Effect of Level of Exercise of Self-care Agency and Selected Pain Treatment Modalities in Surgical Patients

Candice Pederson

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EFFECT OF LEVEL OF EXERCISE OF SELF-CARE AGENCY
AND SELECTED PAIN TREATMENT MODALITIES
IN SURGICAL PATIENTS

by

Candice Pederson

A thesis
submitted in partial fulfillment
of the requirements for the degree of
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EFFECT OF LEVEL OF EXERCISE OF SELF-CARE AGENCY
AND SELECTED PAIN TREATMENT MODALITIES
IN SURGICAL PATIENTS

This thesis is approved as a creditable and independent investigation by a candidate for the degree Master of Science, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Thesis Advisor ___________________________ Date ____________

Major Department/Representative ___________________________ Date ____________
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CHAPTER 1
Statement of the Problem and Objectives of the Study

Introduction

Imagine being in severe pain. Imagine having significant pain for an extended period of time. Imagine being dependent on others for the relief of this pain. And imagine the anxiety associated with the uncertainty of not knowing pain relief will come when it is needed.¹

The preceding are common occurrences among those persons facing illness, injury or surgery. The anxiety surrounding the fear that this pain will not be relieved can augment the pain itself.² Post-operative pain can lead to complications such as pneumonia, atelectasis, and immobility. For example, research has indicated that measures which decrease pain may increase lung capacity and improve ability to cough and take deep breaths. The act of deep breathing may help prevent pneumonia by helping to expand airways which may have collapsed. In addition, it has been reported and observed that patients who have minimal pain ambulate more frequently. This ambulation minimizes the occurrence of deep vein thrombosis.³,⁴

Finally, the above supports the contention that recovery is enhanced when pain is relieved and controlled.

Traditionally, pain management treatment consists of the physician ordering the various medications at various dosages for
pain relief using a PRN (as needed) basis. Nurses must then assess the patient's pain, determine which medication should be given and at what dosage. This process can take up to one half hour. The time element alone can increase patient's anxiety and thus, the perceived level of pain.\(^5\)

In an attempt to enhance the patients' recoveries, satisfaction and involvement in their pain management regimen, a device known as a PCA (Patient Controlled Analgesia) or Morphine Pump has been developed. This device allows a patient to self-administer his or her own medication by pressing a button when she/he perceives pain. As a result, a medication to relieve pain is delivered intravenously (IV) in small, intermittent doses. This helps provide comfort during the period when pain control is needed and permits the patient to be in complete control of his/her pain relief by self-delivery of analgesia.\(^6\) The effectiveness of this device has been studied since 1983 in the medical literature,\(^7\) but similar studies were not found documented in nursing literature.

The effectiveness of the PCA for a patient may be influenced by his or her degree of action to eliminate the problem. It would appear that an appropriate area for study would be to determine the extent to which various levels of exercise of self-care in a person would affect the effectiveness of PCA as a method of pain control.
Statement of the Problem

The problem under investigation is to determine what is the effect of self-care agency scores on pain treatment modality when controlling for selected patient factors?

Significance of the Study

The ability to act on one's own behalf has been discussed in the literature and has been termed self-care agency. The concept of self-care agency refers to the "power of an individual to engage in estimative and production operations essential for self-care." It is suggested that individuals who exhibit a high degree of self-care agency tend to be more in control of their environment.

The self-care concept arises from the recognition and fact that each individual is responsible for his or her own health, and that the individual's person and health, whatever the state, are his or her own. Ideally, individuals are in full control of their actions and have full responsibility for their self-care. In seeking the assistance of a physician or nurse, individuals should not be viewed as resigning their rights, but rather exercising their responsibility for their health by entering into a client relationship with a professional. In such a situation, professional intervention should be directed toward maintaining, restoring or increasing the ability of individuals to provide their own care.
As related to pain management, individuals should be viewed as having responsibility for their own pain management.

Objectives of the Study

The objectives of the study were

1. To determine if a significant difference exists between the level of exercise of self-care agency scores for those patients who chose to participate in patient-controlled analgesia and those who chose not to use patient-controlled analgesia;

2. To determine if there is a difference between ethnic origins and the level of self-care agency scores;

3. To determine if there is a difference between self-care agency scores among those who use patient-controlled analgesia and those who choose not to use patient-controlled analgesia when controlling for a selected surgical condition;

4. To determine if there is a significant change in pain score from pre-patient controlled analgesic use to 10-15 minutes after use of patient controlled analgesia.

Definition of Terms

Definitions of terms germane to the study are listed as follows:

Perceived pain. The subjective feeling of discomfort, either physical or psychological, experienced by the patient. In this study, the level of pain perception severity will be determined by the patient's response to the Perceived Pain
Questionnaire (see Appendix C). In this study, the patient ranked the level of pain from 0 (no pain) to 10 (excruciating, unbearable pain).

**Self-Care Agency.** The power of an individual to engage in estimative and productive operations essential for the practice of activities which individuals perform on their own behalf in maintaining life, health and well-being. Indicants of a person's exercise of self-care agency were considered to be an attitude of responsibility for self, motivation to care for self, the application of knowledge to self-care, the valuing of health priorities and a high self esteem. In this study, the questionnaire "Level of Exercise of Self-Care Agency" will be used to measure self-care agency, the exercise of self-care. The level of self-care is operationalized by the score obtained by the patient's responses to questions on the self-care agency questionnaire.

**Analgesic.** A medication given to patients for relief of perceived pain. In this study, the analgesic Morphine Sulfate was administered via the patient controlled analgesia.

**Nurse.** A male or female licensed to practice as a Registered Nurse (R.N.). He/she may be a graduate of a 2, 3, or 4 year Nursing program and may be employed full or part time. In this study, the term nurse is used synonymously with the term registered nurse.

**Patient-Controlled Analgesia (PCA).** A method of
delivering analgesics using a portable, computerized pump with a chamber that accommodates a pre-filled syringe. The physician orders the dosage of the drug, and the nurse programs the computerized pump. When the patient experiences pain, he or she can press a button attached by a cord to the pump. This causes the pump to dispense the programmed dosage of drug into the intravenous line to which the pump is attached. A computer memory system prevents the pump from releasing drug dosages until a preset interval has elapsed, thus preventing an overdose.

**Operative Patient.** Any female patient, age 20 to 64 planning to have a major gynecological surgical procedure, within a 24-hour period after admission to the hospital. These gynecological procedures included cesarean section, total abdominal hysterectomy, which included removal of ovaries and/or fallopian tubes, and surgical exploration of the uterine cavity and related structures. The selected patient did not have a history or conditions associated with chronic pain and were not receiving drugs to relieve acute or chronic pain.

**Positive Factors.** Any factor identified by the patient at the time the patient ranked pain level which the patient perceived would decrease the level of pain. In this study, the positive factors included receiving backrubs, having family members present and watching television.

**Negative Factors.** Any factor identified by the patient at the time the patient ranked pain level which the patient
perceived as increasing the level of pain. In this study, the negative factors included family members present, physical activity, coughing and deep breathing and waking up quickly from a sound sleep.

Organization of the Thesis

This thesis is organized as follows:

1. Chapter 1 consists of introductory material, a statement of the problem, objectives of the study, and the definition of terms;

2. Chapter 2 is a review of selected pertinent literature, a conceptual model, dependent and independent variables, and the research hypotheses;

3. Chapter 3 presents the methodology, research approach, sample, research tools and procedures for analysis of data;

4. Chapter 4 reports the analysis of the research findings; and

5. Chapter 5 includes a summary of the research findings, implications and limitations of the study and recommendations for further research.
CHAPTER 2

Review of the Literature

This chapter presents a review of pertinent literature, a conceptual model, dependent and independent variables and the research hypotheses. For the purpose of clarity, the review of literature will be presented in three major sections: pain, divided into complications of pain and patient controlled analgesia, and self-care.

Complications of Pain

The subject of pain is complex because the sensation of pain and discomfort is subjective and personal. For individuals, pain is something that can only be experienced by the sensation itself. An individual can describe this sensation, or feeling of discomfort, but cannot explain to others the actual sensation of pain itself by words or expressions.

Postoperative pain remains a common problem in everyday hospital and health care practice. As members of the health care team, both physicians and nurses have an interest in the quality of analgesia which they are able to offer patients after surgery. However, the quality of pain relief is often balanced by the quantity of narcotic analgesic which can be safely administered.\textsuperscript{14,15}

It is the basic assumption of most health professionals that postoperative pain is a complicating factor leading to
pneumonia because of decreased ability to breathe deeply, and cough, as well as leading to immobility.\textsuperscript{16,17}

The phenomenon of respiratory volumes (the amount of air breathed in inspiration and expiration) markedly altered by abdominal surgery has been suspected as a possible factor in the pathophysiology of postoperative pulmonary complications such as pneumonia.\textsuperscript{18} In a study by Craig, the level of pulmonary function a patient could perform post-operatively inversely depended upon the amount of pain the patient perceived. The lesser the pain, the greater the pulmonary function. Also, the lesser the pain, the greater the mobility of the patient. Patients that were more mobile and had greater levels of pulmonary function, had fewer postoperative complications. These patients were discharged from the hospital sooner than those who were less mobile, and had less pulmonary function.\textsuperscript{19,20}

The appropriate analgesic to relieve post-operative pain has also been the subject of extensive study. Narcotic (opioid, such as morphine) drugs have been used for many years for relief of acute postoperative and postpartum pain and will probably continue to be the most important type of analgesic for pain relief in these situations. The popular, older method of intramuscular (IM) injection is giving way to continuous intravenous (IV) or self-administered, intermittent IV infusion and spinal injection. These newer methods are more reliable and allow better control of analgesia for a longer time.\textsuperscript{21}
Another complication of pain is the ability to have it relieved in a timely fashion. A physician often prescribes a regimen of analgesic type with a dosage range (i.e. 8-15 mg.), so the nurse has the ultimate responsibility of deciding how much, when and what route to use to give the analgesic.

In a 1982 study by Vinik involving 109 patients, 30 patients received the lesser amount of the analgesic ordered; 38 percent of those 109 patients said the pain was worse than expected; and 30 percent said that they received good relief of the pain, but it didn't last.22

Marks and Sachar in 1973 cited reasons explaining why patients suffer acute pain when effective analgesics are available. Their study indicated that hospital physicians and nurses underused analgesic drugs.23 As a result, as many as 41 percent of all hospitalized patients were suffering from significant yet potentially treatable pain. The rationale for this relates to a lack of information by health care personnel about analgesics and misconceptions about their potency, side effects and addictive potential.

McCaffery observes that three factors influence nurses' undertreatment for patient's pain: 1) fear of causing respiratory depression, 2) fear of causing addiction, and 3) failure to apply basic pharmacologic knowledge or even lack of knowledge.24

In a 1983 study, Donavon revealed that 63 percent of patients receiving postoperative pain therapy believed the
analgesic should have been given more frequently.\textsuperscript{25}

Based on the literature reviewed, patient's pain is not relieved to their satisfaction in many instances.

Another complication related to pain is the difficulty health professionals experience when attempting to assess a subjective phenomenon. Because pain is such a subjective sensation, it is extremely difficult for health professionals to objectively assess it in a patient. Physicians write orders for analgesics to be administered by a nurse on a PRN (as needed) basis for the patient's pain. The time the medication is given depends upon the nurse's judgment or perception of the patient's pain, and this is influenced by the nurse's ability to utilize appropriate pain assessment techniques and interpret the patient's feedback.\textsuperscript{26}

\textbf{Patient Controlled Analgesia}

As indicated earlier, management of postoperative pain is difficult because of the number of factors which influence the patient's perception of pain and assessment by health care professionals. Stanley has noted that patient factors have been categorized as psychologic and physiologic. Psychologic factors which influence the incidence and severity of postoperative pain include personality, upbringing, culture, beliefs, motivation, psychologic condition and the degree of anxiety, apprehension, and fear before the operation. Physiologic factors include the site
of the operation (surgery in the upper abdomen, chest, major joints, anal region, and back produce the most severe pain), amount of organ manipulation during surgery, and whether pain management occurs before or after surgery.\textsuperscript{27}

Use of narcotic analgesics, such as morphine, is still the standard treatment for postoperative pain. The reasons for this are simple. Narcotic analgesics are easy to administer, are usually relatively inexpensive and often give patients pleasant sensations. Unfortunately, the analgesic effect of narcotics is difficult to predict and often unsatisfactory. Treatment may be complicated by the difficulty in predicting both the effect of the drugs and the amount of the patient request for them. Many patients given a conventional dosage of narcotics continue to have pain, and the patient request for narcotics is influenced to a varying extent by the psychologic and physiologic factors previously mentioned.\textsuperscript{28}

Many researchers have tested the effects of epidural and intrathecal (given in the spinal cord area) analgesics, as well as continuous analgesic infusions via an intravenous line to relieve pain.\textsuperscript{29,30,31}

The newer methods of analgesic administration for postoperative pain (IV or self-administered intermittent IV infusion - patient controlled analgesia - PCA) are rapidly replacing the older method of intramuscular (IM) injection.\textsuperscript{32}

The advent of patient controlled analgesia is a relatively
new practice, and therefore research is still forthcoming.
According to Bennett, patient-controlled analgesia (PCA) following
surgery "has the potential to explode throughout the United
States' hospitals in the next few years." 33

Several studies suggest that PCA simultaneously improves
pain relief and decreases sedation throughout the entire
postoperative period. Patients taper their own dosage of
narcotics, and use significantly less morphine postoperatively
when allowed to adjust their own dose. The sleep/wake cycle is
maintained. Studies show that a patient recovers faster whose
sleep wake cycle is uninterrupted. Seventeen percent of patients
using PCA reported drowsiness in contrast to 50 percent of the
traditional regimen patients. 34

With regard to patient satisfaction, 92 percent of
patients using PCA said their analgesia was satisfactory; only 58
percent of patients on the traditional (intramuscular, IM
injection) regimen said the same. 35

These studies are applicable to nursing because nurses
must make decisions about pain management based on the type and
dosage interval for medications which the physician orders. Based
on these orders, the nurse must not only decide on what type of
pain medication to use, but also when to administer the medication
and how much of the prescribed medication to administer.

If the nurse does decide that the patient has not
internalized a high level of self-care capability, he/she may
suggest that the PCA not be utilized, or the nurse may be alerted to more careful patient observation for assuring that the patient is using the PCA appropriately. The literature suggests that the amount of self-care agency related to the control factor in pain relief is a significant element in the determination of pain relief for the patient.

Self-Care

The "Self-Care Theory", as proposed by Orem for delineating the nurse-patient relationship, provided a number of concepts relevant to the conceptual framework used for this study.36

The idea of self-care has become a popular approach in health care and in daily activities, where people act on their own behalf in a manner that supplements or substitutes for professional services for the prevention, detection, and treatment of health problems.

In 1971 Dorothea Orem distinguished nursing from other human service professions by virtue of its special concern for "man's need for self-care action and the provision and management of it on a continuous basis in order to sustain life and health, recover from disease or injury, and cope with their effects." Thus the theory of self-care was born.37

Since all nursing actions are methods of assistance to the patient, all nursing activity has a continuity of purpose to
assist the patient and a continuity of focus to maintain, restore, or increase the self-care ability of the individual.

The aim of nursing interaction is to assist individuals in becoming more effective as self-care agents for themselves. The nurse will no longer impose care for the adult, provide more care than is required, or assume that the nurse alone knows what is most appropriate. Nursing, regardless of the method of assistance being used, becomes a process of patient education. In this process, information is shared with the ill adult and alternatives are identified by the nurse and the adult. The adult establishes priorities and makes choices. Together, the nurse and the adult plan to implement the choices. Finally, the nurse and the adult plan to implement the plan according to the adult's abilities, assisting only if the adult is unable, and maintaining this assistance only until the ability is regained. 

Cooperative assessment, planning, implementation, and evaluation of care with the patient change nursing practice from an other-directed to an assertive, self-directed, accountable, professional practice. The new focus also changes the health care practice of the adult so that his or her health care behavior is knowledgeable, assertive, and therefore increasingly more self-directed. The adult becomes a voting member of his or her own health care team. A successful individual, adult, nursing practice may be measured by simultaneous increments in the growth of each of the partners - the nurse and the adult. The
effectiveness of the nurse's practice will be reflected by the increasing self-care capabilities of the adult. The adult's increasing self-care abilities will be reflected by an increase in the nurse's autonomy and accountability, even in the acute care setting of the hospital. The partnership between the nurse and the patient is the basis for Orem's Self-Care Model. 39

Orem's Self-Care Model consists of three goals for action. These goals attempt to focus on nursing and self-care and employ an action system approach. In other words, it explains the nurse-patient relationship within a patient-centered approach.

The goals of action for the Orem model are as follows:

1. Accomplish the patient's self-care demand;

2. Move the patient toward responsible action in matters of self-care. The patient either moves toward increased independence in self-care or adapts to interruptions in his capacities, or adapts to steadily declining capacities for self-care action; and

3. Involve the transfer responsibility to members of the patient's family or significant others who attend the patient; as they become increasingly competent in making decisions about the continuing daily personalized care of the patient or in providing and managing the patient's care, the amount of nursing supervision required may be decreased and only nursing consultation may be required.

The outcomes of nursing are measurable in terms of the patient's or family's performance of self-care according to established goals and/or standards set by that nurse and patient and/or family. The goal of nursing is to keep the self-care system in balance as the patient moves from health to illness or
illness to health. Self-care practices of the patients as the focus of nursing is assisting the patient in exercising self-care agency.

The construct "exercise of self-care agency" is a complex one, since it is relative to the person's agency or power to engage in self-care actions. For example, a person who has limited health-related knowledge may exercise his or her self-care agency to a high degree by using that knowledge and available resources to maintain a health state. By contrast, a person exhibiting similar behaviors may be exercising self-care agency to a lower degree when he or she is capable of engaging in higher order self-care activities and does not do so. Measurement of a person's exercise of self-care agency then should not rely solely on direct behavioral observation, since the meaning of the behaviors to that person would be lost.

The construct, however, does lend itself to measurement when it is considered to be a dispositional trait of the person.

The development of an instrument to measure exercise of self-care agency was undertaken by Kearney and Fleischer in 1979. From their findings, it can be concluded that people who exercise a high degree of self-care agency describe themselves as self-controlled, dependable, assertive, intelligent, confident, responsible, helpful, and adaptable. Characteristics not found in those who take action to maintain life, health, and well-being are competitiveness, aggressiveness, and dependence on others. The
tool allows nurses to document the effectiveness of health care modalities based on demonstration of the patients' exercise of self-care agency.\cite{42}

In the literature search, no correlation studies were found that displayed a relationship between pain management and exercise of self-care agency.

Summary of the Literature Review

The literature review suggests the following generalizations:

1. Post-operative pain is related to complications, such as pneumonia, which can be indirectly related to the patient's lack of ability to cough and deep breathe, and immobility;

2. Post operative pain with it's resulting complications may cause the patient to have an extended length of stay in the hospital;

3. Patients who experience and perceive less pain have a lower postoperative complication rate and a greater chance of earlier discharge from the hospital than those patients who experience and perceive a greater pain;

4. Pain is a subjective sensation; this subjectivity makes pain more difficult for health professionals to assess in the patient;

5. Pain medications are ordered by the physician in varying strengths and routes, usually on a PRN (as needed) basis,
and is the responsibility of the nurse to administer the medication to the patient based on those orders; as a group, health professionals underuse pain medications for the relief of postoperative pain;

6. Morphine is the analgesic of choice in providing appropriate pain relief for post-operative patients;

7. Patient-controlled analgesia has been positively supported by patients and physicians as a method of postoperative pain control which minimizes side effects and maximizes pain relief;

8. Patient-controlled analgesia reduces complications in post-operative patients; and

9. Exercise of self-care agency is an appropriate tool to utilize in determining the power of an individual to perform positive health actions.

Conceptual Framework:

Self-Care/Pain Perception Model

Patient-controlled analgesia is an appropriate method of pain management reflecting the concept of self-care. According to Dorothea Orem's Self-Care Theory, if the patient has a self-care deficit relating to pain, the nurse could assist the patient in overcoming that deficit by providing the patient with adequate knowledge to utilize patient-controlled analgesia. Dorothea Orem's Self-Care Theory (1980) is utilized in the conceptual framework of this study.43
According to Orem, self-care is the ability to take health actions through interaction with the environment. A self-care system is usually sufficient unless the person is faced with a new health care situation requiring adaptation or alternative health behaviors. When the self-care system is limited, such as when a person is in pain, deficits in self-care result, and nursing assistance is required. The nurse designs a nursing system to render this assistance. Through the nursing system, the nurse assesses the individual's self-care deficits and plans, implements, and evaluates nursing actions directed toward supplementing them.

Depending on what level of self-care power, or level of self-care agency a person exhibits, the patient's level of pain perception may vary. If this pain perception is based upon a self-administered pain relief modality, the response to the pain relief will be largely based on the amount or level of self-care agency that person possesses.

Other elements which may enter into the patient's pain perception are external, social, environmental, physical, emotional, or psychological factors which may have a positive or negative effect on the perceived pain relief. These may vary from patient to patient, and what one patient perceives as a factor increasing the pain or pain relief, another may perceive that same factor as decreasing pain or pain relief.

Therefore, the conceptual model utilized for this study is
a modification of Orem's Self-Care Theory with the concept of pain perception incorporated (see Figure 1).

Figure 1

SELF-CARE-PAIN PERCEPTION MODEL

**Variables**

The variables included in this study were:

1. The dependent variable (Y) was the level perceived pain relief.

2. The independent variable (X) analyzed statistically were the following:

   \[ X_1 = \text{The level of exercise of self-care agency}, \]
   \[ X_2 = \text{type of surgery}. \]
   \[ X_3 = \text{ethnic origin}. \]

**Hypotheses**

Based on the review of literature and the conceptual
framework, the following hypotheses are tested:

1. There is no significant difference between self-care agency scores among patients who elect to use patient-controlled analgesia and those who choose not to utilize patient-controlled analgesia (PCA);

2. There will be no relationship between ethnic origins of patients and their level of self-care agency scores; and

3. There will be no relationship between the level of self-care agency scores among those patients who use patient-controlled analgesia and those who choose not to use patient-controlled analgesia, when controlling for surgical condition.
CHAPTER 3

Methodology

The research methodology for this study is reviewed in this chapter. The research approach, sample, research tools, method of collecting data, and procedures for analysis of data are discussed.

Approach

A survey approach was used in this study and two questionnaires were utilized.

Sample

The accessible population consisted of 54 females between the ages of 20 to 64, admitted for gynecological surgery at a 407-bed hospital in a rural Midwestern state. The gynecological surgeries identified in this study were cesarean section and total abdominal hysterectomy. The non-random, purposive sample consisted of the 30 women who completed the two questionnaires, and five who completed the self-care agency questionnaire.

Research Tools

This study used two questionnaires. The questionnaire entitled "Instrument to Measure Exercise of Self-Care Agency" as developed by Kearney and Fleischer in 1979 to measure the level of self care agency (see Appendix B). Reliability and validity on the self-care agency tool were established by the original
researchers, Kearner and Fleischer, in 1979. The coefficient was obtained based on nurses' and not patient responses. Content validity was established through a rating of each item on the questionnaire by five nursing experts practicing under the self-care concept. The Adjective Check List and Rotter's Internal-External Locus of Control of Reinforcement Scale were used to establish construct validity by the author. Results of testing with the instrument showed a positive correlation of self-confidence, achievement, and intracception with exercise of self-care agency and a negative correlation between abasement and exercise of self-care agency. The test-retest reliability was .77; split-half reliabilities were .80 and .81 respectively. A 43-item questionnaire is used in which each item positively oriented toward self-care is scored from 0 to 4 according to the subject's response on a 5-point Likert scale. A score of 0 is assigned to the response "Very Uncharacteristic of Me", while a score of 4 is assigned to the response "Very Characteristic of Me". Scores are reversed for negatively stated questions - items 3, 6, 10, 16, 19, 22, 25, 28, 32, 34, and 39. The minimum score is 0 and the maximum score is 172, which indicates a high degree of exercise of self-care agency.

The second tool utilized was the pain perception questionnaire. The pain perception questionnaire (see Appendix C) consisted of a 10-point scale. This tool obtained data related to patients' perceived level of pain on a 0 to 10-scale prior to
administration of PCA and the level of pain 10-15 minutes after use of the PCA. In addition, the patient was asked to indicate whether there was a factor present that might increase or decrease the pain perceived such as a backrub or activity. The tool was developed by the researcher and evaluated by a physician, doctorally prepared pharmacist, and a doctorally prepared oncology nurse clinical specialist.

A face sheet accompanied both of the above tools. This sheet explained the purpose of the tool and assured the anonymity and confidentiality of the respondent. Informed consent was obtained by the patient completing the questionnaire.

Data Collection

The data were collected in the hospital environment. The subjects were patients of three physicians.

The data for this study were collected during the spring of 1986 based on the following process:

1. Permission to use the hospital and approach the patients for their consent to participate in the study was obtained from the Assistant Administrator for Nursing at a 407-bed hospital in a rural Midwestern state (see Appendix A);

2. Permission was also granted by the three physicians whose patients were involved in the gynecological surgeries previously mentioned;

3. Prior to the data collection, nurses were informed of
the research project by a memo generated by the Assistant Administrator for Nursing, and sent to each nursing unit where the study took place;

4. After notification by the charge nurse that a suitable participant for the study was on the nursing unit, the questionnaire was delivered to each patient involved in the research project by the researcher; the researcher approached the prospective subject, introduced herself, and informed the subject of the study; if the patient agreed to be a subject, the self-care agency tool was completed by the subject; the researcher informed the patients that the responses to the questionnaires were confidential; the self-care questionnaire was completed in the patient's room on the evening before surgery, between 7:00 p.m. and 8:30 p.m; the exception to this was the cesarean section patients who received the self-care agency questionnaire during their second postoperative day in the patient's room between the hours of 10:00 a.m. and 12:00 noon; the self-care agency questionnaire was then collected by the researcher immediately after the patient had completed it;

5. At that time, patients were then given pre-operative instruction by a registered nurse of the unit where the patient was admitted consisting of instructions regarding post-operative tasks such as coughing, deep breathing, and walking the evening (or in 6 hours in the case of the cesarean section patients) after surgery;
6. That same evening the personnel from the anesthesia department visited the patient postoperatively (or during labor for the cesarean section patients) and presented the option of patient-controlled analgesia; an explanation of the PCA IV device was given at this time, along with an information pamphlet (see Appendix E); and

7. The pain scale questionnaire was then given to the patient on the second day post-surgical procedure, and 24-hours after the PCA had been instituted; the patient was instructed to fill out the form for a 24-hour period after which the researcher would collect the tool from the patient. The researcher filled in the time for the first data to be written in by the patient on the pain scale questionnaire; for example, if the patient had been on the PCA for 24 hours at 9:00 p.m., the first time written in on the pain scale questionnaire would be 9:00 p.m.; the patient was instructed that this time was the point at which to write the responses down for a 24 hour period of time, and not necessarily the time that the next pain medication needed to be given. The patient was also instructed about positive and negative factors affecting pain, and how to report this data on the questionnaire; questions at this time regarding the questionnaire were answered.

Analysis of Data

Questionnaires were completed by 35 patients. The data were coded and recorded into the South Dakota State University
mainframe computer using standard-approved data input procedures.

The data were then retrieved to provide a descriptive analysis of the patients as a group, and to determine the effects of exercise of self-care agency on pain treatment modality.

The descriptive analysis was based on frequency and percentage listings of the individual responses on the questionnaires.

Statistical analysis of objectives one through three used analysis of variance (ANOVA). Statistical analysis of objective four determined the confidence level based on mean and standard deviation. The significance level for the purposes of this study was .05.
CHAPTER 4

Analysis of the Research Findings

This chapter presents a descriptive analysis of the data and results of hypotheses testing.

Descriptive Analysis

Frequency and percentage listings of the data based on the responses to the questionnaires were calculated. The descriptive study of the characteristics of the respondents as a group was based on the tabulations in the demographic questionnaire.

The population for this study consisted of 54 women planning to have gynecological surgery by one of three physicians in a large hospital in a rural Midwestern state. Of this population, 35 respondents (64.81 percent) returned questionnaires, producing a non-random sample. The data recorded on the questionnaires generate the following descriptive analysis of the females making up the sample.

Age. As indicated by Table 1, the respondents' mean age is approximately thirty-seven years. The reported ages ranged from twenty to sixty-four years of age.

Marital Status. Married respondents numbered thirty-two (91.43 percent) of the sample. The respondents who reported that they were divorced numbered two (5.71 percent), and one (2.86 percent) reported that she was widowed. No respondents reported that they had never been married.
Table 1
Number and Percent of Respondents by Age

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 24</td>
<td>9</td>
<td>25.71</td>
</tr>
<tr>
<td>25 - 29</td>
<td>6</td>
<td>17.15</td>
</tr>
<tr>
<td>30 - 34</td>
<td>4</td>
<td>11.43</td>
</tr>
<tr>
<td>35 - 39</td>
<td>4</td>
<td>11.43</td>
</tr>
<tr>
<td>40 - 44</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>45 - 49</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>50 - 54</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>55 - 59</td>
<td>1</td>
<td>2.86</td>
</tr>
<tr>
<td>60 - 64</td>
<td>5</td>
<td>14.29</td>
</tr>
<tr>
<td>TOTAL</td>
<td>35</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean: 36.68

Number of Children. One respondent (2.86 percent) reported having no children, while nine (25.71 percent) reported having one child. Eleven respondents (31.43 percent) reported having two children, six (17.14 percent) reported having three children, and four (11.43 percent) reported four children. There was one respondent (2.86 percent) who reported five children, two (5.71 percent) reported six children, and one (2.86 percent) reported having eleven children.

Highest Level of Education Obtained. Twenty-eight (80.00 percent) respondents reported attaining a high school diploma as their highest level of education. One (2.86 percent) reported a
one-year certificate post-high school. Three respondents (8.57 percent) reported graduating at the baccalaureate level from college.

**Occupation.** As indicated in Table 2, fifteen respondents (42.86 percent) reported their occupation as clerical. The other occupations varied and were reported as follows:

Table 2
Number and Percent of Respondent's Occupations

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clerical/Secretarial</td>
<td>15</td>
<td>42.86</td>
</tr>
<tr>
<td>Housewife</td>
<td>6</td>
<td>17.15</td>
</tr>
<tr>
<td>Nurse - LPN</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>Nurse - RN</td>
<td>4</td>
<td>11.43</td>
</tr>
<tr>
<td>Businessperson</td>
<td>1</td>
<td>2.86</td>
</tr>
<tr>
<td>Laborer</td>
<td>3</td>
<td>8.57</td>
</tr>
<tr>
<td>Waitress</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>Retired</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>35</td>
<td>100.00</td>
</tr>
</tbody>
</table>

**Percentage Above Ideal Body Weight.** As indicated on Table 3, fourteen (40.00 percent) of the respondents were within the parameters of ideal body weight as established by the Metropolitan National Life Height/Weight Scale. No respondents were below their ideal body weight. The remainder of the respondents showed the following relationship to their ideal body weight:
Table 3
Number and Percent of Respondents By Percent Above Ideal Body Weight

<table>
<thead>
<tr>
<th>Percent Above Ideal Body Weight</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>14</td>
<td>40.00</td>
</tr>
<tr>
<td>10 - 19</td>
<td>5</td>
<td>14.29</td>
</tr>
<tr>
<td>20 - 29</td>
<td>3</td>
<td>8.57</td>
</tr>
<tr>
<td>30 - 39</td>
<td>5</td>
<td>14.29</td>
</tr>
<tr>
<td>40 - 49</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>50 - 59</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>60 - 69</td>
<td>2</td>
<td>5.71</td>
</tr>
<tr>
<td>70 - 79</td>
<td>1</td>
<td>2.86</td>
</tr>
<tr>
<td>80 - 89</td>
<td>1</td>
<td>2.86</td>
</tr>
<tr>
<td>TOTAL</td>
<td>35</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Previous Surgeries. Nineteen (40.00 percent) respondents reported never having surgery before, while twelve (34.28 percent) reported having one surgery previous to this hospitalization. Three (8.57 percent) reported having had two surgical procedures previously, while one (2.86 percent) reported three previous surgical procedures.

Ethnic Origin. Fourteen (40.00 percent) respondents reported to be of Scandinavian descent, while thirteen (37.14 percent) reported to be of German descent. Respondents of English descent numbered 5 (14.28 percent), and the remaining respondents were Irish (one, 2.86 percent) Lithuanian (one, 2.86 percent) and
Polish (one, 2.86 percent).

**Surgical Procedure Performed.** Two surgical procedures were present in the study. Of the thirty-five participants, 19 (54.29 percent) had a cesarean section and sixteen (45.71 percent) had a total abdominal hysterectomy.

**Level of Satisfaction with PCA Pain Treatment Modality.** Subjects rated their overall satisfaction with the patient-controlled analgesia regime for pain relief on a 0 - 10 scale, where 0 represented no satisfaction at all, and 10 was as satisfied as possible. Table 4 illustrates the results:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>9</td>
<td>18</td>
<td>60.00</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>26.68</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>0 - 3</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>30</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>
Level of Satisfaction with IM Pain Treatment Modality.

Subjects who chose not to utilize patient controlled analgesia, but decided to use intramuscular pain analgesia given by a nurse on demand by the patient and within the specified time ordered by the physician, were also asked to rate their pain management on a scale from 0 - 10, where 0 was no satisfaction and 10 was the most satisfaction. Of the five patients who chose not to use patient controlled analgesia, two (40.00 percent) rated their pain management regimen six and the remaining three (60.00 percent) rated their pain treatment modality five.

Positive Factors. Patients were asked to list factors which reduced their level of pain while on patient-controlled analgesia. The patients were asked to list a factor or factors present (if any) each time prior to administering a 'shot' of the medication to themselves. The patients listed positive factors for the total 24-hour time they were rating their pain on the pain questionnaire. Table 5 displays the totaled results:
Table 5
Type, Number and Percent of Respondent's
Positive Pain Factors

<table>
<thead>
<tr>
<th>Type of Positive Pain Factors</th>
<th>Number of Patients</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep</td>
<td>9</td>
<td>30.00</td>
</tr>
<tr>
<td>Backrub</td>
<td>10</td>
<td>33.33</td>
</tr>
<tr>
<td>Baby at Bedside</td>
<td>9</td>
<td>30.00</td>
</tr>
<tr>
<td>Husband Visiting</td>
<td>13</td>
<td>43.33</td>
</tr>
<tr>
<td>Family Visiting</td>
<td>2</td>
<td>6.67</td>
</tr>
<tr>
<td>Baby gone</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>Resting</td>
<td>2</td>
<td>6.67</td>
</tr>
<tr>
<td>Watching TV</td>
<td>2</td>
<td>6.67</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>48</strong></td>
<td><strong>160.00</strong>*</td>
</tr>
</tbody>
</table>

*The percentage totaled more than 100 percent because several patients listed more than one positive factor during the 24-hour period.

Negative Factors. Patients were asked to list factors which increased their pain while on patient-controlled analgesia. The patients were asked to list these factors before administering a 'shot' of the medication to themselves if the negative factor was present. The negative factors were listed for the total 24-hour time the patients rated their pain on the pain questionnaire (see Appendix C). Table 6 displays the totaled results.
Table 6
Type, Number and Percent of Respondent's Negative Factors

<table>
<thead>
<tr>
<th>Type of Negative Pain Factors</th>
<th>Number of Patients</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family here</td>
<td>4</td>
<td>13.33</td>
</tr>
<tr>
<td>Woke up with start</td>
<td>4</td>
<td>13.33</td>
</tr>
<tr>
<td>Bath</td>
<td>9</td>
<td>30.00</td>
</tr>
<tr>
<td>Baby at Bedside</td>
<td>6</td>
<td>20.00</td>
</tr>
<tr>
<td>Up Walking</td>
<td>28</td>
<td>93.33</td>
</tr>
<tr>
<td>Frustrated</td>
<td>3</td>
<td>10.00</td>
</tr>
<tr>
<td>Eating</td>
<td>3</td>
<td>10.00</td>
</tr>
<tr>
<td>Repositioned</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>Husband in Room</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>Getting Out of Bed</td>
<td>2</td>
<td>6.67</td>
</tr>
<tr>
<td>Dangling at Bedside</td>
<td>2</td>
<td>6.67</td>
</tr>
<tr>
<td>Coughing and Deep Breathing</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>TOTAL</td>
<td>64</td>
<td>213.00*</td>
</tr>
</tbody>
</table>

* The percentage totaled more than 100 percent because several patients listed more than one negative factor during the 24-hour period.

Summary of General Respondent Characteristics. The typical respondent was female, thirty-seven years of age and married with two children. She was employed as a secretary or clerical worker, and was a graduate from high school but had not furthered her education. She had never had surgery before and was of Scandinavian descent. She was within the accepted range for
height and weight. She rated positive factors with regard to pain relief as receiving back rubs, sleeping, and having her husband and baby present. She rated negative factors with regard to pain relief as taking baths and walking after surgery.

Objective 1 - 3: Hypotheses Testing

To test objectives 1 - 3, three hypotheses were developed. The statistical test used was for the analysis of the data was the analysis of variance (ANOVA). The significance level for the purposes of this test was .05. For presentation purposes, the null hypothesis will be stated followed by a statement of the results of the statistical tests. Appendix F contains specific data of ANOVA for the three objectives.

Null Hypothesis 1. There is no significant difference between self-care agency scores among those patients who elected to use patient-controlled analgesia and those who chose not to use patient controlled analgesia.

The level of probability obtained by ANOVA for this variable was 0.0001, therefore, p < .05 and the null hypothesis was rejected (Table 7, Appendix F).

Null Hypothesis 2. There is no difference between ethnic origins of patients and their level of self-care agency scores.

The level of probability obtained by ANOVA for this variable was 0.4260, therefore, p > .05 and the null hypothesis was not rejected (Table 8, Appendix F).
agency scores among those who used patient controlled analgesia and those who chose not to use patient controlled analgesia, when controlling for surgical condition ($X_2$).

3. There is no relationship between ethnic origins of patients and level of self-care agency scores ($X_3$).

4. There is a significant change in pain score from pre-patient controlled analgesic use to ten to fifteen minutes after use of patient controlled analgesia.
CHAPTER 5

Summary, Conclusions, Implications, Limitations, and Recommendations

The purpose of this chapter is to present
1. A summary of the research problem and design;
2. A summary of the major findings and conclusions as related to the objectives of the study;
3. A statement of implications derived from the research findings and conclusions;
4. A statement of limitations of the study; and
5. Recommendations for further research.

Summary of the Research Problem and Design

Interest in the determinants of self-care and the exercise of self-care has ballooned in the past few years. It has been suggested that it is the individual's perceptions of health, self-care, self-control, and motivation which may determine the subsequent health behavior. A person who feels they are in control of a situation, be it health related or not, will determine the extent to which the situation or problem will be resolved. Pain is a factor in any health related situation, and pain relief is a goal of all persons faced with a health dilemma. Therefore, the problem under investigation was to determine the extent to which the level of self-care agency influenced pain, pain severity, and pain relief.
A review of the literature related to the problem indicated there were several factors regarding pain which will affect that pain. These factors included complications of pain, post-operative complications such as decreased pulmonary function and immobility and the best method to relieve that pain. In addition to the factors relating to pain, the concept of self-care and self-control can affect how the patient perceives his/her pain severity and pain relief.

Two questionnaires were administered to 35 women undergoing gynecological surgery at a selected 407-bed hospital in a rural Midwestern state. The questionnaires gathered data, which through statistical testing with ANOVA and confidence level, attempted to predict the effects level of self-care agency had on the patient's perception of pain severity and pain relief. These thirty-five questionnaires completed by the respondents made up the non-random sample for the study.

Objectives of the study related to the effects of the independent variables were analyzed by analysis of variance and confidence level.

A descriptive analysis of the general characteristics of the respondents indicated that the typical respondent was female, thirty-seven years of age and married with two children. She was currently employed as a secretary or clerical worker, and had not furthered her education after receiving a high school diploma. She had positive and negative factors which affected her response
to pain perception. She was of normal weight for her height and age, and she had never had a surgical procedure before her present admission to the hospital.

Major Findings and Conclusions

The major findings and conclusions as related to the objective of the study were the following:

**Major findings.** Objective 1 was found to be significant at the .05 level. This supported a significant difference between self-care agency scores among those patients who chose not to use patient controlled analgesia and those who chose to use patient controlled analgesia.

Objective 2 was found not to be significant at the .05 level. This did not support a significant difference between ethnic origins of patients and their level of self-care agency.

Objective 3 was found to be significant at the .05 level. This supported a significant difference between the level of self-care agency among those who used patient-controlled analgesia and those who chose not to use patient-controlled analgesia.

Objective 4 was found to be significant at the .05 level. This supported a significant change in pain score from pre-patient-controlled analgesic use to ten to fifteen minutes after the use of patient-controlled analgesia.

**Conclusions.** An analysis of the data indicated that the level of self-care agency may have contributed to the patient
satisfaction with new and different pain treatment modalities. More specifically, the patient controlled analgesia may have been a more positive experience, if the patient exercises an increased amount of motivation, self-confidence, and achievement. The patient-controlled analgesic was an opportunity for patients to control the pain relief when they want it and not rely on another party to fulfill their need for pain control when the subjective feeling cannot be experienced by that other party. However, patients may benefit from patient-controlled analgesia if they have self-directing tendencies.

Implications of Research

Major implications of this study are:

1. The level of self-care agency may indicate the degree of benefit a patient receives when controlling pain management by a method of patient-controlled analgesia. This level of self-care agency may also affect the perception of pain and pain relief, as well as the decision to undertake patient-controlled analgesia and the method for post operative pain relief.

2. Those patients who have a lower level of self-care agency may benefit from patient-controlled analgesia but may need more direction from the health care provider. This patient may not reap the benefits of patient-controlled analgesia as readily as that patient with a higher level of self-care agency. However, if the health care provider is aware that the level of self-care
agency is low, he/she could fill the self-care deficit and assist
the patient in obtaining the maximum benefits from patient-
controlled analgesia.

3. Patient-controlled analgesia is one of the most
effective methods of postoperative pain relief available in health
care today. Patients benefit by controlling their own analgesia,
for pain relief when they, not the health care professional, see
the need. The health care professional may have difficulty
objectively assessing a subjective feeling such as pain.

4. This study supported studies cited in the review of
literature that ambulation increases the amount of pain in the
postoperative patient.

5. It was difficult to determine the extent to which the
positive and negative factors influenced pain in this study.
Positive and negative factors were listed by the subjects but were
not significant numbers to apply inferential statistics to them.

6. This study did not find a significant difference in
ethnic origin and level of self-care agency scores. This may be
due to the types and numbers of ethnic origins present in the
sample.

Limitations of the Study

The limitations of the study are

1. The sample was non-random, therefore the findings and
   conclusions are restricted to the sample.
2. The method of gathering the data with the questionnaires may have biased the responses because they were completed within the hospital environment. Therefore, the patient may have felt obligated to complete them even though it was explained that the patient did not have to participate in the study.

3. The wording of the self-care agency questionnaire may have produced various responses due to individual interpretations of the questions.

4. The questionnaires were distributed in one hospital in a rural Midwestern state. Therefore, the findings reflect responses of patients who may be homogenous in their beliefs and characteristics.

5. The variables selected for analysis may not have fully explained factors which contributed to patient's pain perception and perception of pain relief.

6. Because patients had different nurses and anesthetists in their pre-operative visits and characteristics of those nurses and anesthetists may have altered the responses on both the Exercise of Self-Care Agency and Pain Perception Questionnaires. This is because the approach to pre-operative teaching may have varied among the nurses and the anesthetists.

7. The protocol for administration of the two tools were not the same for all patients in the study. The patients who have cesarean section surgery were administered the Exercise of Self-
Care Agency Questionnaire after they had already initiated the patient-controlled analgesia, while the other participants received the tools before surgery.

8. Other environmental and personal factors which contribute to the severity or relief of pain may not have been identified.

9. Threats to the external validity of the study may have influenced the results. For example some patients may have reported more or less pain than they perceived, merely because they were involved in the study (Hawthorne effect and novelty effect). Some patients may also have responded to the Measurement of Exercise of Self-Care Agency Questionnaire differently because of participating in the study.

Recommendations for Further Study

The author recommends the following for further study:

1. This study should be replicated using a random sample;

2. A study of the level of self-care agency in various sized institutions and among different ethnic cultures in urban and rural areas may provide an interesting contrast to the attitudes and health care beliefs of people in one small rural area;

3. A study with equal numbers of patients utilizing patient-controlled analgesia and in intramuscular pain regime may provide valuable information; and
NOTES


2 Ibid.


5 Coyle, p. 79.


7 Ibid.


9 Ibid.


11 Orem, p. 12.

12 Mullin, pp. 177-190.

13 Orem.


16 Loon, pp. 695-698.


27 Stanley, pp. 107-114.

28 Ibid.

29 Schulman, p. 569-575.


32 Stanley, ppp. 107-114.


34 Ibid.

35 Ibid.

37 Ibid.

38 Ibid.

39 Mullin, pp. 177-190.

40 Ibid.

41 Kearney, pp. 25-34.

43 Orem.
SELECTED REFERENCES


APPENDIX A

PERMISSION FOR GRADUATE STUDENTS
TO COLLECT DATA FORM
Permission for Graduate Nursing Students to Collect Data

Name: Candice Pederson
Date: 12/10/85

Faculty Thesis Advisor: Dr. Sharon Leech-Hofland

Study Approved by Faculty: By University Human Subjects Committee:

_x_ Yes ___ No

Faculty and Student Signatures

Summary of Information to be Collected:

Type of Data: Pain Perception and Level of Exercise of Self-Care Agency undergoing gynecological surgery.

Method of Collecting Data: Two questionnaires: A Pain Perception Tool, and the Exercise of Self-Care Agency Questionnaire.

Use of Data: To determine if there is a relationship between pain perception and exercise of self-care agency; as well as to determine if there is a relationship between this exercise and the determination to utilize patient-controlled analgesia.

For Completion by the Assistant Administrator for Patient Care Services.

_x_ Approved to Proceed as Described.
___ Disapproved.
___ Approved with the Following Modification.

Signed by the Asst. Administrator 12/10/85

Asst. Administrator
Patient Care Services

Original copy in Investigators File.
APPENDIX B

RESEARCH TOOL

LEVEL OF SELF-CARE AGENCY QUESTIONNAIRE
SELF-CARE QUESTIONNAIRE

In recent years there has been an emphasis on "wellness" and "self-care."

In an effort to improve the health care that you receive and in an effort to understand what specific method by which you practice self-care, your answers to a few questions would be appreciated.

All responses will be confidential. Consent to participate in this study will be evidenced by your completion of the attached questionnaire. In addition, we want to evaluate the pain management program you will be receiving.

Thank you,

Researcher:

Candice A. Pederson, R.N, B.S.
2912 S. Louise, # 205
Sioux Falls, SD 57106
PLEASE READ EACH OF THE FOLLOWING STATEMENTS, AND THEN CIRCLE ONE OF THE NUMBERS ON EACH LINE TO INDICATE WHETHER THE STATEMENT IS APPROPRIATE FOR YOU. THERE ARE NO RIGHT OR WRONG ANSWERS. USE THE FOLLOWING CODE FOR YOUR RESPONSES:

VU = Very Uncharacteristic of Me  
SU = Somewhat Uncharacteristic of Me  
U = Uncertain  
SC = Somewhat Characteristic of Me  
VC = Very Characteristic of Me

1. I would gladly give up some of my set ways if it meant improving my health.  
   VU   SU   U   SC   VC

2. I like myself.  
   VU   SU   U   SC   VC

3. I often feel that I lack the energy to care for my health needs the way I would like to.  
   VU   SU   U   SC   VC

4. I know how to get the facts I need when my health feels weakened.  
   VU   SU   U   SC   VC

5. I take pride in doing the things I need to do in order to remain healthy.  
   VU   SU   U   SC   VC

6. I tend to neglect my personal needs.  
   VU   SU   U   SC   VC

7. I know my strong and weak points.  
   VU   SU   U   SC   VC

8. I seek help when unable to care for myself.  
   VU   SU   U   SC   VC

9. I enjoy starting new projects.  
   VU   SU   U   SC   VC

10. I often put off doing things that I know would be good for me.  
    VU   SU   U   SC   VC

11. I usually try home remedies that have worked in the past rather than going to see a doctor or nurse for help.  
    VU   SU   U   SC   VC

12. I make my own decisions.  
    VU   SU   U   SC   VC

13. I perform certain activities to keep from getting sick.  
    VU   SU   U   SC   VC

14. I strive to better myself.  
    VU   SU   U   SC   VC

15. I eat a balanced diet.  
    VU   SU   U   SC   VC
16. I complain a lot about the things that bother me without doing much about them.  VU SU U SC VC
17. I look for better ways to look after my health.  VU SU U SC VC
18. I expect to reach my peak wellness.  VU SU U SC VC
19. When I have a problem, I usually want an expert to tell me what to do.  VU SU U SC VC
20. I deserve all the time and care it takes to maintain my health.  VU SU U SC VC
21. I follow through on my decisions.  VU SU U SC VC
22. I have no interest in learning about my body and how it functions.  VU SU U SC VC
23. If I am not good go myself, I believe I cannot be good for anyone else.  VU SU U SC VC
24. I understand my body and how it functions.  VU SU U SC VC
25. I rarely carry out the resolutions I make concerning my health.  VU SU U SC VC
26. I am a good friend to myself.  VU SU U SC VC
27. I take good care of myself.  VU SU U SC VC
28. Health promotion is a chance thing for me.  VU SU U SC VC
29. I have a planned program for rest and exercise.  VU SU U SC VC
30. I am interested in learning about various disease processes and how they affect me.  VU SU U SC VC
31. Life is a joy.  VU SU U SC VC
32. I do not contribute to my family's functioning.  VU SU U SC VC
33. I take responsibility for my own actions.  VU SU U SC VC
34. I have little to contribute to others.  VU SU U SC VC
35. I can usually tell that I am coming down with something days before I get sick.  VU SU U SC VC
36. Over the years I have noticed the things to do that make me feel better. VU SU U SC VC

37. I know what foods to eat and keep me healthy. VU SU U SC VC

38. I am interested in learning all that I can about my body and the way it functions. VU SU U SC VC

39. Sometimes when I feel sick I ignore the feeling and hope it goes away. VU SU U SC VC

40. I seek information to care for myself. VU SU U SC VC

41. I feel I am a valuable member of my family. VU SU U SC VC

42. I remember when I had my last health check and return on time for my next one. VU SU U SC VC

43. I understand myself and my needs pretty well. VU SU U SC VC
APPENDIX C

RESEARCH TOOL

PAIN QUESTIONNAIRE
PAIN QUESTIONNAIRE

The "Morphine Pump" or "Patient-Controlled Analgesia" is a new and exiting form of post-operative pain control device that enables the patient to control when to administer the pain medication needed for post-surgical pain.

In an effort to improve the pain relief that you receive, and in an effort to further understanding your specific needs for pain control, your answers and rating of pain levels would be appreciated by the physicians and nurses caring for you.

Since you have been selected to receive this type of pain relief, we would like you to rate, on the following page, your pain and subsequent pain 10-15 minutes after you administer the pain medication by "pushing the button."

All responses will be confidential. Consent to participate in this study will be evidenced by your completion of the pain assessment evaluation form as instructed.

Thank you for your cooperation and helpful assistance.

Researcher

Candice A. Pederson, R.N., B.S.
2912 S. Louise, #205
Sioux Falls, SD 57106
To evaluate your pain management program, please do the following:

1. At the time when you feel the need for pain relief by medication, please rank the pain you are feeling on a scale of 0 to 10 (where 0 is no pain and 10 is excruciating, unbearable pain). Include the time of day this pain is experienced.

2. Give yourself a 'shot' of IV pain medicine, wait 10-15 minutes and rank the pain again, on the same 0-10 scale.

3. Since anxiety, stress, or activity can have an effect on pain and pain relief, please indicate if any other of these factor(s) contributes to your pain or pain relief. If yes, please specify possible cause(s). Write a Y (yes) or N (no) in column III.

4. Repeat steps 1-3 every time you "press the button" for pain relief.

<table>
<thead>
<tr>
<th>Time</th>
<th>Level of Pain prior to 'Pressing the button'</th>
<th>Presence of other factor(s) that may have increased or decreased pain. I=increased pain D=decreased pain Specify factor</th>
<th>Level of Pain 10-15 minutes after 'Pressing the Button.'</th>
</tr>
</thead>
<tbody>
<tr>
<td>For example: 3:15 p.m.</td>
<td>6</td>
<td>I= A visitor made me upset or D= Nurse gave me a backrub.</td>
<td>2</td>
</tr>
<tr>
<td>Time</td>
<td>Level of Pain prior to 'Pressing the button'</td>
<td>Presence of other factor(s) that may have increased or decreased pain. I=increased pain D=decreased pain Specify factor</td>
<td>Level of Pain 10-15 minutes after 'Pressing the Button.'</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
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</tbody>
</table>
APPENDIX D

DEMOGRAPHIC DATA FORM
<table>
<thead>
<tr>
<th>DEMOGRAPHIC DATA - PATIENT CONTROLLED ANALGESIA/SELF-CARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME ___________________________ AGE _____ DOB _____ RM # _____</td>
</tr>
<tr>
<td>ADMITTING DIAG. ____________________</td>
</tr>
<tr>
<td>DISCHARGE DIAG. ___________________ DOCTOR ______</td>
</tr>
<tr>
<td>RACE __________________________ ETHNIC BACKGROUND ______</td>
</tr>
<tr>
<td>OPERATION ________________________ ICU ? ______</td>
</tr>
<tr>
<td>EBL ___________________________ BLOOD TRANSFUSIONS ________</td>
</tr>
<tr>
<td>SMOKING _________ ALCOHOL ________ ALLERGIES ________</td>
</tr>
<tr>
<td>HEIGHT _______ WEIGHT _______ PCA EFFECTIVE G _____ F _____ P _____</td>
</tr>
<tr>
<td>PCA START DATE _______ END DATE _______ TOTAL TIME _______</td>
</tr>
<tr>
<td>PCA LOADING DOSE? _____________ INTRAOP NARC ________</td>
</tr>
<tr>
<td>__________________________________ TIME OF LAST OP NARC ________</td>
</tr>
<tr>
<td>PREVIOUS MEDICATIONS ____________________________</td>
</tr>
<tr>
<td>OTHER INTRAHOSPITAL ANALGESICS ____________________</td>
</tr>
<tr>
<td>TAKEN AT SAME TIME AS PCA? ____________________</td>
</tr>
<tr>
<td>OTHER MEDS? ____________________________</td>
</tr>
<tr>
<td>SIDE EFFECTS OF OPERATION ____________________________</td>
</tr>
<tr>
<td>__________________________________________</td>
</tr>
<tr>
<td>SIDE EFFECTS OF OTHER DRUGS ____________________________</td>
</tr>
<tr>
<td>__________________________________________</td>
</tr>
<tr>
<td>ANESTHESIA TECHNIQUE AND DRUGS: ____________________________</td>
</tr>
<tr>
<td>__________________________________________</td>
</tr>
<tr>
<td>SURGICAL PATHOLOGY? ____________________________</td>
</tr>
</tbody>
</table>
FOLEY ? ___________ WHEN __________ OBESITY _____ % +/− IBW _____

SIDE EFFECTS OF PCA
1. RESP DEPRESSION ______________________

2. DOSES OF NARCAN ? _____________________

N/V __________________________ TEMP ________________________

OTHER SIDE EFFECTS OF PCA:
APPENDIX E

PATIENT EDUCATION PAMPHLET

PATIENT CONTROLLED ANALGESIA
Pre-filled Vial of Morphine

Operates on Battery

Injector

Volume Delivered Display

Status Message (Ready or Lockout)

Patient Control Button

Amount of Mg. Minute Interval

69
PATIENT CONTROLLED ANALGESIA

The PCA infuser pump (Patient Controlled Analgesia) is a programmed pump used for pain relief of post-operative pain, cancer pain or other pain patients are in need of relief of. It is hooked up directly to your IV tubing and will give you intravenous morphine which you control with a button. Your doctor or anesthetist will calculate the correct dosage of morphine for you and the pump will be programmed accordingly. The pump will automatically dispense to you only the amount it has been programmed for; the dosage will vary from patient to patient. For example: the pump may be set at 2 mg. of morphine every 12 minutes - not to exceed 10 mg. every or 30 mg. every 4 hours. Should you reach any of the limits, the pump will not dispense any more medication.

Using this example, it is possible to receive 2 mg. every 12 minutes for the first 12 hours, which is a total of 10 mg. per hour; but then you would be unable to receive anything the fourth hour as you had exceeded your 30 mg. in 4 hour limit. Because of this you should try to space out your doses and use the pump only when you need it. When the correct time has elapsed, the pump will read "ready", otherwise it will read "lock out."

Side effects of morphine may include respiratory depression, headache, hives, anxiety, local tissue irritation, itching, or excessive drowsiness. Should any of these symptoms develop,
notify your nurse IMMEDIATELY. The nurses will be monitoring your respirations frequently and will record this on a sheet on your door. Should your respirations become less than 10 per minute, a medication will be administered to reverse the effects of morphine, which is a narcotic. This medication, called Narcan, will be kept in your room at all times.

The PCA pump is usually discontinued 2-3 days after surgery, depending on your need for narcotic pain relief. At that time other medications, either oral pain pills or hypos (intramuscular injections) will be ordered by your doctor, as he/she feels necessary for your pain relief.

As with any medication, the PCA pump should be used with discretion and common sense, depending on your need for pain relief.

If you have any further questions, be sure to ask your nurse or doctor. They will be happy to answer them for you.

Thank you.
APPENDIX F

SUMMARY OF INFERENTIAL TESTING
Table 7
Analysis of Variance of the Difference Between Self-care Agency Scores among Patients who Selected to use Patient Controlled Analgesia and those Patients who Chose not to use Patient Controlled Analgesia

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>9160.80476190</td>
<td>9160.80476190</td>
<td>25.31</td>
</tr>
<tr>
<td>Within Groups</td>
<td>33</td>
<td>11942.16666667</td>
<td>361.88383838</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>21102.97142857</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

p < .05

Table 8
Analysis of Variance of the Relationship Between Ethnic Origins of Subjects and Level of Self-Care Agency Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>1110.56193806</td>
<td>555.28096903</td>
<td>0.88</td>
</tr>
<tr>
<td>Within Groups</td>
<td>30</td>
<td>18969.31684982</td>
<td>632.31056166</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>20079.87878788</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

p > .05
Table 9
Analysis of Variance of the Relationship Between
Level of Self-Care Agency Scores among those Patients
who used Patient Controlled Analgesia and those who
chose not to use Patient Controlled Analgesia when
Controlling for Selected Surgical Condition

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>8364.05568182</td>
<td>8364.05568182</td>
<td>19.68</td>
</tr>
<tr>
<td>Within Groups</td>
<td>14</td>
<td>5951.38181818</td>
<td>425.09870130</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>14315.43750000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

p < .05

Table 10
Confidence Factor Based on Mean and Standard Deviation of
Difference Between the Pain Score from Pre-Patient
Controlled Analgesic Use to Ten to Fifteen Minutes
After Use of Patient Controlled Analgesia

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>36.68571429</td>
<td>14.46653629</td>
</tr>
<tr>
<td>30</td>
<td>49.7333333</td>
<td>12.81952534</td>
</tr>
<tr>
<td>35</td>
<td>22.28571429</td>
<td>24.44750851</td>
</tr>
<tr>
<td>30</td>
<td>5.25700000</td>
<td>1.54000000</td>
</tr>
</tbody>
</table>

p < .05
95% C.L. = 5.257 +/- .178