33
Single	5	16.67
Education		
None	1	3.33
Primary school	16	53.33
High school	5	16.67
Diploma	5	16.67
Undergraduate (bachelor degree)	2	6.67
Postgraduate (beyond bachelor degree)	1	3.33
Occupation		
Wage worker	15	50.00
Housewife	9	30.00
Government	4	13.33
Agriculture	1	3.33
Students	1	3.33

Table 2 Demographic information of critical medicine patients with oroendotracheal tubes (continued)

Demographic Information	Number (total = 30)	Percentages
Monthly salary		
No salary	13	43.33
Less than 1,000 Baht	1	3.33
1,001 – 5,000 Baht	6	20.00
5,001 – 10,000 Baht	3	10.00
10,001 and above	7	23.33
Reading ability		
Able to read	28	93.33
Unable to read	2	6.67

According to Table 2, the majority of the critical medicine patients with oroendotracheal tubes participated in the study was females (56.67%), aged 60 years and over (56.67%), were married (50.00%), had primary school education (53.33%), were wage workers (50.00%), and had no income (43.33%). Almost all (93.33%) were able to read.

1.2 Illness information

The patients were critical medicine patients who were intubated orally for longer than 48 hours and could communicate while on endotracheal tubes. They were diagnosed with illness in different systems as shown in Tables 3, 4, and 5.

Table 3 Numbers and percentages of critical patients in medicine with oroendotracheal tubes by organ systems and diagnosis

Diagnosis	Number (n = 30)	Percentages
Respiratory system (Respiratory failure, Asthma, Chronic Obstructive Pulmonary Disease, Pneumonia, Anaphylactic shock)	13	43.33
Cardiovascular system (Congestive heart failure, Myocardial infarction, Coronary artery disease, Sepsis, Ischemic heart disease)	10	33.33
Urinary system (Chronic renal failure)	4	13.33
Digestive system (Liver cirrhosis, Hepatitis, CA sigmoid colon)	2	6.67
Neurological system (Snake bite)	1	3.33

From Table 3, it was found that the majority of diagnoses among critical edicine patients were diseases in the respiratory system (43.33%), followed by the cardio-vascular system (33.33%). The system that found least among the patients was the Neurological system (3.33%).

Table 4 Numbers and percentages of critical patients in medicine with oroendotracheal tubes by number of days that the patients on endotracheal before participating the study

Number of days on endotracheal tubes (Days)	Number (n = 30)	Percentages
2	17	56.67
3	1	3.33
4	4	13.33
5	3	10.00
7	2	6.67
8	1	3.33
10	1	3.33
17	1	3.33

Table 4 shows that the majority of patients had oroendotracheal tubes for 2 days before joining the study with 17 patients (56.67%), followed by 4 days with 4 patients (13.33%) and 5 days with 3 patients (10.00%). The lowest number of patients found to had had oroendotracheal tubes for 3, 8, 10, and 17 days with 1 patient for each group (6.67%).

Table 5 Numbers and percentages of critical medicine patients with oroendotracheal tubes by regular communication methods used

Method of regular communication	Number of critical patients in medicine with oroendotracheal tubes (n = 30)	Percentages
Nodding/shaking head	30	100
Gesturing	28	93.33
Facial expressing	27	90.00
Writing on paper	5	16.67

As shown in Table 5, all critical medicine patients (100%) with oroendotracheal tubes used nodding an shaking heads as a means for regular communications, followed by gesturing (93.33%) and facial expressing (90.00%). The method found least frequently used among the patients was writing on paper (16.67%).

Section 2 Comparison of number of communications patients with oroendotracheal tubes used until problems and needs were responded between using 2 communication methods were displayed in Tables 6-7

Table 6 Comparison of the number of time used to communicate with text illustrated communication board and regular communication methods (n=30)

Sample	Number of time used to communicate		t	p-value
	$\bar{X}$	SD		
Using text illustrated communication board	16.00	3.27	3.71	.000
Using regular communication method	12.83	4.68		

As shown in Table 6, critical medicine patients with oroendotracheal tubes used text illustrated communication boards ($\bar{X}$ =16.00, SD=3.27) more frequently than regular communication method ($\bar{X}$ =12.83, SD=4.68) at the .05 significance level.

Table 7 Comparisons on the number of time used to communicate using text illustrated communication board and regular communication methods categorized by groups of patients' problems and needs (n=30)

Problems and Needs	Text illustrated communication board		Regular communication		t	p-value
	$\overline{X}$	SD	$\overline{X}$	SD		
Having sore throat	2.13	.73	1.73	.83	2.45	.011
Hungry	2.07	.98	1.37	1.19	3.45	.001
Want to remove the tube	1.97	.62	1.93	1.10	.19	.426
Need suction	1.93	.64	1.80	.76	1.28	.106
Thirsty	1.80	1.00	1.33	1.10	2.45	.010
Please change position	1.70	.79	1.37	1.00	2.41	.012
Tired	1.13	1.11	.73	.98	1.93	.032
Elevate the head part of the bed	1.10	1.06	1.37	1.19	-.88	.193

As shown in Table 7, it was found that the patients used text illustrated communication boards to express their problems and needs more frequently than regular communication method in 5 groups of problems and needs at the .05 significance level. The 5 groups of problems and needs were "having a sore throat", "hungry", "thirsty", "please change position", and "tired." The rest of the problems and needs that found not significantly different between the two communication methods were "want to remove the tube", "need suction", and "elevate the head part of the bed."

Table 8 Number of time the text illustrated communication boards used grouped by problems and needs (n=30)

Problems and Needs	Text illustrated communication board	
	$\overline{X}$	SD
Wanted to go home	1.27	1.17
Could not sleep	1.20	1.19

According to table 8, patients with endotracheal tubes used text illustrated communication boards to communicate their problems and needs in 2 regards: "wanted to go home" ($\overline{X}$ = 1.27, SD = 1.17) and "could not sleep" ($\overline{X}$ = 1.20, SD = 1.19). There was no report about patients using regular communication methods to express these 2 concerns.

Section 3 Comparison of time of communications patients with oroendotracheal tubes used until problems and needs were responded between using text illustrated communication board and regular communication was displayed in Table 9

Table 9 Comparison of the length of time critical medicine patients with oroendotracheal tubes used to communicate until their problems and needs were responded between using text illustrated communication board and regular communication method

Problems and Needs	Time Used (Seconds)				t	p-value
	Text Illustrated Communication Board		Regular Communication			
	$\overline{X}$	SD	$\overline{X}$	SD		
Need suction (n=26)	26.31	7.34	30.94	7.19	5.97	.000
Having sore throat (n=25)	23.60	8.05	29.32	7.34	9.18	.000
Want to remove the tube (n=24)	24.96	7.62	28.50	8.04	6.14	.000
Please change position (n=19)	16.56	5.55	21.08	7.71	3.92	.000
Thirsty (n=19)	20.53	8.04	23.58	7.11	4.27	.000
Hungry (n=18)	18.17	6.54	20.75	6.02	4.78	.000
Tired (n=9)	27.33	5.96	33.33	6.33	4.65	.001
Elevate the head part of the bed (n=8)	17.00	6.82	20.75	6.02	5.56	.000
Worry or tense (n=7)	24.71	6.24	29.53	8.22	2.74	.017
Cannot breath (n=5)	25.00	7.58	34.00	6.52	3.76	.010

It was found that length of time used in communicating patients' problems and needs using text illustrated communication board was significantly lower than the

regular communication methods in all 8 groups of problems and needs at .05 significant level.

Table 10 Length of time patients with endotracheal tubes used to communication with only text illustrated communication method until their problems and needs were responded grouped by patients' problems and needs

Problems and Needs	Text Illustrated Communication Board	
	$\overline{X}$	SD
Wanted to go home (n=2)	28.00	7.071
Could not sleep (n=2)	35.50	3.536

According to table 10, the average time (seconds) the patients with endotracheal tubes used to communicate with text illustrated communication board, without using regular communication methods, until their problems and needs were responded in 2 regards: "wanted to go home" and "could not sleep" were 28.00 seconds (SD=9.19) and 31.50 seconds (SD=9.19) respectively.

Section 4 Comparison of patients with oroendotracheal tubes' mean satisfaction scores between using text illustrated communication board and regular communication

The comparison of patients with oroendotracheal tubes' on satisfaction mean scores between both communication methods was displayed in Table 11

Table 11 Comparison of satisfaction mean scores between using the text illustrated communication boards and the regular communication methods

Samples	Scores on satisfaction		t	p-value
	$\overline{X}$	SD		
With text illustrated communication board	12.93	1.89	6.54	.000
With regular communication	9.77	2.55		

As shown in Table 11, the patients' mean scores of satisfaction from using the text illustrated communication boards ($\overline{X}$ =12.93, SD=1.89) was significantly higher than from using regular communications ($\overline{X}$ =9.77, SD=2.55) at .05 significance level.

In addition to information provided, it was found from the survey about the text illustrated communication board that critical medicine patients with oroendotracheal tubes agreed that:

1. The size of the charts and the pictures in the charts was appropriate (100%)
2. The colors used in the charts were clear (100%)
3. The charts communicated directly on the problems and needs (100%)
4. Two patients felt that there should be more pictures in the charts (6.67%)

CHAPTER V
DISCUSSION

This study compared two communication methods on the responses to problems and needs including satisfactions on communication among critical medicine patients with oroendotracheal tubes admitted to intensive care unit at Bamrasnaradura Institute and medicine intensive care unit at Phra Nang Klao Hospital. Patients in this one-group change over design study were 30 patients who received both communication programs, communicating with text illustrated communication boards and communicating regularly. Analyzed data were discussed by research hypotheses as follows.

Hypothesis 1: Patients with oroendotracheal tubes communicated with text illustrated communication boards more frequently than the regular communications.

In this study, critical medicine patients with oroendotracheal tubes used text illustrated communication boards to communicate their problems and needs significantly more frequently than the regular communication ($p<.05$) (shown in Table 6). The finding supported hypothesis 1 and could be explained that the text illustrated communication boards that were color cartoons showing patients with oroendotracheal tubes' basic problems and needs. The pictures and texts were grouped in different categories drawing patients' interests and making the pictures easy for patients to understand. They helped make patients express their problems and needs to nurses more frequently. According to Rankin & Stallings (1990), patients prefer to learn from pictures because they help patients understand the contents better. The pictures also attract patients' interest as well as help patients better memorized the contents. Colors used in pictures help patients think about authentic portray. Similarly, Redman (1993)

explained that learning from pictures were more effective than learning from words because pictures could provide details and helped patients memorized what they were learning better. Moreover, cartoons were a better way to draw persons' attention.

When analyzing the frequency of communications by problems and needs in patients with oroendotracheal tubes among two communication methods, text illustrated communication boards and regular communication method (shown in Table 7), average times of communications using text illustrated communication boards in 5 activities including "having a sore throat", "hungry", "thirsty", "please change position", and "tired" were significantly higher than regular communications ($p<.05$). It can be explained from this findings that, these 5 activities were patients' with oroendotracheal basic problems and needs. They were difficult for patients with endotracheal tubes to communicate through regular methods such as gesturing. Or nurses might not understand correctly when using regular communication methods in these activities (Leathart 1994 cited in Wojnicki-Johansson, 2001). Communicating with text illustrated communication boards helped patients to more conveniently and quickly express their problems and needs to nurses. Patients therefore used this method more frequently than the regular method in 5 activities.

The average times patients used in communicating 3 problems and needs namely "want to remove the tube", "need suction", and "elevate the head part of the bed" using text illustrated communication boards were not significantly different from using the regular communication method ($p>.05$). It could be explained that these 3 activities were basic problems and needs frequently found among patients with endotracheal tubes. Nurses usually expected the communications of these needs from patients therefore patients could express their needs more easily, resulting in the equal use of both communication methods. Happ (2001) stated that some of patients' basic needs and activity of daily living were easily communicated. For example, when patients wanted to communicate their need for suction, they could just bend their finger like a hook and pointed at their mouth or throat. Happ also said that gesturing was a most frequent used communication method especially when patients cannot communicate verbally. Similarly patients with endotracheal tubes who usually had experiences in regular communications used gesturing as a method of communication especially in basic problems and needs. It was found in this study that the patients used

gestures with facial expressions to communicate problems and needs in 3 areas that were “want to remove the tube”, “need suction”, and “elevate the head part of the bed.” For example, patients would point at the endotracheal tube and acted like pulling the tube in the air when they wanted nurses to remove the tubes for them. They would point at their mouths with showing twisted eyebrows like they could not breath to let the nurses knew that they need suction. Or they would wave their hands over their heads when they wanted the head part of their bed to be elevated. These problems and needs were simple and easy for nurses to understand. When patients used equally both communication methods in all 3 activities, it means that the text illustrated communication boards which was newly introduced could actually replace regular communication methods because the communication boards were relatively easy to understand and use.

Based on reviews of related study, there was no study compared the number of times or frequency of uses of communication board. However, there was a study by Happ et al. (2003) on using assistive communication devices with critical medicine patients with endotracheal tubes. It was found from that study that Electronic Voice-Output Communication Aids (VOCAs) helped people communicate with less difficulty. The patients used Aids to communicate their problems and needs to health care team more frequently than communicating without Aids.

It was also found from the study that problems and needs found among patients with endotracheal tubes who used text illustrated communication methods as only communication means included 2 regards: wanted to go home and could not sleep (as shown in table 8). Being a psychological needs, it is harder for patients to communicate with regular methods (Hafsteindotti,1996). Text illustrated communication boards were therefore the only means of communication patients could used to express their feelings and psychological needs to nurses. They helped patients in communicating their problems and needs while reduced difficulties in communication (Sasichai, 1990 & Kanha, 2003). Nurses could directly respond to patients’ needs. Psychological problems are crucial. Without proper responds, the symptoms patients has might be aggravated (Happ, Roesch & Garrett, 2004).

Hypothesis 2: Patients with oroendotracheal tubes communicated with the text illustrated communication boards used the length of time less than the regular communications.

In this study, patients with oroendotracheal tubes used significantly less time to communicate their problems and needs with text illustrated communication boards comparing with regular communication methods ($p<.05$) as shown in Table 9. The text illustrated communication boards were pictures with texts describing critical medicine patients' problems and needs grouped in different categories. They were clear and easy to understand and use. According to Withayakorn Chiangkool (2004), the brain would learn all the time in order to survive. The brain would select only information that was meaningful. The best way for the brain to memorize and learn was through practice or through pictures. Therefore when patients wanted to communicate their problems and needs to nurses, they needed a quick and easy way to send their messages. With assistive devices like text illustrated communication board, patients could communicate their problems and needs easily, quickly, and conveniently. It helped reduce hurdles and shorten the communication time.

Results from this study supported Thitinat Sasichay's study (1990) where regular communication methods were used with electronic communication device. Post-operative patients with endotracheal tubes used the press-down buttons to helped communicate with nurses and health care team more easily and quickly. Results from another study by Suthada Kanha (2003) also supported that using assistive devices in critical medicine patients with endotracheal tubes helped reduce communication difficulties. One of the communication devices used in this study was the text illustrated communication board which was found to be an effective tool that shortened communication time and reduced misunderstandings between patients and nurses.

Regular communication methods in patients with oroendotracheal tubes were the method without any assistive device. Problems arise with some problems and needs cannot be communicated quickly or they may require a lot of efforts or time from patient side, causing misunderstandings between nurses and patients. Examples of these methods included gesturing, facial expressing, using eye contacts, and

nodding/shaking heads. In critical patients, the severity, pain, and muscle fatigue could limit the ability to communicate (Hafsteindottirr, 1996; Happ, 2001). Nurses or message receivers might need to guess what patients wanted to communicate, requiring skills and experiences in interpreting the meaning. Time used in the whole communication process was longer with regular communication methods than with text illustrated communication boards.

According to table 9, when comparing the difference of time patients with endotracheal tubes used until their problems and needs had been responded even though the time used in communicating with text illustrated communication board were not a lot fewer than the time used in regular communication methods, some problems and needs were critical and would affect patients' condition such as "tired", "could not breath", and "need suction." These problems and needs needed about 6-9 seconds shorter when using text illustrated communication board as compared to regular communication methods. When these problems and needs presented, without immediate actions patients could have hypoxia and even die. In severe hypoxia, the brain will not function in 4-6 seconds. In 10-20, patients might have seizure and coma. The brain will be permanently damaged within 3-5 minutes (Unnapirak et al., 2000).

Regarding average time patients used to communicate categorized by problems and needs (as shown in table 10), 2 concerns: "wanted to go home" and "could not sleep" needed more time to communicate than other concerns, though using text illustrated communication methods (as compared to table 9). This showed that these 2 issues were difficult and required more time to communicate. It might take longer to communicate with regular methods.

Hypothesis 3: Patients with oroendotracheal tubes communicated with the text illustrated communication boards more satisfied than when communicating with the regular communications.

It was found that patients with oroendotracheal tubes were more satisfied with the text illustrated communication boards than with the regular communications at the .05 significance level as shown in Table 11. This finding supported Hypothesis 3 and could be explained that the text illustrated communication board helped patients

communicated their problems and needs to nurses correctly and quickly. Patients who used the text illustrated communication board received helps that directly correspond to their needs with less time and efforts. The effectiveness of the communication boards helped improve patients' satisfaction. According to Mullins (1985), persons' satisfactions occurred when their basic needs or their expectations were fulfilled. Wongduan Suwankeree and Chuleekorn Danyuthasilp (2001) also said that different satisfaction levels happened when persons were responded to their basic needs. Similarly, Megivern et al. (1992) also said that effective communications between nurses and patients assisted nurses in assessing patient problems and needs quickly and correctly. Patients' satisfactions came from direct responses to their problems and needs.

Results from this study supported a study by Stovsky et al. (1988) which found that text illustrated communication board used with post-operative surgical patients with endotracheal tubes helped improve patient interests and satisfactions when comparing with regular communications because the pictures attracted patients interests (Rankin & Stallings, 1990). Similarly, Thithinat Sasichay (1990) also found that post-operative patients were more satisfied with using regular communication combined with assistive communication equipments than using regular communication only because the combined methods helped their express their basic needs conveniently, quickly, and correctly. Additionally, a study by Suthada Kanha (2003) also found that regular communication with assistive equipments especially the text illustrated communication board helped improve critical medicine patients' satisfactions and helped reduce difficulties in communications.

In patients with oroendotracheal tubes who used regular communication method such as gesturing, using facial expressions, nodding/shaking heads, moving lips, and writing on papers, Hafsteindottir (1996) stated that regular communications could not assist patients with oroendotracheal tubes to completely communicate their problems and needs. Patients needed to put a lot of efforts communicating due to the fact that these methods had no assistive equipments. According to Gulanick, Klopp, Galanes, Gradishar, & Puzas (1998), nonverbal communications were difficult to understand. They could cause frustrations and/or anxiety. Similarly, according to Bergbom-Engberg, & Haljamae (1989) and Happ, Roesch, &Garrtt (2004), it was also

found that inability to verbally communication among patients with endotracheal tubes created psychological impacts, causing anxiety, exhaustion, hopelessness, insecurity, and dissatisfaction. Avis et al (1995), Kane et al., and Jittawadee Hreanthong (1999) also stated that patients' satisfactions were the perceptions of nursing care that met their expectations. The higher the needs were responded, the higher the satisfactions and vice versa. Therefore patients who used the regular communication methods only would be less satisfied than those who used the text illustrated communication boards in communications.

CHAPTER VI
CONCLUSION

This study was an experimental research with cross-over design. The objective of the study was to compare the effects of 2 communication methods on responses to problems and needs as well as satisfactions in communications among patients with endotracheal tubes. The two communication methods were consisted of the text illustrated communication boards and the regular communication methods. In looking at effectiveness in responding to patients' problems and needs, two areas were studied including number of times each communication method was used and length of time patients used for each communication method until their problems and needs were responded. Patients were the one-group of 30 critical medicine patients who were intubated orally for longer than 48 hours from the intensive care unit at Bamrasnaradura Institute and from the medicine intensive care unit at Phra Nang Klao Hospital. The data were collected between October 2005 and May 2006. The inclusion criteria of the patients were that the eligible patients participated in this study needed to be intubated for longer than 48 hours, be good conscious evaluated by having 10 points from the Glasgow Coma Scale (GCS) assessments in 2 areas: Eyes opining:E and Motor response: M areas, have regular visions and hearings, and have physicians' permissions to joined the study. The exclusion criteria of the patients included having fewer than 10 points from the GCS assessments in both areas Eyes opining:E and Motor response: M areas, having history of mental illness, and having complications such as infections or respiratory failure once joined the study.

Instruments used in this study were divided into 2 parts. The first instrument used for communication programs was the text illustrated communication boards. The communication boards were the charts filled with pictures and texts expressing problems and needs found in critical medicine patients. The instruments used for the data collection process were divided into 3 parts, including personal information questionnaires, observation forms on responses to problems and needs, and interview forms on satisfactions on communication methods. The data were collected by the

researcher through observations on responses to problems and needs and through interviews on satisfaction on communication methods.

The instruments reviewed for content validity were the text illustrated communication boards, observation forms on responses to problems and needs, and interview forms on satisfactions on communication methods. After being reviewed, the instruments were tried out with 10 patients with endotracheal tubes before making revisions.

The data were analyzed using statistical software and the analyzed data were presented using frequencies, percentages, means, and standard deviations. The comparisons of the results were tested using Paired T-test. Results from this study can be presented as follows:

1. The patients with oroendotracheal tubes communicated with the text illustrated communication board more frequently than with the regular method at the .05 significant level.

2. The patients with oroendotracheal tubes used significantly less time to communicate their problems and needs with text illustrated communication boards as compared with the regular communication methods at the .05 significant level.

3. The patients with oroendotracheal tubes were more satisfied when using the text illustrated communication boards as compared with the regular communication methods at the .05 significant level.

Recommendations on the Use of Research Results

Recommendations for nursing practices

1. Researcher presented the results and benefits for patients with endotracheal tubes from this study to the nursing division in order for nurses to realized the importance and effectiveness of the communication methods and ultimately to apply to their regular works in intensive care units. Nurses should realize the importance of effective communications in patients with endotracheal tubes and should make the text illustrated communication boards available for patients admitted to their units.

2. The text illustrated communication boards should be promoted for widely used among critical medicine patients with oroendotracheal tubes since they are an

alternative for easier and more effective communications They can help communicate patients' problems and needs to health care teams with less efforts and time.

3. The text illustrated communication boards should be applied and adapted for extensive uses in patients in other groups such as for preoperative patients, patients with tracheostomy tubes, as well as in patients with communication

4. Impaired (although without endotracheal tubes) in order to for them to effectively communicate their problems and needs as well as improve their satisfactions.

5. The text illustrated communication boards can be developed by adding more pictures that corresponding to additional problems and needs in patients with endotracheal tubes so nurses and health care team can more effectively communicate with those patients, especially with psychological problems and needs frequently found during the study such as "lacking of family income", "feeling low self-worth", "feeling despair", etc.

Recommendations for future researches

1. The text illustrated communication boards should be tested with other patients with communication problems such as patients with tracheostomy tubes or patients with good conscious but have communication impaired (although without endotracheal tubes) e.g. patients with laryngotomy.

2. A comparative study on patients who use the text illustrated communication and those who use the regular communication methods can be conducted by looking at responses to problems and needs including patients' satisfaction on communication methods. The comparisons can be done between preoperative patients and medical patients with oroendotracheal tubes.

3. A comparative study on responses to problems and needs including satisfactions on the text illustrated communication boards and regular communication methods in critical medicine patients with oroendotracheal tubes within 12-48 hours and those with oroendotracheal tubes for longer than 48 hours should be done.

4. A comparative study between using the text illustrated communication board and other communication methods such as using electronic devices should be conducted.

5. Future study should gear toward examining integrated communication methods such as comparing text illustrated communication method with regular communication methods and other forms of communication.

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ในพระราชูปถัมภ์สมเด็จพระศรีพัชรินทราบรมราชชนนี .นวัตกรรมทางการพยาบาล: ประสบการณ์ตรงจากผู้สร้าง เรื่อง การสร้างแนวปฏิบัติการพยาบาลเพื่อส่งเสริมการสื่อสารระหว่างพยาบาลกับผู้ป่วย ในกรณีใส่ท่อช่วยหายใจ. นครปฐม: โรงพิมพ์สถาบันพัฒนาการสาธารณสุขอาเซียน มหาวิทยาลัยมหิดล.

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APPENDIX

APPENDIX A
LIST OF EXPERTS

The validty of research instruments was assessed by five consulting experts:

1. Asst.Prof.Doungrut Wattanakitkrilert,
   Department of Nursing, Faculty of Nursing, Mahidol University
2. Asst.Prof. Wimonrat Poowarawutpanit
   Department of Nursing, Faculty of Nursing, Mahidol University
3. Dr. Somsit Tansuphaswadikul
   Department of Medicine, Bamrasnaradura Institute
4. Mrs. Chaweevan Kongrod
   Intensive Care Unit, Bamrasnaradura Institute
5. Mrs. Arom Disthakumpa
   Intensive Care Unit, Bamrasnaradura Institute

APPENDIX B

ETHICAL CLEARANCE

No. 135/2005

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

Title of Project: Comparison of Two Communication Methods towards Responded Problems, Needs and Satisfaction in Communication of the Oroendotracheal Tube Patients
(Thesis for Master Degree)

Principle Investigator: Miss Treeyada Toprasert

Name of Institution: Faculty of Nursing

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman: .....
(Professor Dr.Srisin Khusmith)

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

Date of Approval: 10 OCT 2005

Date of Expiration: - 9 OCT 2006

FM – REC – 06 – 01

แบบสรุปผลการพิจารณาโครงการวิจัยสถาบันบำราศนราดูร

(1023)

เลขที่งานวิจัย ว. BIA-27-05 วันที่ 15 กันยายน 2548

เรื่อง การสรุปการพิจารณาโครงการวิจัย

เรียน ผู้อำนวยการสถาบันบำราศนราดูร

จากการพิจารณาโครงการวิจัยเรื่อง เปรียบเทียบการสื่อสาร 2 วิธีต่อการตอบสนองปัญหา ความต้องการและความพึงพอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก

ผู้วิจัย นส. ตรียฎา โตประเสริฐ

มีผลการพิจารณาของคณะกรรมการมีดังนี้

- ☑ คณะกรรมการพิจารณาโครงร่างการวิจัย ☑ ผ่านการพิจารณา ☐ ไม่ผ่านการพิจารณา
- ☐ คณะกรรมการพิจารณาผลประโยชน์งานวิจัย ☐ ผ่านการพิจารณา ☐ ไม่ผ่านการพิจารณา
- ☐ กลุ่มงานที่เกี่ยวข้อง ☐ ผ่านการพิจารณา ☐ ไม่ผ่านการพิจารณา
- ☐ สรุปความคิดเห็นอื่นๆ เห็นควรอนุมัติ โดยให้แก้ไขตามที่คณะกรรมการพิจารณาโครงร่างแนะนำด้วย

จึงเรียนมาเพื่อโปรดพิจารณา

1658
22 ก.ย. 48
15.00 น.

(แพทย์หญิงรุจนี สุนทรขจิต)
ประธานคณะกรรรมการพิจารณาโครงการวิจัย

☑ ทราบ
☐ อนุมัติ ☐ ไม่อนุมัติ
☐ อื่น ๆ

(แพทย์หญิงศิริวรรณ สิริกวิน)
รองผู้อำนวยการสถาบันบำราศนราดูร
ที่ปรึกษาคณะกรรมการพิจารณาโครงการวิจัย
19 / ก.ย. / 48

☑ อนุมัติ ☐ ไม่อนุมัติ
☐ อื่น ๆ

(แพทย์หญิงอัจฉรา เชาวะวณิช)
ผู้อำนวยการสถาบันบำราศนราดูร
21 / ก.ย. / 48

เอกสารรับรองคณะกรรมการจริยธรรมการวิจัยในมนุษย์
โรงพยาบาลพระนั่งเกล้า

ชื่อโครงการ	เปรียบเทียบการสื่อสาร 2 วิธีต่อการตอบสนองปัญหาและความต้องการและความพึงพอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก
ชื่อหัวหน้าโครงการ	นางสาวตรีญดา โตประเสริฐ
สังกัดหน่วยงาน	นักศึกษาหลักสูตรพยาบาลศาสตรมหาบัณฑิต สาขาการพยาบาลผู้ใหญ่ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล
เอกสารที่รับรอง	- โครงการวิจัย - หนังสือยินยอมและการพิทักษ์สิทธิ์สำหรับผู้ป่วย

ได้ผ่านการพิจารณาและรับรองโดยคณะกรรมการจริยธรรมการวิจัยในมนุษย์เมื่อวันที่ 30 พฤศจิกายน 2548

ข้อเสนอแนะเพิ่มเติม

- ควรเพิ่มหนังสือแสดงความยินยอมให้ทำการวิจัยจากแพทย์เจ้าของไข้

ลงนาม.....
(นายแพทย์ดุลวิทย์ ตปนียากร)
รองประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์
โรงพยาบาลพระนั่งเกล้า

ลงนาม.....
(แพทย์หญิงสุรีพร ภัทรสุวรรณ)
เลขานุการคณะกรรมการจริยธรรมการวิจัยในมนุษย์
โรงพยาบาลพระนั่งเกล้า

APPENDIX C
PERMISSION LETTER OF DATA COLLECTION

บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล
คณะแพทยศาสตร์ศิริราชพยาบาล
ตึกจุลชีววิทยา ชั้น 4 2 ถนนพรานนก
เขตบางกอกน้อย กรุงเทพฯ 10700
โทร. 0-2411-2002 โทรสาร 0-2419-7060

ที่ ศธ 0517.02 (ศร)/ 1872

23 สิงหาคม 2548

เรื่อง ขอความอนุเคราะห์ให้นักศึกษาได้มาเก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์

เรียน ผู้อำนวยการสถาบันบำราศนราดูร จังหวัดนนทบุรี

สิ่งที่ส่งมาด้วย แบบสอบถาม, แบบสัมภาษณ์, อุปกรณ์การสื่อสาร (แผ่นภาพ) และแบบสังเกต จำนวน 1 ชุด

ด้วย นางสาวตรีญดา โตประเสริฐ นักศึกษาบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล หลักสูตรปริญญาโท สาขาวิชาการพยาบาลผู้ใหญ่ คณะพยาบาลศาสตร์ กำลังเขียนโครงร่างวิทยานิพนธ์ เรื่อง "เปรียบเทียบการสื่อสาร 2 วิธีต่อการตอบสนองปัญหา ความต้องการ และความพึงพอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก" อยู่ในความควบคุมของ รศ.เสาวลักษณ์ เล็กอุทัย ซึ่งในการศึกษาวิจัยครั้งนี้นักศึกษามีความประสงค์จะเก็บข้อมูลจากผู้ป่วยใส่ท่อช่วยหายใจทางปาก ณ สถาบันบำราศนราดูร จังหวัดนนทบุรี โดยใช้วิธีสัมภาษณ์ผู้ป่วยด้วยตนเอง ตั้งแต่เดือนสิงหาคม 2548 จนกว่าจะได้ข้อมูลครบ

บัณฑิตวิทยาลัย จึงใคร่ขอความกรุณาจากท่านโปรดอนุเคราะห์ให้นักศึกษาได้เก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์ตามที่เห็นสมควรด้วย จักเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ศาสตราจารย์ นพ.บรรจง มไหสวริยะ)
รองคณบดีฝ่ายวิจัย ปฏิบัติราชการแทน
คณบดีบัณฑิตวิทยาลัย

ติดต่ออาจารย์ผู้ควบคุมวิทยานิพนธ์ รศ.เสาวลักษณ์ เล็กอุทัย
โทรศัพท์ 0-6562-2651

ก.พัฒนาระบบบริการสุขภาพ
รับเลขที่ 2643
วันที่ 3 1 ต.ค. 2548
เวลา 16.30

ที่ ศธ 0517.02 (ศร)/2261

บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล
คณะแพทยศาสตร์ศิริราชพยาบาล
อาคารรักษ์สิ่งแวดล้อม ชั้น 3 2 ถนนพรานนก
เขตบางกอกน้อย กรุงเทพฯ 10700
โทร. 0-2411-2002 โทรสาร 0-2419-9485

27 ตุลาคม 2548

9868
28 ต.ค. 2548
13.59 น.

เรื่อง ขอความอนุเคราะห์ให้นักศึกษาได้มาเก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์

เรียน ผู้อำนวยการโรงพยาบาลพระนั่งเกล้า

สิ่งที่ส่งมาด้วย แบบสัมภาษณ์, แผ่นภาพประกอบข้อความ จำนวน 1 ชุด

ด้วย นางสาวศรีญดา โตประเสริฐ นักศึกษาบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล หลักสูตรปริญญาโท สาขาวิชาการพยาบาลผู้ใหญ่ คณะพยาบาลศาสตร์ กำลังทำวิทยานิพนธ์ เรื่อง "เปรียบเทียบการสื่อสาร 2 วิธี ต่อการตอบสนองปัญหา ความต้องการ และความพึงพอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก" อยู่ในความควบคุมของ รศ.เสาวลักษณ์ เล็กอุทัย ซึ่งในการศึกษาวิจัยครั้งนี้นักศึกษามีความประสงค์จะเก็บข้อมูลจากผู้ป่วยวิกฤตอายุรกรรมที่ใส่ท่อช่วยหายใจทางปากที่หอผู้ป่วยหนักอายุรกรรม โรงพยาบาลพระนั่งเกล้า โดยใช้วิธีสัมภาษณ์ผู้ป่วยด้วยตนเอง ตั้งแต่เดือนตุลาคม 2548 จนกว่าจะเก็บข้อมูลครบ

บัณฑิตวิทยาลัย จึงใคร่ขอความกรุณาจากท่านโปรดอนุเคราะห์ให้นักศึกษาได้เก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์ตามที่เห็นสมควรด้วย จักเป็นพระคุณยิ่ง

เรียน หัวหน้ากลุ่มพัฒนาระบบบริการสุขภาพ

ขอแสดงความนับถือ

(ศาสตราจารย์ นพ.บรรจง มไหสวริยะ)
รองคณบดีฝ่ายวิชาการ
ปฏิบัติราชการแทน คณบดีบัณฑิตวิทยาลัย

ติดต่ออาจารย์ผู้ควบคุมวิทยานิพนธ์ รศ.เสาวลักษณ์ เล็กอุทัย
โทรศัพท์ 0-6562-2651

(นายพงษ์ศักดิ์ เอกจริยาวัฒน์)
ผู้อำนวยการโรงพยาบาลพระนั่งเกล้า

28 ต.ค. 2548

APPENDIX D
CONSENT FORM

ชื่อโครงการ เปรียบเทียบการสื่อสาร 2 วิธีต่อการตอบสนองปัญหา ความต้องการ และความพึง พอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก

ชื่อผู้วิจัย นางสาวตรีญดา โตประเสริฐ

สถานที่วิจัย หอผู้ป่วยหนัก สถาบันบำราศนราดูร และหอผู้ป่วยหนักอายุรกรรม โรงพยาบาลพระนั่งเกล้า

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาเปรียบเทียบการสื่อสาร 2 วิธีต่อการตอบสนองปัญหา ความต้องการและความพึงพอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก ซึ่งจะมีประโยชน์ที่คาดว่าจะได้รับคือเป็นแนวทางในการปรับปรุงวิธีการสื่อสารในผู้ป่วยที่ใส่ท่อช่วยหายใจให้มีประสิทธิภาพ และสามารถนำไปสร้างเป็นมาตรฐานในการพยาบาลต่อไป

ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เพราะท่านเป็นผู้ใส่ท่อช่วยหายใจทางปาก และการวิจัยนี้ทำขึ้นเพื่อเป็นแนวทางในการปรับปรุงวิธีการสื่อสารในผู้ป่วยที่ใส่ท่อช่วยหายใจ

จะมีผู้เข้าร่วมการวิจัยนี้ทั้งสิ้นประมาณ 30 คน ระยะเวลาที่จะทำวิจัยทั้งสิ้น 2 วัน

เมื่อท่านเข้าร่วมการวิจัยแล้ว สิ่งที่ท่านจะต้องปฏิบัติ คือ ใช้วิธีการสื่อสาร 2 วิธี ในการสื่อถึงปัญหาและความต้องการ โดยใช้วิธีการสื่อสารตามปกติเปรียบเทียบกับวิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความ และตอบแบบสัมภาษณ์ความพึงพอใจในวิธีการสื่อสาร

โครงการวิจัยครั้งนี้ ไม่ก่อให้เกิดอันตรายต่อผู้ป่วยแต่อย่างใด แต่ถ้าผู้ยินยอมตนให้ทำการวิจัยมีอาการจากภาวะของโรครุนแรงขึ้น เช่น มีภาวะแทรกซ้อนจากการติดเชื้อ หรือภาวะหายใจล้มเหลว เป็นต้น ผู้วิจัยจะยุติการศึกษาทันทีและให้ความช่วยเหลือตามความเหมาะสมโดยประสานงาน กับพยาบาลประจำหอผู้ป่วย และทีมแพทย์ผู้รักษาเพื่อให้ความช่วยเหลือ เพื่อให้ผู้ป่วยบรรเทาจากอาการต่างๆ รายงานอาจารย์ที่ควบคุมการทำวิจัยและผู้เกี่ยวข้อง ได้แก่ คณะกรรมการสิทธิมนุษยชนเกี่ยวกับการทดลองในมนุษย์ ทราบภายใน 24 ชั่วโมง

หากท่านมีข้อสงสัย หรือมีการเปลี่ยนแปลงเนื่องจากการวิจัยสามารถติดต่อ คุณตรีญดา โตประเสริฐ หมายเลขโทรศัพท์ 06- 5416198

หากท่านไม่เข้าร่วมในโครงการวิจัยนี้ ท่านก็จะได้รับการตรวจเพื่อการวินิจฉัย และรักษาโรคของท่านตามวิธีการที่เป็นมาตรฐาน หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วไม่ปิดบัง

ข้อมูลส่วนตัวของผู้เข้าร่วมการวิจัยจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของผู้เข้าร่วมการวิจัยเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย, สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ, คณะกรรมการจริยธรรมฯ เป็นต้น

ผู้เข้าร่วมการวิจัยมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่มีผลกระทบต่อการบริการและการรักษาที่สมควรจะได้รับแต่ประการใด

ข้าพเจ้าได้อ่านหรือหรือผู้วิจัยได้อ่านข้อความในเอกสารนี้ให้แก่ข้าพเจ้าฟังครบถ้วนแล้ว

ลงชื่อ.....*ผู้เข้าร่วมการวิจัย* (หรือประทับลายนิ้วหัวแม่มือ)

ลงชื่อ.....*ญาติ*

วันที่ .....

แบบฟอร์มการยินยอมและการพิทักษ์สิทธิ์ (Informed Consent Form)

การวิจัยเรื่อง เปรียบเทียบการสื่อสาร 2 วิธีต่อการตอบสนองปัญหา ความต้องการ และความพึง พอใจในการสื่อสารของผู้ป่วยใส่ท่อช่วยหายใจทางปาก

วันให้คำยินยอม วันที่.....เดือน.....พ.ศ.....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียด และมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้น จนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการวิจัยนี้โดยสมัครใจและการบอกเลิกการเข้าร่วมการวิจัยนี้ จะไม่มีผลต่อการรักษาโรคที่ข้าพเจ้าจะพึงได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ผู้วิจัยรับรองว่าหากเกิดอันตรายใดๆอันเนื่องจากการวิจัยดังกล่าว ข้าพเจ้าจะได้รับการรักษาพยาบาลโดยไม่คิดมูลค่าตามมาตรฐานวิชาชีพ และจะได้รับการชดเชยรายได้ที่สูญเสียไประหว่างการรักษาพยาบาลดังกล่าว ตลอดจนเงินทดแทนความพิการที่อาจเกิดขึ้น

ผู้วิจัยรับรองว่าหากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการวิจัย ข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบัง ซ่อนเร้น

ข้าพเจ้าได้อ่านหรือผู้วิจัยได้อ่านข้อความในใบยินยอมนี้ให้แก่ข้าพเจ้าฟังจนเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม.....ผู้ยินยอม

(หรือประทับลายนิ้วหัวแม่มือ)

ลงนาม.....ญาติ

ลงนาม..... แพทย์เจ้าของไข้

ลงนาม..... พยาน

ลงนาม..... พยาน

APPENDIX E

RESEARCH INSTRUMENT

เครื่องมือที่ใช้ในการศึกษาวิจัย ประกอบด้วย 3 ส่วน ดังนี้

ส่วนที่ 1 แบบสอบถามข้อมูลส่วนบุคคล

ส่วนที่ 2 แบบสังเกตการตอบสนองปัญหาและความต้องการของผู้ป่วยใส่ท่อช่วยหายใจ

ส่วนที่ 3 แบบสัมภาษณ์ความพึงพอใจของผู้ป่วยที่ใส่ท่อช่วยหายใจต่อการใช้วิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความและวิธีการสื่อสารตามปกติ

.....

เลขที่แบบประเมิน

☐☐

กลุ่ม ☐ ควบคุม วันที่.....

☐ ทดลอง วันที่.....

ส่วนที่ 1 แบบสอบถามข้อมูลส่วนบุคคล

ก. ข้อมูลทั่วไป

1. เพศ ☐ หญิง ☐ ชาย
2. ปัจจุบันอายุ.....ปี
3. สถานภาพสมรส

   ☐ โสด ☐ สมรสแล้ว โปรดระบุ.....☐ คู่ ☐ หย่า ☐ ม่าย ☐ แยกกันอยู่
4. ระดับการศึกษาสูงสุด

   ☐ ไม่ได้รับการศึกษา ☐ ประถมศึกษา ☐ มัธยมศึกษา

   ☐ ประกาศนียบัตร ☐ ปริญญาตรี ☐ สูงกว่าปริญญาตรี
5. อาชีพ ☐ นักเรียน นักศึกษา ☐ แม่บ้าน ☐ ค้าขาย

   ☐ รับจ้าง ☐ เกษตรกร ☐ รับราชการ

   ☐ อื่น ๆ ระบุ.....
6. รายได้ต่อเดือน

   ☐ ไม่มีรายได้ ☐ ต่ำกว่า 1,000 บาท ☐ 1,001- 5,000 บาท

   ☐ 5,000-10,000 บาท ☐ 10,001 บาทขึ้นไป
7. การอ่านหนังสือ ☐ อ่านได้ ☐ อ่านไม่ได้

ข. ข้อมูลการเจ็บป่วย

1. การวินิจฉัยโรค

   1.1.....

   1.2.....

   1.3.....

   1.4.....

2. วันที่ใส่ท่อช่วยหายใจ.....

3. การได้รับยาเกี่ยวกับการรับรู้ของผู้ป่วยได้แก่ ยานอนหลับ ยากล่อมประสาท และยาคลายกล้ามเนื้อ และระยะเวลาการได้รับยาก่อนเข้ากลุ่มการศึกษา

   5.1 ชื่อยา.....ระยะเวลาที่ได้รับยา.....

   5.2 ชื่อยา.....ระยะเวลาที่ได้รับยา.....

   5.3 ชื่อยา.....ระยะเวลาที่ได้รับยา.....

4. การรับรู้ของผู้ป่วย (คะแนนเต็ม 10 คะแนน)

   ☐ การลืมตา (Eyes open :E) คะแนนเต็ม 4 คะแนน ได้ ..... คะแนน

   ☐ การเคลื่อนไหว (Motor response : M) คะแนนเต็ม 6 คะแนน ได้ ..... คะแนน

   สรุปการรับรู้ของผู้ป่วย ☐ ปกติ (10 คะแนน)

   ☐ ผิดปกติ (น้อยกว่า 10 คะแนน)ระบุ.....

5. วิธีการสื่อสารที่ใช้ขณะใส่ท่อช่วยหายใจ

   ☐ การใช้ภาษาท่าทาง ☐ การแสดงออกทางสีหน้า ☐การพยักหน้า/การสั่นศีรษะ

   ☐ การเขียนในกระดาษ ☐ อื่นๆ 1..... 2.....

   3…….. 4……

ส่วนที่ 2 แบบสังเกตการตอบสนองปัญหาและความต้องการของผู้ป่วยใส่ท่อช่วยหายใจ ต่อวิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความและวิธีการสื่อสารตามปกติ

ปัญหาและความต้องการที่พบเป็นประจำในผู้ป่วยใส่ท่อช่วยหายใจ	วิธีการสื่อสารที่ใช้	ความถี่ของการตอบสนองตรงกับปัญหาและความต้องการ		ระยะเวลาที่ใช้ (นาที) (นับตั้งแต่เริ่มสื่อสารจนเริ่มได้รับการตอบสนอง)
		ได้	ไม่ได้	
1. พลิกตัว				
2. ช่วยดูดเสมหะ				
3. เจ็บคอ				
4. เอาท่อออก				
5. หิวน้ำ				
6. หิวข้าว				
7. ปวดปัสสาวะ				
8. ปวดอุจจาระ				
9. อื่นๆ				
9.1				
9.2				
9.3				
9.4				
9.5				

ส่วนที่ 3 แบบสัมภาษณ์ความพึงพอใจของผู้ป่วยที่ใส่ท่อช่วยหายใจต่อการใช้วิธีการสื่อสารโดยใช้แผ่นภาพประกอบข้อความและวิธีการสื่อสารตามปกติ

คำชี้แจง กรุณาทำเครื่องหมาย □ ลงในช่องที่ตรงกับความรู้สึกต่อการสื่อสารของท่านมากที่สุด

ไม่เลย หมายถึง ไม่พึงพอใจต่อข้อความในคำถามนั้นเลย
น้อย หมายถึง พึงพอใจต่อข้อความในคำถามนั้นในระดับน้อย
ปานกลาง หมายถึง พึงพอใจต่อข้อความในคำถามนั้นในระดับปานกลาง
มาก หมายถึง พึงพอใจต่อข้อความในคำถามนั้นในระดับมาก
มากที่สุด หมายถึง พึงพอใจต่อข้อความในคำถามนั้นในระดับมากที่สุด

ข้อคำถาม	ความพึงพอใจ				
	ไม่เลย (1)	น้อย (2)	ปานกลาง (3)	มาก (4)	มากที่สุด (5)
ท่านมีความรู้สึกพอใจต่อข้อคำถามต่อไปนี้อย่างไร 1. วิธีการสื่อสารที่ท่านใช้สามารถบอกปัญหาและความต้องการของท่านกับพยาบาลได้					
2. วิธีการสื่อสารที่ท่านใช้สามารถทำให้พยาบาลทราบปัญหาและความต้องการของท่านได้					
3. วิธีการสื่อสารที่ท่านใช้ช่วยให้ท่านได้รับการแก้ไขปัญหาและ/หรือได้รับการตอบสนองความต้องการจากพยาบาลได้					

ท่านพอใจวิธีการสื่อสารวิธีใด

□ การสื่อสารตามปกติ □ การสื่อสารโดยใช้แผ่นภาพประกอบข้อความ

ความคิดเห็นเกี่ยวกับแผ่นภาพประกอบข้อความ

1. ขนาดของแผ่นภาพประกอบข้อความเป็นอย่างไร

   ☐ เหมาะสม

   ☐ ไม่เหมาะสม

   ☐ ใหญ่ไป

   ☐ เล็กไป

   ☐ อื่นๆ ระบุ.....

   .....

2. สีของภาพในแผ่นภาพประกอบข้อความเป็นอย่างไร

   ☐ ชัดเจน

   ☐ ไม่ชัดเจน

   ☐ อื่นๆ ระบุ.....

   .....

3. แผ่นภาพแสดงปัญหาและความต้องการได้ตรงหรือไม่

   ☐ ตรง

   ☐ ไม่ตรง

   ☐ อื่นๆ ระบุ.....

   .....

APPENDIX F

TEXT ILLUSTRATED COMMUNICATION BOARD

แผ่นภาพประกอบข้อความเป็นอุปกรณ์ในการสื่อสารแสดงปัญหาและความต้องการที่สำคัญของผู้ป่วยวิกฤตอายุรกรรมที่ใส่ท่อช่วยหายใจ จัดแบ่งเป็นหมวดหมู่ มีลักษณะเป็นภาพวาดการ์ตูนประกอบคำอธิบายใต้รูปภาพ จำนวน 10 แผ่น รวม 32 รูป ดังนี้

แผ่นภาพที่ 1 การเปลี่ยนท่าทาง ได้แก่ ช่วยพลิกตัวให้ด้วย ไขหัวเตียงขึ้น ไขหัวเตียงลง อยากนั่ง จำนวน 4 รูป

แผ่นภาพที่ 2 กิจวัตรประจำวัน ได้แก่ หิวน้ำ หิวข้าว ปัสสาวะ อุจจาระ จำนวน 4 รูป

แผ่นภาพที่ 3 การเปลี่ยนแปลงอุณหภูมิของร่างกาย ได้แก่ หนาว ห่มผ้า ร้อน เอาผ้าห่มออก จำนวน 4 รูป

แผ่นภาพที่4 การเปลี่ยนแปลงอุณหภูมิของร่างกาย(ต่อ) ได้แก่ มีไข้ อยากเช็ดตัว จำนวน 2 รูป

แผ่นภาพที่ 5 อาการเจ็บป่วย ได้แก่ เวียนศีรษะ คลื่นไส้-อาเจียน เหนื่อย อึดอัดแน่นท้อง จำนวน 4 รูป

แผ่นภาพที่ 6 อาการเจ็บป่วย (ต่อ) ได้แก่ ปวด เมื่อย คัน เจ็บ จำนวน 2 รูป

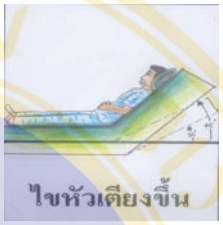
แผ่นภาพที่ 7 ปัญหาจากการใส่ท่อช่วยหายใจ ได้แก่ หายใจไม่ออก ช่วยดูดเสมหะ เจ็บคอ อยากเอาท่อออก จำนวน 4 รูป

แผ่นภาพที่ 8 เวลาและสภาพแวดล้อม ได้แก่ เวลาเท่าไร เสียงดัง จำนวน 2 รูป

แผ่นภาพที่ 9 ปัญหาด้านจิตใจ ได้แก่ กลัว เครียด-วิตกกังวล นอนไม่หลับ จำนวน 3 รูป

แผ่นภาพที่ 10 ปัญหาด้านจิตใจ (ต่อ) ได้แก่ ต้องการพบญาติ ต้องการพบหมอ อยากกลับบ้าน จำนวน 3 รูป

แผ่นภาพที่ 1 การเปลี่ยนท่าทาง



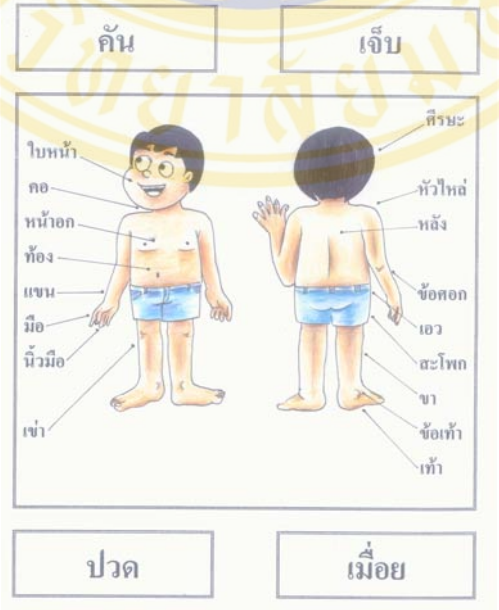
แผ่นภาพที่ 2 กิจวัตรประจำวัน

แผ่นภาพที่ 3 การเปลี่ยนแปลงอุณหภูมิของร่างกาย

แผ่นภาพที่ 4 การเปลี่ยนแปลงอุณหภูมิของร่างกาย (ต่อ)

แผ่นภาพที่ 5 อาการเจ็บป่วย

แผ่นภาพที่ 6 อาการเจ็บป่วย (ต่อ)



แผ่นภาพที่ 7 ปัญหาจากการใส่ท่อช่วยหายใจ

แผ่นภาพที่ 8 เวลาและสภาพแวดล้อม

แผ่นภาพที่ 9 ปัญหาด้านจิตใจ

แผ่นภาพที่ 10 ปัญหาด้านจิตใจ (ต่อ)

BIOGRAPHY

NAME	Miss Treeyada Toprasert
DATE	24 February, 1963
PLACE OF BIRTH	Chainat, Thailand
INSTITUTIONS ATTENDED	Prince of Songkla University,1989 : Bachelor of Nursing Mahidol University, 2006: Master of Nursing science (Adult of Nursing)
POSITION AND OFFICE	126 - Present, Intensive care unit, Bamrahnaradua Institute Nonthaburi, Thailand. Position : Registered Nurse Tel. 02 - 5903618
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