

1996

The Effectiveness of Viewing the "Life After Brain Injury" Video Tape by Family Caregivers

Nan Meyers

Grand Valley State University

Follow this and additional works at: <http://scholarworks.gvsu.edu/theses>

 Part of the [Education Commons](#), [Medical Education Commons](#), [Nursing Commons](#), [Social Psychology Commons](#), and the [Sociology Commons](#)

Recommended Citation

Meyers, Nan, "The Effectiveness of Viewing the "Life After Brain Injury" Video Tape by Family Caregivers" (1996). *Masters Theses*. 297.

<http://scholarworks.gvsu.edu/theses/297>

This Thesis is brought to you for free and open access by the Graduate Research and Creative Practice at ScholarWorks@GVSU. It has been accepted for inclusion in Masters Theses by an authorized administrator of ScholarWorks@GVSU. For more information, please contact scholarworks@gvsu.edu.

THE EFFECTIVENESS OF VIEWING THE "LIFE AFTER BRAIN INJURY"
VIDEO TAPE BY FAMILY CAREGIVERS

By

Nan Meyers, B.S.N., R.N.

A THESIS

Submitted to
Grand Valley State University
in partial fulfillment of the requirements for the
degree of

MASTER OF SCIENCE IN NURSING

Kirkhof School of Nursing

1996

Thesis Committee Members:

Kay Setter-Kline, R.N., Ph.D.

Agnes Britton, R.N., M.S.

Richard Paschke, Ph.D.

ABSTRACT

THE EFFECTIVENESS OF VIEWING THE "LIFE AFTER BRAIN INJURY" VIDEO TAPE BY FAMILY CAREGIVERS

By

Nancy A. Meyers

Family caregivers readily identify the physical signs of brain injury but the cognitive dysfunction and behavioral change symptoms are less easily recognized. Families need to be knowledgeable about brain injury and how to manage its' symptoms. Nurses are in the unique position to provide brain injury education for family caregivers early in the acute hospitalization. This study replicated the works of Sanguinetti and Catanzaro (1987) and Pardee (1993).

Statistical comparison of pretest and posttest knowledge and the pretest and posttest application scores were used to evaluate the effectiveness of family caregivers' ability to apply learned information about brain injury and its' management techniques. Hypothesis 1 was supported in that a statistically significant increase in knowledge ($p = .000$) about the cognitive dysfunction, behavioral change and physical signs of brain injury was found. Hypothesis 2 was supported in that a statistically significant increase ($p = .001$) in the pretest and posttest application scores was found after viewing the "Life After Brain Injury" video tape.

ACKNOWLEDGMENTS

This author acknowledges with gratitude to the following:

the family caregivers who participated in this study;

my thesis advisor, Kay Setter Kline, Ph.D., R.N. for her expertise, support and counsel;

my thesis committee members: Agnes Britton, M.S.N., R.N., and Richard Paschke, Ph.D. for their advice and expertise;

my colleagues, Connie Pardee, M.S.N., R.N.; Bobbie Thompson, R.N.; Marty Walker, B.A., R.N.; Allyson Clays, R.N.; Rosemary Candelario, M.P.A., R.N. and Stacy Mills, for without these dedicated professionals the "Life After Brain Injury" video tape would exist;

my children, Kimber and Nikki, for their love and support and for keeping me straight on life's priorities;

my husband Joel, for his love, faith and confidence in my ability and his belief that this project, too shall pass.

Table of Contents

List of Tables	vi
List of Figures	vii
List of Appendices	viii
CHAPTER	
1 INTRODUCTION	1
Statement of the Problem	3
Purpose	3
2 LITERATURE REVIEW AND CONCEPTURAL FRAMEWORK	5
Review of Literature	5
Conceptual Framework	13
Person	13
Environment	15
Health	15
Nursing	16
Hypotheses	17
Terms Used for This Study	17
3 METHODOLOGY	20
Design	20
Selection of Subjects	21
Characteristics of the Subjects	21
Instrument	22
Procedure	25
Human Subject Consideration	26
Benefits and Risks to Subjects	27

4	RESULTS	28
	Hypotheses	28
	Data Analysis	28
	Hypothesis 1	28
	Hypothesis 2	31
	Subsequent Findings	32
5	DISCUSSION AND IMPLICATIONS	34
	Relationship of Findings to Conceptual Framework	36
	Relationship of Findings to Previous Research	37
	Limitations and Recommendations	39
	Implications for Nursing	41
	REFERENCES	43

List of Tables

TABLE

1	Family Caregiver Relationships	22
2	Instrument Content	24
3	Frequency Distribution of Correct Answers for Pretest and Posttest Knowledge	29
4	Comparison of Questions Receiving Lower Scores on Posttest	30
5	Frequency Distribution of Correct Answers for Pretest and Posttest Application	32

List of Figures

FIGURE

1	I. M. Kings' Conceptual Framework	14
2	Conceptual Framework for Study	17

List of Appendices

APPENDIX

A	Authorization to use copyrighted material	46
B	Pretest Questions	47
C	Posttest Questions	52
D	Study Participants Information Sheet	57
E	Authorization to Participate in the Study	58
F	General Information Interview	59
G	Human Subject Research Approval	61

CHAPTER 1

INTRODUCTION

The aftermath of brain injury impacts the families of brain injured survivors. Each year, nearly 380,000 Americans are treated for brain injury (Peters, 1994). Brain injury affects not only the person experiencing the injury but also his/her family. Often, the family finds the survivor to be a very different person after the brain injury. The physical signs of brain injury are easily seen by family members. The cognitive dysfunction and behavioral changes are less tangible, but are no less devastating (Livingston & Brooks, 1988).

Sullivan (1995) indicates health care delivery in the 1990's mandates the processes be educative, clinically appropriate, and cost effective. The moment a brain injured person presents to the acute care hospital, brain injury education should begin and continue on through the injured persons' maximal functional recovery. Damrosch (1991) surveyed hospital staff and found patient and family education programs still remain a low priority. This may be attributable to pressures felt by hospital administrators to justify the effectiveness of non billable patient/family education programs (Bishop & Miller, 1988).

According to the authors reviewed, the attainment of positive rehabilitation outcomes for the brain injured survivor depends in part on the educational preparedness of

the family caregivers (Johnson & Higgins, 1987; Kreutzer, Serio, & Berquist, 1994). It is critical for family caregivers to be prepared for the cognitive dysfunction and behavioral changes seen following brain injury as well as the physical signs (Grinspun, 1987a; Veltman, VanDongen, Jones, Buechler, & Blostein, 1993). The studies of Sanguinetti and Cantanzaro (1987) and Pardee (1993) have shown that when family caregivers are unaware of the cognitive dysfunction and behavioral changes of brain injury, they do not choose appropriate care interventions. Research indicates that family caregivers' need for brain injury education continues today, recognizing the role family caregivers play in the rehabilitation process.

It is unrealistic to expect family caregivers to know how to deal with the aftermath of brain injury without an educational process to support them (Reeber, 1992). Families of brain injured survivors will require education about how the brain injury is going to affect their lives. Restoring the brain injured survivor and family to stability is facilitated through education. It is a process whereby the family caregivers apply what they have learned through brain injury education to real life situations (Rosenthal & Young, 1988). It is essential for family caregivers to begin this educational process before the brain injured survivor is discharged from the hospital (Veltman, et al., 1993).

Nurses have the unique opportunity to provide the brain injury education because of the length of time they spend with both the brain injured survivors and family caregivers. This educational opportunity can be accomplished during the brain injured survivors' acute hospitalization by integrating brain injury education into the nursing process (Sanguinetti & Catanzaro, 1987; Pardee, 1993). Frequently brain injury education is

presented verbally to family caregivers. Occasionally, written information may also be given to family caregivers. Sweetland (1990) demonstrated that providing written educational material, in addition to verbally reviewing the information, enhances the person's understanding and recall. This study's instrument, the "Life After Brain Injury" video tape, combines the verbal and written formats Sweetland spoke of. The video tape provides information about brain injury, management techniques, and community resources through the use of on-screen narrative and written formats, and role play scenarios.

Statement of Problem

In order to meet the family caregivers' need for brain injury education a video tape called "Life After Brain Injury" was developed. This video tape provides brain injury education by describing the cognitive dysfunction, behavioral changes, and physical signs that may be experienced following brain injury. Additionally, this video tape offers practical management techniques for family caregivers to assist the brain injured survivor in coping with life situations.

Purpose

In the brain injured survivors' acute hospital course, the nurse is in the best position to educate family caregivers about brain injury and its sequelae by incorporating the "Life After Brain Injury" video tape into the plan of care. The purpose of this study was twofold, first to investigate if there was a significant increase in the family caregivers' knowledge about cognitive dysfunction, behavioral change and physical signs of brain injury following viewing of the "Life After Brain Injury" video tape. Second, this study

investigated if family caregivers' posttest application scores increased following viewing of the "Life After Brain Injury" video tape.

CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

The symptoms of, mild, moderate and severe traumatic brain injury are similar to those symptoms seen as a result from craniotomy, brain infection, subarachnoid hemorrhage, arteriovenous malformation and cerebral vascular stroke despite the differences in etiologies (Ben-Yishary & Diller, 1993; Barth, Macciocci, Giordani, Rimel, Jane, & Boll, 1983; Tabaddor, Mattis & Zazula, 1984; Warren, Goethe & Peck, 1984; Grinspun, 1987b; Hannegan, 1989; Pasquarello, 1990). The common characteristics of brain injury are physical signs, cognitive dysfunction and behavioral change. Nurses need to be knowledgeable about brain injury in order to initiate the family caregivers' educational process during the hospital stay. Nurses help family caregivers to differentiate the cognitive dysfunction, behavioral change and physical signs of brain injury from the survivors premorbid capacity of functioning. In this study literature was reviewed in the areas of brain injury sequelae, family caregivers' needs and brain injury education.

Review of Literature

Tabaddor et al., (1984) examined the cognitive recovery, at fixed intervals, of brain injured survivors from time of admission to one year after injury. This descriptive study used the following neuropsychology tests: Dementia Scale, Wechsler Adult Intelligence

Scale, Multilingual Aphasia Exam, Purdue Pegboard, Mattis-Komer and Benton Test to assess the cognitive recovery course of moderate and severe head injured patients (N = 68). In the study of Tabaddor et al, a patient with moderate head injury was defined by a Glasgow Coma Scale (GCS) score of 9 to 11 and severe head injury was defined by a GCS score of 8 or less. The Glasgow Comma Scale ranges from 3 to 15.

Tabaddor et al., (1984) found that 51% of the convenience sample experienced severe head injury and 49% had experienced moderate head injury. The subjects' average scores on the neuropsychology tests varied from borderline to grossly defective. The mean IQ score was 1.6 standard deviations (SD) below the normative mean. On the multilingual aphasia exam, scores were 3 SDs below the normative mean. The verbal and nonverbal memory scores were 6 and 5 SDs below the normative mean, respectively. The brain injured survivors demonstrated improvement in all tests except memory at one year after injury.

Limitations for Tabaddor's et al., (1984) study were the small sample size, thus prohibiting statistical analysis of the rate of recovery for each cognitive function and use of a convenience sample. A convenience sample is the most readily available sample of subjects for the study. When using a convenience sample, there is a possibility that the subjects may represent an atypical population variant in regards to the variables being measured (Polit & Hungler, 1991). The study data focused on brain injured subjects and results were compared only to non-injured subjects. Comparing brain injured subjects' data to non-injured subjects may restrict generalization of this study's results. In order to generalize this study's results, the normative comparison should compare brain injured

subjects to like brain injured subjects.

In an experimental comparison study, Sanguinetti & Catanzaro (1987) investigated the effectiveness of videotaped discharge teaching for family caregivers on the consequences of brain injury. A convenience sample ($N = 29$) of family caregivers of brain injured survivors viewed a discharge teaching videotape. The control group viewed a discharge teaching videotape focusing on only the potential physical signs following brain injury. The experimental group viewed a discharge teaching videotape containing the potential physical signs and also included information on cognitive dysfunction seen following brain injury.

Sanguinetti & Catanzaro (1987) found there was a significant difference between the scores of the experimental group and the control group ($t = 10.93$, $p < .001$, $df = 27$). Family caregivers who received discharge teaching on cognitive dysfunction were better able to recall the information, and apply it to a written posttest of patient care scenarios, than family caregivers who did not receive the cognitive dysfunction information.

The limitations of Sanguinetti & Catanzaro's (1987) study were use of small convenience sample, and unequal distribution of subjects between control and experimental groups. The posttest contained only cognitive dysfunction scenarios. Posttest scoring was subject to investigator bias as the investigator was the only test scorer. Sanguinetti & Catanzaro did not include specific brain injury criteria for admitting families of brain injured patients into the study nor cite possible contamination by staff and other families not involved in study who might discuss cognitive dysfunction information.

Pardee (1993) replicated Sanguinetti & Catanzaro's (1987) study. The focus of

Pardee's study was to evaluate the family caregivers' ability to select appropriate care techniques following the viewing of videotape discharge instructions on posttraumatic brain injury symptoms. The study was an experimental group comparison, posttest design. A convenience sample (N = 30) of family caregivers were obtained from an acute care hospital patient census. The control family caregivers' group viewed a videotape outlining discharge instructions of only the physical signs of brain injury. The experimental group viewed videotape discharge instructions on cognitive dysfunction, behavioral change and physical signs that may occur following brain injury. Both family caregivers' groups completed a written posttest after viewing the respective discharge instruction videotape. The posttest was scored by the study investigator and reviewed immediately with the individual family caregivers.

Pardee's (1993) study supported the hypothesis that if family caregivers (experimental group) were given video taped information about the cognitive dysfunction and behavioral change in addition to the physical signs of posttraumatic brain injury, they would choose more appropriate care interventions on the posttest. Family caregivers (control group) who were only given video taped information about the physical signs of posttraumatic brain injury scored lower on the posttest, demonstrating a reduced ability to choose appropriate care interventions. The experimental group mean score was 11.632 with a SD of 5.294 and the control group mean score was 2.545 with a SD of 1.809. Statistical significance between the control and experimental group was demonstrated by the unpaired t-test analysis ($t = 5.475$, $p < .0001$, $df = 28$).

The limitations of Pardee's (1993) study were similar to Sanguinetti & Catanzaro's

(1987) study. The sample size was small and was a convenience sample, limited to one institution. Diffusion of the intervention may have occurred by family caregivers sharing a common waiting room. The posttest was scored by only one scorer. Thus, investigator bias may have been a factor. An additional limitation was that the posttest contained only scenarios pertaining to cognitive dysfunction and behavioral symptoms of traumatic brain injury.

Mahon and Elger (1989) investigated the symptoms and psychosocial sequelae of posttraumatic syndrome following mild head injury. Mild head injury was defined in the Mahon and Elger (1989) study by a patient experiencing: a loss of consciousness of less than 20 minutes or amnesia for injury events; being combative or confused at the injury scene; or having a GCS score of 13 or greater on hospital admission. This descriptive study was conducted at 3 months and 6 months intervals on a convenience sample (N = 75) adults who sustained a mild head injury. After injury, at 3 months and 6 months, 60% and 21% of the patients were still symptomatic, respectively. Four conclusions were supported by the research data: (1) early nursing observation identified patients at high risk for developing posttraumatic syndrome; (2) early intervention may speed the recovery rate; (3) family support is a significant factor in the recovery process; and (4) education by nurses is crucial in decreasing family anxiety and frustration during the recovery process.

Limitations of Mahon & Elger's (1989) study included use of a small convenience sample and were limited only to adults. A further limitation was the absence of quantitative measures for family and patient complaints.

Pasquarello (1990) measured the effectiveness of a Clinical Nurse Specialist (CNS)

managed acute stroke program on patient outcomes which supported the need for early education. For this ex post facto retrospective chart review design, two convenience samples were used. Eighty-six patients were admitted to the study during the first 6 months of 1987 prior to the stroke program implementation and 100 patients were admitted to the study during the first 6 months of 1988 following implementation of the stroke program. For Pasquarello's study the following variables were investigated: length of stay (LOS); discharge disposition; orders for physical, occupational, and speech therapy; recidivism; complications; adherence to medication schedules; and follow-up care.

Pasquarello's (1990) research findings supported continuing the CNS managed stroke program. Additionally, the study findings demonstrated the need to provide education about the disease process and rehabilitation measures early in the hospital phase. The LOS of admitted stroke patients dropped to 8 days in 1988 from 17 days in 1987. In 1988, discharge disposition of stroke patients from the acute hospital significantly increased: to home by 62% and to an inpatient rehabilitation facility by 300%. Concomitantly, nursing home admissions decreased by 100% in the 1988 subject group. Orders for physical, occupational, and speech therapy were written sooner (.75 days), hospital recidivism decreased by 20%, a 54% improvement in adherence to a medication schedule was noted and a 49% increase in keeping scheduled appointments for the 1988 group occurred.

Limitations for Pasquarello's (1990) study included the use of a convenience sample and the absence of a stroke severity tool. A stroke severity tool would provide objective

data regarding severity and extent of the stroke. Collected data were dependent upon written documentation that was often missing, this presented an additional limitation.

Veltman, et al. (1993) researched the benefit of performing cognitive screening of mild brain injury patients using the Neurobehavioral Cognitive Status Examination (NCSE) tool during acute hospitalization to identify patients at risk for developing cognitive dysfunction. The NCSE is a cognitive screening tool used in the acute care setting to identify mild traumatic brain injured patients who are at risk to experience cognitive dysfunction post discharge. There are two parts to the NCSE tool, the status profile and the process feature. In the status profile, the patient is challenged with test items dealing with manual skills and verbal questions which explore level of consciousness, orientation, language, attention, verbal memory, calculation, reasoning, and visual construction. In the process feature of the NCSE tool, a trained professional observes and documents the patient's performance behaviors during the examination.

In Veltman's, et al., (1993) study mild brain injury was defined as a patient having a GCS score of 13 to 15 on hospital admission with a loss of consciousness (LOC) less than 20 minutes. A convenience sample (N = 100) provided subjects for this retrospective descriptive study. All subjects in the study were screened using the NCSE tool and were provided education about mild traumatic brain injury prior to discharge. A follow-up telephone call was made to further assess the patient's need for any further cognitive interventions.

Data analyzed by Veltman, et al., (1993) demonstrated statistically significant differences between the patient's cognitive screen and cognitive evaluation (chi-square =

24.36, $p < .0000$) and between the cognitive screen results and follow-up findings (chi-square = 6.7, $p = .0350$). This study supports the use of a cognitive screening tool in the acute care setting to identify patients who are at risk for developing cognitive dysfunction after hospital discharge. Coupled with early identification of cognitive dysfunction for mild brain injured patients, Veltman, et al (1993) also demonstrated the value of providing families of mild brain injured patients with brain injury education early in the acute hospitalization. The early recognition of cognitive deficits and early intervention with family and patient education assists with a return to the premorbid functional capacity of the injured patient and family.

A limitation of Veltman's, et al., (1993) study was the absence of a consistent time interval during the acute hospital phase for patients to be cognitively screened. Additional limitations were the exclusion of family members' input during the follow-up telephone assessment and convenience sampling.

The above literature revealed that brain injury occurs from a variety of etiologies. Cognitive dysfunction, behavior change and physical signs may occur following a brain injury and can drastically alter the relationship between a brain injury survivor and his or her family. This literature demonstrated that when family members are knowledgeable about brain injury, its sequela, management and rehabilitation goals, better outcomes can be secured for the brain injury survivor.

Currently in health care, the emphasis is on appropriate care and effective utilization of resources; this translates into decreased length of stays for patients. In order to continue to provide appropriate care and utilize resources effectively, the brain injury

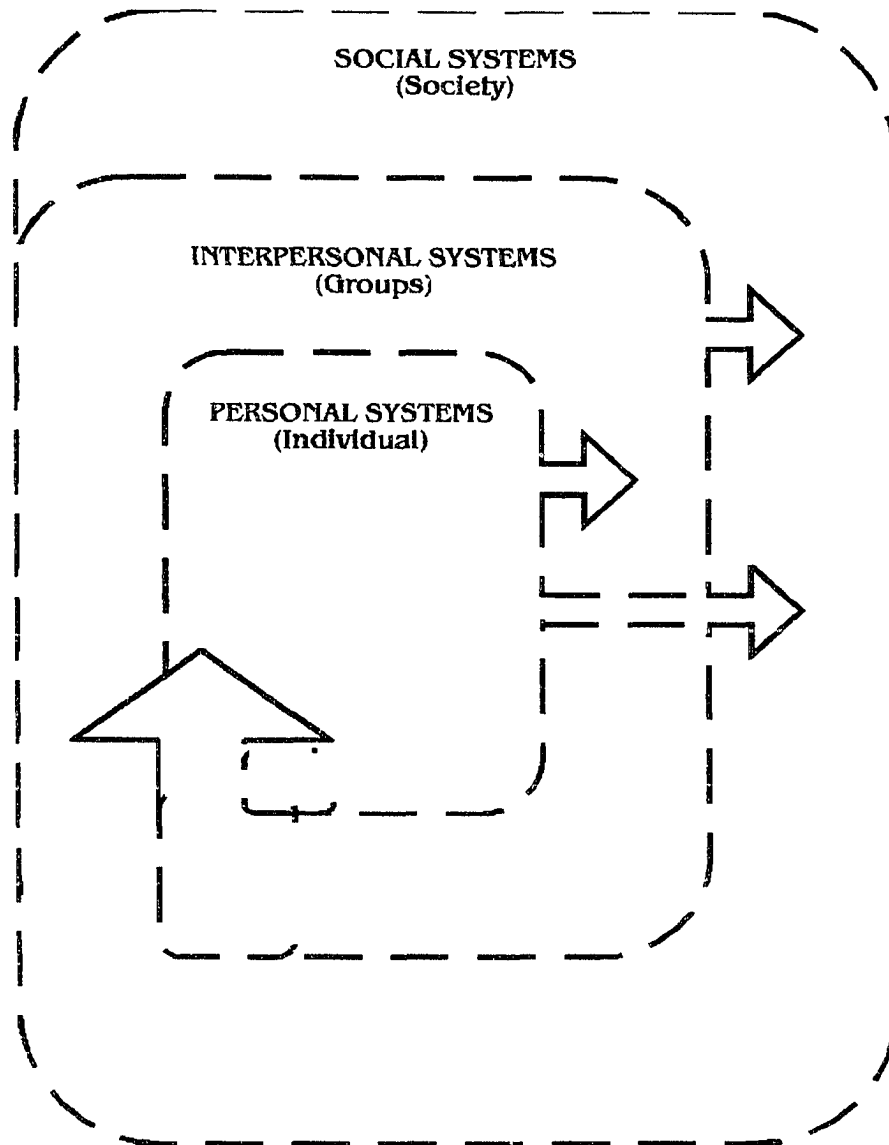
educational process for family caregivers must begin in the acute hospital phase.

Conceptual Framework

Imogene King's (1981) conceptual framework, Interacting Systems, was used to organize this study (see Figure 1). The Interacting Systems framework consists of three systems that are dynamic, open and interact with each other. The first system is the Personal System and represents the individual. The major concepts within this system are perception (a process of interpreting and transforming data into memories that will influence behavior), self, body image, growth and development, time and space. The Interpersonal System is the second system, representing more than one individual, forming small to large groups of individuals. The key concepts of the Interpersonal System are role (behaviors specific to situations), interaction (represents verbal and nonverbal goal directed behavior between two or more individuals), communication (the vehicle by which human relationships develop), transaction (processes by which individuals communicate with others to attain valued goals), and status. The Interpersonal System exemplifies the nursing process. The third system is called the Social System and occurs when a group of individuals, with common interests and goals, comes together and interacts. Relevant concepts of the Social System are organization, role (behaviors specific to situations), power, authority and decision making (a choice made and acted upon after reviewing options).

Person. The nursing paradigm according to King is defined as the individual person or a group of people continually interacting with the environment, having penetrable

Figure 1 I.M. King's Conceptual Framework



Reproduced by permission (Appendix A)
A THEORY FOR NURSING: SYSTEMS, CONCEPTS, PROCESS
By I.M. King
Delmar Publishers, Albany, New York, Copyright 1981

borders, allowing the exchange of information/education, energy and matter. King's (1981) Interacting Systems conceptual framework was well suited for the neurologically injured patient and family caregivers because of the open, dynamic interrelationship among the three systems. The individual brain injured person comprised the Personal System concept, and the family of the brain injured patient was included in the Interpersonal and Social System concepts (King, 1981; Carter & Dufour, 1994).

Environment. King (1981), defines environment as having boundaries susceptible to exchange of energy, matter and information. The exchange of energy according to King, goes back and forth between the internal and external environments. Personal satisfaction is achieved when there is harmony and balance in each person's environment. In this study the brain injured survivors' and family caregivers' harmony and balance, in their respective environments, have been disrupted because of the brain injury and the physical signs, cognitive dysfunction and behavioral change sequelae. The goal of utilizing King's conceptual framework of Interacting Systems by nurses was to help the brain injured survivor (individual) and family caregivers (group) who have common goals and interests (society) to reestablish and maintain health as they interact in their environments (King, 1992).

Health. King conceptualized health as a dynamic, life long experience in which the person constantly adjusts to life stressors in the internal and external environments (1981). King identifies three basic health wants for the person: (1) to have health education when it is required and able to be used, (2) receive preventive care, and (3) receive care when unable to provide the care for self. Health, in this study, was conceptualized as the family

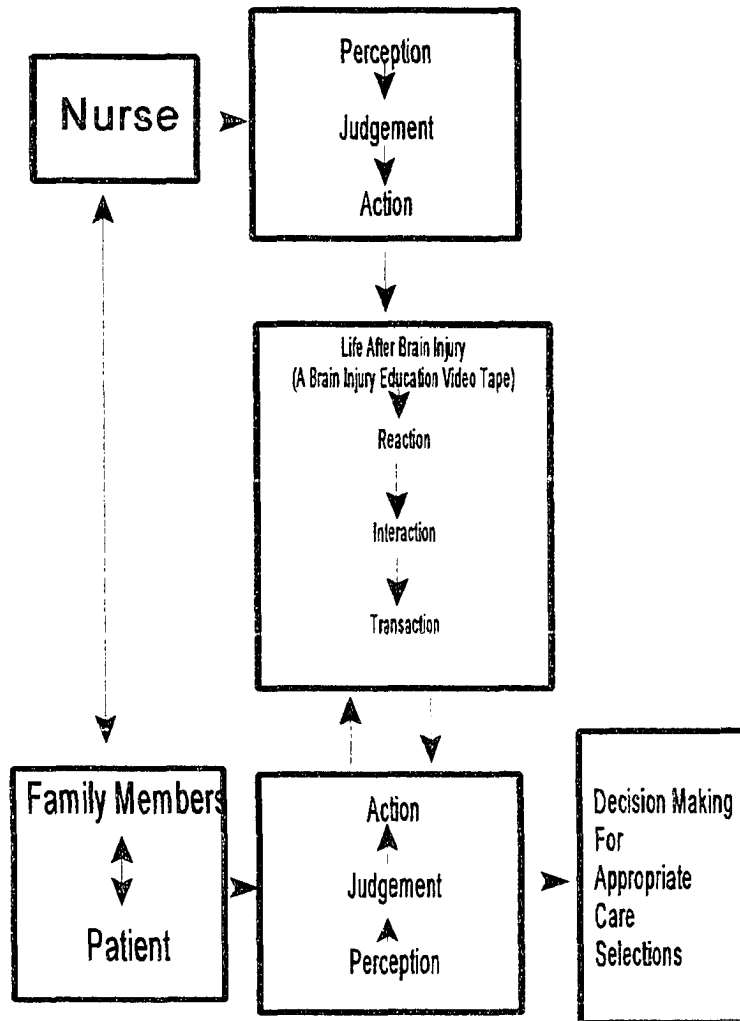
caregivers' increased level of knowledge about the cognitive dysfunction, behavioral change and physical signs of brain injury.

Nursing. King (1981) indicates that nursing is focused on individual(s) interacting with the environment, establishing or maintaining health, thus allowing the individual(s) to function in social roles. The nursing process, as viewed by King is composed of interactions and transactions occurring between the individual or groups of individuals and the nurse, whereby they communicate with each through observations and, verbal and nonverbal responses in a given situation. Through the nursing process, goals are set and ways and means of achieving the goals are investigated and decided upon.

The nursing process within King's (1981) Interacting Systems conceptual framework encompasses the concepts of: perception, interaction, communication, transactions, roles and decision making. Caring for neurologically injured patients elucidates how King's conceptual framework supports the nursing process. As the previous literature review indicates, family caregivers of brain injured survivors are instrumental in the rehabilitation process. By using King's Interacting Systems conceptual framework, the nurse can provide brain injury education to the family caregivers through the use of a brain injury video tape (see Figure 2).

The nursing process becomes the avenue by which the nurse begins to educate family caregivers about brain injury. Through communication with family caregivers, the nurse develops perceptions, makes judgement, and initiates a course of action to increase their level of knowledge about brain injury. After viewing the "Life After Brain Injury" video tape, the family caregivers and the nurse exchange information and education

Figure 2: Conceptual framework for study reflecting the “Life After Brain Injury” video tape as the intervention



through interactions and transactions. This, then allows family caregivers to gain more knowledge about brain injury and its management techniques. As their level of knowledge about brain injury increases, family caregivers are better able to decide which care selections are appropriate for managing their brain injured survivor.

Hypotheses

The following research hypotheses were tested: (1) There will be a significant increase in knowledge about cognitive dysfunction, behavioral change, and physical signs of brain injury following the viewing of the “Life After Brain Injury” video tape; and (2) posttest application scores will increase following viewing of the “Life After Brain Injury” video tape.

Terms Used for this Study

“Life After Brain Injury” video tape: A 22 minute brain injury educational video tape outlining the causes of brain injury, potential physical signs, cognitive dysfunction and behavioral change symptoms, and appropriate care management techniques.

Cognitive dysfunction symptoms of brain injury: Short term memory loss, decreased ability to learn, diminished ability to think abstractly (reason), inappropriate word use, neglect or denial of injured body part, and difficulty with multiple stimulations.

Behavioral change symptoms of brain injury: Self-centeredness, lack of initiative and motivation, fluctuating levels of mood and emotion, lack of in-depth insight, lack of awareness of condition, and increased tendency to fatigue.

Physical signs of brain injury: Unequal pupils, blurred/double vision, confusion,

disorientation, drowsiness, headache, vomiting, irritability, muscle weakness, poor coordination, neck pain, stiff neck, and seizures.

Pretest and posttest application: Questions 15, 16, 17, 18, 19, and 20, depicting true to life situations experienced by brain injured survivors and their family caregivers.

CHAPTER 3

METHODOLOGY

Design

For this study a quasi-experimental, multiple choice pre and posttest design was used. A statistical comparison of the pretest and posttest knowledge scores and the pretest and posttest application scores was done. This evaluated the effectiveness of the family caregivers' ability to apply the information, about brain injury and its management techniques, which was presented in the "Life After Brain Injury" video tape. General information data were obtained by a structured interview method (Appendix F).

The independent variable for this study was viewing the "Life After Brain Injury" video tape which produced nominal level data. The dependent variables for both hypotheses were the posttest scores. For the first hypothesis the investigator examined if the family caregivers' knowledge increased after viewing the "Life After Brain Injury" video tape, as evidenced by an increase in the posttest knowledge score. For the second hypothesis, the investigator examined if there was an increase in the posttest application score following viewing of the "Life After Brain Injury" video tape. Both dependent variables produced interval levels data.

Selection of Subjects

This study was conducted in a Midwestern acute care hospital. From the hospital census of brain injured survivors, a nonprobability convenience sample of family caregivers (N = 32) were recruited for this study. Inclusion criteria for this study were as follows: (1) admitted patients must have sustained a brain injury caused by craniotomy, subarachnoid hemorrhage, brain infection, arteriovenous malformation, cerebral vascular stroke or traumatic brain injury; (2) family caregivers would provide care either upon discharge home or to an inpatient rehabilitation facility; (3) family caregivers had to be able to comprehend the English language and be able to read and write; and (4) family caregivers had to be eighteen years or older. Exclusion criteria consisted of the following: (1) a previous brain injury; and (2) previous familiarity with a brain rehabilitation or brain injury support group.

Characteristics of the Subjects

Thirty-two family caregivers of brain injured survivors, who met the inclusion criteria, participated in this study. One or more family caregivers of each brain injured survivor participated in the study. The types of brain injury represented among the brain injured survivors were distributed as follows: 18.8% craniotomy, 12.5% subarachnoid hemorrhage, 15.6% cerebral vascular accident, and 53.1% traumatic brain injury.

Family caregiver ages ranged from 19 to 75 years with a mean age of 45.96 years. There were two subjects for whom complete age data were not available. The majority (71.9%) of family caregivers were females and 28.1% were males. The highest level of education completed by the family caregivers ranged from 9 to 19 years with a mean of

18.12 years.

Family caregiver relationship to the brain injured survivor varied widely. Twenty five percent of the caregivers were spouses, 18.8% were daughters, 12.5% were mothers, and 15.6% had other kinds of relationships with the brain injured survivor. Table 1 depicts family caregiver relationships to the brain injured survivor. No family caregivers had prior experience with brain injury, rehabilitation facilities, or brain injury support groups.

Table 1

Family Caregiver Relationships

Family Caregiver Relationship	Number	Percent
Spouse	8	25
Daughter	6	18.8
Mother	4	12.5
Father	3	9.4
Brother	2	6.3
Sister	1	3.1
Aunt	1	3.1
Grandmother	1	3.1
Significant other	1	3.1
Other: Sister(2), Brother-in-law(1), Great-grandmother (1), Step Grandfather-in-law (1)		15.6

Instrument

The instrument was developed by the investigator for this study (Appendix B, Pretest and Appendix C, Posttest). The 6 posttest scenario questions used by Sanguinetti & Catanzaro (1987), and Pardee (1993) were expanded upon for the present instrument.

Information presented in the "Life After Brain Injury" video tape focused on physical signs, cognitive dysfunction and behavioral change seen after brain injury. The posttest application questions were extrapolated from the scenes portrayed in the video tape. The video taped practical application scenes exemplified true to life depictions of cognitive dysfunction and behavioral change situations. Following each practical application scenario on the video tape, there was a replay of the scene using appropriate management techniques.

The video tape "Life After Brain Injury" was developed after Pardee completed her 1993 study. Connie Pardee, MSN, RN, and Nan Meyers, BSN, RN, CNRN, authored and produced the brain injury video tape in concert with Bobbie Thompson, RN; Marty Walker, BA, RN; Allyson Clays, RN; Rosemary Candelario, MPA, RN; and Stacy Mills.

The instrument used a multiple choice test question format. This provided an objective way to examine how effective the experience of viewing the brain injury educational video tape was on increasing the family caregivers' knowledge about the signs and symptoms of brain injury. In addition the instrument tested for the family caregivers' ability to select appropriate practical management techniques used to assist the brain injured survivor in coping with life situations. The first 14 questions focus on the physical signs, cognitive dysfunction and behavioral change aspects of brain injury. The last 6 questions comprised the practical application vignette portion of the test.

Table 2

Instrument Content

Content	Question Number
Symptom	
Physical Signs	1,2,3,4,5
Cognitive Dysfunction	6,7,9,10,14
Behavioral Change	8,11,12,13
Practical Application	15,16,17,18,19,20
Use of Other Resource Material (Posttest only)	Located at top of page

The pretest (Appendix B) and the posttest (Appendix C) were the same except for one question. The posttest asked one additional question, to determine if the subject used any other brain injury resource material since viewing the brain injury video tape. The posttest was color coded to distinguish it from the pretest.

The pretest and posttest reliability coefficient (Crombach's Alpha) was established at .7840. Polit & Hungler (1991) state that satisfactory reliability coefficients should measure .70 or greater. Face and content validity of the instrument was established by a multidisplinary panel of neurological experts. Each expert provided a critique of the instrument. The members of the multidisciplinary panel were: a neuropsychologist, a neurological clinical nurse specialist, a certified neuroscience nurse from critical care, a nurse educator, and a staff registered nurse from a neuroscience medical/surgical nursing unit.

The Office of Cancer Communications of the National Cancer Institute, the National Diabetes Information Clearing House and the United States Department of Health and Human Services recommended the Simplified Measure of Gobbledegook (SMOG) grading system to evaluate the readability of written patient/family education material (Stephens, 1992). Pretest and posttest readability according to the SMOG formula was found to be at the sixth grade level. A follow-up check on the readability of the test was established by having 2 sixth grade students evaluate the wording of the test questions. Both students indicated wording was appropriate and understandable for sixth grade level.

Procedure

Subjects for this study were recruited from families of brain injured survivors admitted to a Midwestern, acute care hospital. After the investigator determined if prospective subjects met the established criteria, family caregivers were asked to participate in the study. The nature of the study was explained to the family caregivers by the investigator (Appendix D) and written consent for participation was obtained (Appendix E).

Family caregivers were approached regarding study participation within 24 to 48 hours of admission, if the brain injured survivor was admitted to the Neuroscience Medical Surgical Unit-7NW. If the brain injured survivor was admitted to the Neuro Intensive Care Unit (NCU), family caregivers were approached within 24 to 48 hours before transfer from the NCU to 7NW. This time frame allowed for the medical stabilization of the brain injured survivor to occur.

Once family caregivers were identified as having met inclusion criteria for this study,

the investigator explained the study procedure and obtained subjects' consent for participation. Family caregivers were given a copy of their signed consent form. Family caregivers were assigned a study identification number that matched pretest to posttest. General information (Appendix F) was obtained by the investigator through an interview. Family caregivers were provided a quiet environment in which to complete the pretest. Next, the family caregivers viewed the brain injury education video tape "Life After Brain Injury."

After viewing the "Life After Brain Injury" video tape, the investigator asked the family caregivers not to watch the in-house patient education television or read any educational material about brain injury. The investigator scheduled an appointment with the family caregiver to complete the posttest between 24 to 72 hours after viewing of the video tape. If the family caregiver requested, they were told of their pretest and posttest scores. An explanation of pretest and posttest answers was provided by the investigator when each subject completed the posttest. No other person besides the investigator presented the study proposal to family caregivers, arranged viewing of the brain injury video tape, administered and scored the pretest and posttests, discussed results, or collected the study data. Upon completion of the posttest, each brain injury survivors' family was given a copy of the brain injury video tape for their future reference.

Human Subject Considerations

Approval for human subject research was obtained in writing from Grand Valley State University Human Research Review Committee (Appendix G) and the Midwestern acute care hospitals' Nursing Research Committee (Appendix G) in order to conduct this

study. Additionally, permission to conduct this study was verbally obtained from the Director of the NCU and 7NW units.

Benefits and Risks to Subjects

It was anticipated that the family caregivers in this study would benefit from this experience by an increase in their knowledge regarding brain injury and management techniques. Based on the noninvasiveness of this study, minimal risk involving subject participation was identified. Confidentiality and anonymity were strictly maintained. Several subjects voiced concerns about selecting the appropriate answers. To minimize responder bias, the investigator emphasized to the subjects the purpose of the tests was to evaluate the effectiveness of the "Life After Brain Injury" video tape as an educational tool. Subjects were advised by the investigator that they could withdraw from the study at any time, and they could do so without affecting the care provided their brain injured survivor. No subjects withdrew from the study.

CHAPTER 4

RESULTS

Hypotheses

The following research hypotheses were tested: (1) There will be a significant knowledge increase about the cognitive dysfunction, behavioral change and physical signs of brain injury following viewing of the "Life After Brain Injury" video tape; and (2) Posttest application scores will increase following viewing of the "Life After Brain Injury" video tape.

Data Analysis (Hypothesis Testing)

Data analysis was accomplished utilizing the Statistical Package for Social Science (SPSS for MS Windows release 6.1). Acceptable significance level was set at $p < .05$.

Hypothesis 1

A statistical process tested Hypothesis 1 for increased family caregiver knowledge as evidenced by higher posttest knowledge scores than pretest knowledge scores. The dependent variable of the posttest knowledge score produced an interval level data. Analysis for Hypothesis 1 was conducted to test the differences between the pretest and posttest knowledge group means using the paired one tail t-test. Hypothesis 1 was directional, involving the same subject population. Thus, a paired one tail t-test was used.

Pretest and posttest knowledge scores were compared for all subjects. Twenty-

seven subjects (84.37%) improved on their posttest knowledge scores in comparison to their pretest knowledge scores. Four subjects' (12.5%) posttest knowledge scores were the same as their pretest knowledge scores. One subject (3.12%) scored lower on the posttest knowledge than on the pretest. Twenty-six subjects on the pretest knowledge obtained 16 or more correct answers with a mean of 16.7 ($SD = 2.067$). For the posttest knowledge, 30 subjects obtained 17 or more correct answers with a mean of 18.313 ($SD = 2.292$). Table 3 depicts the frequency distribution of correct answers for the pretest and posttest.

Table 3

Frequency Distribution of Correct Answers for Pretest and Posttest Knowledge

	Number of Correct Answers Per Subject	Frequency	Percent
Pretest	9	1	3.1
	13	1	3.1
	15	4	12.5
	16	8	25
	17	5	15.6
	18	7	21.9
	19	6	18.8
Posttest	7	1	3.1
	16	1	3.1
	17	2	6.3
	18	10	31.3
	19	11	34.4
	20	7	21.9

Subjects scored lower on posttest knowledge questions 7, 11, and 12 when compared to their pretest knowledge questions. Question 7 depicted a home situation with the brain injured survivor having trouble working on a new project. This test question illustrated the cognitive dysfunction category of learning new information after experiencing a brain injury. Question 11 dealt with behavioral changes, concentrating on the lack of awareness of brain injury by the brain injured survivor. Question 12, focused on the mood and emotional swings seen as part of the behavioral changes caused by brain injury. Table 4 illustrates posttest knowledge questions which received lower scores than on the pretest.

Table 4

Comparisons of Questions Receiving Lower Scores on Posttest

Question	Type of Question	Pretest Number/% Correct	Posttest Number/% Correct
7. Learning a new task	Cognitive	23/ 71.9%	19/ 59.4%
11. Lack of awareness of brain injury	Behavioral	30/ 93.8%	29/ 90.6%
12. Mood and emotion swings	Behavioral	31/ 96.9%	30/ 93.8%

The pretest knowledge mean score of 16.7188 ($SD = 2.067$) was compared to the posttest knowledge mean score of 18.3125 ($SD = 2.292$). There was a statistically

significant difference between the pretest and posttest knowledge mean scores ($t = 6.29$, $df = 31$, $p = .000$). This data analysis supported Hypothesis 1: There will be a significant knowledge increase about the cognitive dysfunction, behavioral change, and physical signs of brain injury.

Hypothesis 2

A statistical process tested Hypothesis 2 for an increase in posttest application scores after viewing the “Life After Brain Injury” video tape. The dependent variable of the posttest application score produced interval level data. Analysis for Hypothesis 2 was conducted to test the differences between pretest and posttest application group means using the paired one tail t-test. Hypothesis 2 was directional using the same subject population, thus, a one tail t-test was used.

On the posttest application portion of the test, 13 subjects (40.62%) improved their correct answers from their pretest application correct answers. Eighteen subjects (56.25%) had the same correct posttest application answers as they did on the pretest. One subject (3.12%) scored lower on the posttest application questions than on the pretest application questions.

All subjects answered question 20 correctly on the pretest and posttest. Question 20 is a practical application vignette which takes place in a busy mall store. The scenario involved Matt, a brain injured survivor who attempted to make a purchase. Matt had difficulty counting out the correct amount of money for his purchase. He begins to lose his temper, swearing and pounding his fists on the counter. The subject must recognize Matt is experiencing cognitive dysfunction and behavioral change and choose the

appropriate management technique to deescalate Matt. Table 5 shows the frequency distribution of the pretest and posttest application correct answers.

Table 5

Frequency Distribution of Correct Answers for Pretest and Posttest Application

	Number of Correct Answers	Frequency	Percent
Pretest Application			
	3	1	3.1
	4	6	18.8
	5	8	25.0
	6	17	53.1
Posttest Application			
	2	1	3.1
	4	1	3.1
	5	1	3.1
	6	29	90.6

The pretest application mean score was 5.2813 (SD = .888). The posttest application mean score was 5.7813 (SD = .792). There was a statistically significant difference between the pretest and posttest application mean scores ($t = 3.71$, $df = 31$, $p = .001$). Hence, data analysis supported Hypothesis 2: Posttest application scores will increase following viewing the “Life After Brain Injury” video tape.

Subsequent Findings

In analyzing general information variables of age, education, pretest and posttest knowledge scores, and pretest and posttest application scores, the Pearson r indicated no

significant correlation among these variables. The Chi-square statistic was used to analyze the correlation between the type of brain injury and the posttest knowledge scores ($X^2 = 13.42$, $df = 15$, $p = .569$). No significant correlation was found between the variables.

Four subjects (17.5%) indicated they had used additional sources of brain injury education information after viewing the brain injury video tape and before they took the posttest. Three of the 4 subjects increased their posttest knowledge scores and posttest application scores. The fourth subject scored lower on both posttest knowledge and posttest application scores than on the pretest knowledge and pretest application scores. There was no significant correlation found via the Chi-square statistic between the posttest scores and the use of other brain injury materials by the 4 subjects before taking the posttest ($X^2 = 7.62$, $df = 5$, $p = .178$).

CHAPTER 5

DISCUSSION AND IMPLICATIONS

There were two purposes for this study, the first was to investigate if there was a significant increase in the family caregivers' knowledge about cognitive dysfunction, behavioral change and physical signs of brain injury following viewing of the "Life After Brain Injury" video tape. The second was to examine if family caregivers' posttest application scores increased following viewing of the "Life After Brain Injury" video tape. It was hypothesized that family caregivers of brain injured survivors would be able to retain brain injury education and management techniques presented in a video tape format. Evidence of learned knowledge was demonstrated by higher overall posttest knowledge and posttest application scores. This study was to be the initial step in teaching family caregivers about the care and management their brain injured survivor would potentially need post hospital discharge.

Twenty-seven subjects showed improvement in their posttest knowledge scores compared to their pretest knowledge scores. Four subjects had the same posttest knowledge score as their pretest knowledge score. Three of those subjects missed a different question on the pretest knowledge than on the posttest knowledge. Only one subject missed the same question on both the pre and posttest knowledge. The content of

that question dealt with behavioral change. For the other 3 subjects, the missed questions dealt with cognitive dysfunction and practical application of management techniques.

Over all, there were 3 specific questions, 7, 11, and 12, in which subjects posttest knowledge scores were lower than pretest knowledge scores. The content of question 7 focused on cognitive dysfunction. Questions 11 and 12 highlighted the brain injury behavioral change symptoms of lack of awareness of brain injury and mood/emotional swings.

The physical symptoms of brain injury are easily recognized and readily treated. However, the cognitive dysfunction and behavioral change aspects of brain injury are far more subtle to identify and manage. Perhaps the subjects who scored lower on the posttest knowledge had more difficulty in identifying the correct symptom. Thus, they were not able to choose the appropriate answer.

Possibly the subjects who had the lower posttest knowledge scores were not aware of, or did not acknowledge their need to learn, the new information at the time the brain injury video tape was presented. According to Knowle's (1984) principles of adult learning, the adult must recognize the need to learn, connect that need to learn to a previously learned experience and then seek to learn the new information. These subjects may not have been at a ready-to-learn point as adult learners.

Moreover, lower posttest knowledge scores may have occurred because some subjects were too focused on the medical instability of their brain injured survivor. Perchance, these subjects could not process the brain injury information due to their own stress levels, or denial over extent of injury.

The environment in which the educational process took place may not have been conducive to the subject's individual learning needs. Improper learning environment may have contributed to lower posttest knowledge scores. The instrument test questions may not have been worded clearly for subjects to choose appropriate answers. Some of the subjects may not have been able to glean the appropriate information from the video tape. These reasons could possibly explain lower posttest knowledge scores.

On the posttest application portion of the instrument, 18 subjects scored the same as on their pretest application. A possible explanation for this finding could be that the practical application vignettes mirror life situations. The subjects could have drawn on previous learned experiences. These experiences could have provided keys to appropriate selection of management techniques which are beneficial in caring for brain injured survivors. Thirteen subjects demonstrated improvement of their posttest application scores over their pretest application scores.

There was only one subject who scored lower on both the posttest knowledge and the posttest application vignettes. The subject's pretest knowledge score was 45% and posttest knowledge score was 35%. The subject incorrectly answered 3 pretest application questions and 4 posttest practical application questions. Despite having indicated completion of high school, this subject may not have been able to read.

Relationship of Findings to Conceptual Framework

The research findings were compatible with King's (1981) Interacting Systems conceptual framework because of the open dynamic interrelationship among the personal, interpersonal and social systems. When brain injury occurs, both the injured person and

the family caregiver experience a disruption in the harmony and balance within their respective personal internal and external environments. This environmental disruption within the health arena extends through the personal, interpersonal and social systems for the brain injured survivor and the family caregiver.

The individual boundaries have been broken down because of the brain injury. To reestablish health, harmony, and balance within the individual's environment there must be an exchange of information and education. As the result of the physical signs and potential cognitive dysfunction and behavioral change from the brain injury sustained by the brain injured survivor, the family caregiver becomes the primary focus of the educational process. The nursing process facilitates the nurses' interactions and transactions with the family caregivers. The "Life After Brain Injury " video tape became an educational cornerstone. Using King's (1981) key concepts and conceptual framework supported this interactive process. This allowed the exchange of information and education between the family caregiver, the investigator, and to some extent the brain injured survivor, thus regaining stability in their personal internal and external environments.

Relationship of Findings to Previous Research

The previously cited literature supports the idea that physical signs, cognitive dysfunction and behavioral change symptoms are common to brain injury caused by a variety of different etiologies. This study supports the findings of Sanguinetti and Cantanzaro (1987) and Pardee (1993). The present study expanded upon the studies of Sanguinetti and Cantanzaro and Pardee by broadening the type of brain injury from

traumatic brain injury to include craniotomy, subarachnoid hemorrhage, brain infection, arteriovenous malformation, cerebral vascular stroke.

Further, this study measured subjects' knowledge of brain injury prior to viewing the intervention "Life After Brain Injury" video tape as well as after. Sanguinetti and Catanzaro (1987), and Pardee (1993) only measured the subjects' knowledge level after initiating the intervention of a brain injury video tape. Sanguinetti and Catanzaro, Pardee, and the present study demonstrate the effectiveness of providing a brain injury educational video tape as a tool to educate family caregivers about brain injury.

Mahon and Elger (1989), Pasquarello (1990), and Veltman et al., (1993) highlight the need for early interaction of the health care professionals with the brain injured patient and their family. The focus of these interactions should address early identification of the cognitive dysfunction and behavioral change symptoms, as well as the physical signs of brain injury. Interventions should be implemented early in the hospitalization to educate family caregivers about the disease process of brain injury and how to appropriately manage the symptoms. Only through the early recognition of symptoms and early intervention can health care providers assist the brain injured survivor and their family caregivers in achieving the highest level of premorbid functioning.

This study contributed to the current body of nursing literature by determining the effectiveness of providing video taped brain injury education to family caregivers of brain injured survivors. Nurses' need a consistent, effective, and less time consuming way of providing brain injury education in the acute hospital phase. Providing video taped brain injury education to family caregivers, allowed the caregivers to be more knowledgeable

about the brain injury and its sequelae, and increased the family caregivers' ability to select appropriate care measures. Additionally, this investigator found using the brain injury video tape to be a convenient, consistent, and less time consuming means of initiating the family caregivers' educational process.

Limitations and Recommendations

The small nonprobability convenience sample (N =32) and single institution setting were limitations to this study, thus prohibiting generalizations beyond the present sample. The 24 to 72-hour time interval between the viewing of the brain injury education video tape and the posttest should be tracked in order to identify any situational events that may have occurred in either the subjects or brain injured survivors' life. This may provide insight into why there were lower posttest scores than pretest scores for one subject. The caregiver gender is another limitation for this study. The majority of caregivers were female (71.9%). Due to the small sample size, correlation between subject gender and brain injured survivor gender could not be analyzed. General information data did not include gender of brain injured survivor. Further research is warranted to determine if gender impacts on the caregiver role and knowledge base of brain injury education.

Threat of history was a factor in this study. The study site airs the "Life After Brain Injury" video tape twice daily on the in-house patient education television channel. The investigator asked study participants not to watch the in-house patient education television channel or read any brain education material between the 24 to 72 hours before the scheduled posttest appointment. Four family caregiver subjects (12.5%) indicated they used other sources of brain injury education between completing the pretest and before

taking the posttest. The remaining 28 family caregiver subjects (87.5%) indicated no use of other sources of brain injury material between viewing the "Life After Brain Injury" video and taking the posttest.

Maturation was an additional threat to the internal validity of this study. Some family caregivers may have already possessed appropriate brain injury knowledge and management techniques for dealing with a brain injured survivor. This may explain why three subjects scored 95% on the pretest and 100% on the posttest.

The generalizability of the instrument used in this study to other populations could be facilitated by the use of random sampling, increasing sample size and use of multiple institution sites. Further research should explore relationships between caregivers' level of education, gender and knowledge of brain injury. Also, future research should be done to examine the relationship between caregivers' ability to cope with brain injury while needing to learn about the brain injury based the principles of adult learning. Additionally, future research should explore, during the acute hospital stay, the family caregivers' optimal readiness to learn time using an educational video tape format.

How family caregivers function in the home setting with the brain injured survivor is an additional need for prospective research. Once discharged home, research should be done to analyze the quality of life issues that surround family caregivers and the brain injured survivors as integration occurs to the preinjury state or the highest level of functioning.

Implications for Nursing

Literature indicates, as the family becomes educated about brain injury, the more positive the rehabilitation outcome will be for the brain injured survivor. Currently in acute care hospitals, the length of stay is limited and resources must be wisely used. The onus is upon the clinician to initiate and follow through with brain injury education with the family caregivers of brain injured survivors within these constraints.

The benefit of using a video taped format for brain injury education was twofold. First, it provided the investigator with a consistent, easy to use, and less time consuming means of delivering brain injury education to family caregivers. Second, family caregivers were given their own copy of the brain injury video tape for future reference if needed. This study demonstrated the efficacy of viewing the brain injury video tape by family caregivers using King's (1981) Interactive Systems Conceptual Framework during the brain injured survivors' acute care hospitalization.

Previous to this study, the clinicians at the investigational site did not routinely use the "Life After Brain Injury" video tape when teaching families about brain injury. The entire chain of command from the clinician to highest ranking administrator should be cognizant of the need to educate families about brain injury. Effective teaching environments and necessary tools, such as audio visual equipment, would greatly enhance the educational process for both the clinician and family caregiver.

This educational process should include the use of video tapes and begin with family caregivers as soon as possible after hospital admission. The family caregivers may then review the video tape as their needs require. The clinician should further promote

discussion with the family caregivers about brain injury, answer questions and reinforce presented information. This would allow the family caregiver to become an active adult learner in gaining knowledge about brain injury and its appropriate management techniques at their individual learning pace.

LIST OF REFERENCES

List of References

- Barth, J.T., Macciocci, S.W., Giordani, B., Rimel, R., Jane, J., & Boll, T. (1983). Neuropsychological sequelae of minor head injury. Neurosurgery, *13*, 529-533.
- Bishop, D., & Miller, I. (1988). Traumatic brain injury empirical family assessment techniques. Journal of Head Trauma Rehabilitation, *3*, 16-30.
- Ben-Yishay, Y., & Diller, L. (1983). Cognitive deficits. In M. Rosenthal, E.R. Griffith, M.R. Bond, J.D. Miller, (Eds.). Rehabilitation of the head injured. 529-533.
- Carter, K.F., & Dufour, L.T. (1994). King's theory: A critique of the critiques. Nursing Science Quarterly, *7*, 128-133.
- Damrosch, S. (1991). General strategies for motivating people to change their behavior. Nursing Clinics of North America, *26*, 833-843.
- Grinspun, D., (1987a). Teaching families of traumatic brain injured adults. Critical Care Quarterly, *10*, 61-72.
- Grinspun, D., (1987b). Nursing intervention in cognitive retraining of traumatic brain injury client. Rehabilitation Nursing, *12*, 323-330.
- Hannegan, L. (1989). Transient cognitive changes after craniotomy. Journal of Neuroscience Nursing, *21*, 165-170.

Johnson, J.R. & Higgins, L. (1987). Integration of family dynamics into the rehabilitation of the brain injured patient. Rehabilitation Nursing, 12, 320-322.

King, I.M. (1981). A theory for nursing systems, concepts, process. New York: John Wiley & Sons.

Knowles, M.S. (1984). Introduction: The art and science of helping adults learn. In M.S. Knowles, Androgogy in action: Applying modern principles of adult learning (pp.1-21). San Francisco: Jossey-Bass Publishers.

King, I.M. (1992). King's theory of goal attainment. Nursing Science Quarterly, 5, 19-26.

Kreutzer, J.S., Serio, C.D., & Berquist, S. (1994). Family needs after brain injury: A quantitative analysis. Journal of Head Trauma Rehabilitation, 9, 104-114.

Livingston, M.G., & Brooks, D.N., (1988). The burden on families of the brain injured: a review. Journal of Trauma Rehabilitation, 3, 6-15.

Mahon, D., & Elger, D. (1989). Analysis of post traumatic syndrome following a mild head injury. Journal of Neuroscience Nursing, 21, 382-384

Pardee, C.J. (1993). Evaluating family caregivers' ability to select appropriate care techniques following discharge instructions on post-traumatic injury symptoms. (Master's thesis, Grand Valley State University, Spring 1993). Master's Abstracts International, 31(1), p. 280. (University Microfilms No. MA 1347836).

Pasquarello, M.A. (1990). Measuring the impact of an acute stroke program on patient outcomes. Journal of Neuroscience Nursing, 22, 76-82.

- Peters, A.V. (1994). Traumatic brain injury information database: A user survey. Bulletin of the Medical Library Association, 82, 151-158.
- Polit, D.F. & Hungler, B.P. (1991). Nursing research principles and methods (4th ed.). Philadelphia: J.B. Lippincott Company.
- Reeber, B.J. (1992). Evaluating the effects of a family education intervention. Rehabilitation Nursing, 17, 332-336.
- Rosenthal, M., & Young, T. (1988). Effective family intervention after traumatic brain injury: Theory and practice. Journal of Head Trauma, 3, 42-50.
- Sanguinetti, M. & Catanzaro, M. (1987). A comparison of discharge teaching on the consequences of brain injury. Journal of Neuroscience Nursing, 19, 271-275.
- Stephens, S.T. (1992). Patient education materials: Are they readable? Oncology Nursing Forum, 19, 83-85.
- Sweetland, J. (1990). In the know. Nursing Times, 86, 36-38.
- Tabaddor, K., Mattis, S., & Zazula, T. (1984). Cognitive sequelae and recovery course after moderate to severe head injury. Neurosurgery, 14, 701-708.
- Veltman, R.H., VanDongen, S., Jones, D., & Buechler, C.M., & Blostein, P. (1993). Cognitive screening in mild head injury. Journal of Neuroscience Nursing, 25, 367-371.
- Warren, J.B., Goethe, K.E. & Peck, F.A. (1984). Neuropsychological abnormalities associated with severe head injury. Journal of Neurosurgical Nursing 16, 30-35.

APPENDICES

APPENDIX A



3 Columbia Circle
P.O. Box 15015
Albany, NY 12212-5015

June 30, 1995

Nan Meyers

3464 Tibet
Parchment MI 49001

RE: A THEORY FOR NURSING: SYSTEMS, CONCEPTS, PROCESS

By: Imogene M. King

Please use this agreement, when signed and returned, as permission to reproduce material from the above referenced publication contingent to the outlined terms.

1. Permission is granted, when this agreement is signed and returned, to reproduce the following material:

Copies: Material: Figure 1.1, A Conceptual Framework for Nursing Use: Thesis

2. This material may be used one time only. A request for permission to use this material at any other time or for any other purpose must be resubmitted.

3. The approved material should be credited as follows:

Reproduced by permission.
A THEORY FOR NURSING: SYSTEMS, CONCEPTS, PROCESS
By Imogene M. King
Delmar Publishers, Albany, New York, Copyright 1981

If you are in agreement to the outlined terms, please sign where indicated below and return a copy with your original signature to my attention.

ACCEPTED AND AGREED:



Paula M. Collins
Rights and Permissions

Enclosure
ISBN 0827342675



Nan Meyers

Date

7-3-95 (Nan Meyers)

APPENDIX B

APPENDIX B
PRETEST QUESTIONS

INSTRUCTIONS: Choose the best answer by circling the letter.

1. Brain injury may result from:
 - a. being hit in the head
 - b. stroke
 - c. brain tumor
 - d. all of the above

2. A person with a brain injury suddenly has double vision or unequal pupils. If you are taking care of this person, you should:
 - a. do nothing
 - b. wait to see if it goes away
 - c. give them aspirin
 - d. call the doctor

3. After brain injury the person may:
 - a. sleep more than usual
 - b. not recognize family members
 - c. not know what day it is
 - d. all of the above

4. After a brain injury, a person may have seizures (fits).
Seizures:
 - a. always need the care of a doctor
 - b. may occur immediately after injury or months later
 - c. may stop on their own
 - d. both a & b

5. A person with brain injury may:
 - a. pay more attention
 - b. have headaches similar to tension headaches
 - c. argue more
 - d. both b & c

6. A person with a brain injury:
- may not remember something they just learned to do
 - may need reminders in order to get something done
 - both a & b
 - will never need reminders
7. At home, a person with brain injury is working on a new project and is having trouble with the project. This shows the brain injured person is:
- not trying hard enough
 - having trouble learning something new
 - confused
 - too tired
8. A person with brain injury is watching T.V. ...when friends drop by and their children come running into the room. You notice the brain injured person is becoming anxious, appears confused and is having trouble following the conversation. Name the problem the brain injured person is having:
- too much commotion going on
 - Alzheimer's disease
 - problems with memory
 - too tired
9. When leaving, the friend of a person with brain injury says "**let's hit the road**". As they are getting into the car, the brain injured person really "**hits**" the road with her hand. This is an example of:
- not able to understand the meaning of "**slang**" language
 - anger
 - being bored
 - self-centeredness
10. You and a person with brain injury are fixing a meal...when suddenly the brain injured person walks away into another room. This is an example of:
- memory loss
 - not being able to cook
 - not able to concentrate on task
 - laziness

11. A young mother with brain injury, does not want to go to an in-patient rehab unit for further therapy. She keeps saying "I just want to go home and be a mom to my kids"..... I'll get better that way". This is an example of:
- self-centeredness
 - lack of awareness of brain injury
 - being tired
 - wrongly using words
12. After a brain injury, the person cries easily, is irritable and shows uncalled for anger. This is an example of:
- wrongly uses words
 - having trouble with memory
 - mood and emotion swings
 - nothing to worry about
13. Ruth has a brain injury and is **always** demanding your time, talking about herself and is worried with how she "looks". This is an example of:
- self-centeredness
 - denial of injury
 - self pity
 - normal behavior
14. A person with brain injury shares with you several "**get rich quick schemes**" they wish to do after hospital discharge. This is an example of:
- mood and emotion swings
 - no motivation
 - normal behavior
 - does not understand the result of their actions
15. You see a person with brain injury who is robot-like, and dull. How would you begin to talk with them?
- you would not talk to them
 - encourage them to speak by using simple words and gestures
 - wait quietly
 - you would do **all the talking**

16. Sue has a brain injury and wants to make an appointment over the phone. When she is unable to do so, Sue begins to swear and slams down the phone. You would?.....
- a. make the appointment for her
 - b. help her to calm down
 - c. stand by...offering no help
 - d. tell her...it's **OK** to swear
17. Pat has a brain injury and is in the middle of making lunch and baking a cake for tonight's dinner. The phone is ringing and Pat is looking flustered and upset. You would?.....
- a. tell Pat it's too early for lunch
 - b. bake the cake for Pat
 - c. help Pat to break down the task into smaller parts
 - d. allow Pat to figure out what to do next without your help
18. Beth, a mother with brain injury forgets to pick up her son after school each day. You would?.....
- a. pick up Beth's son from school
 - b. tell Beth to calm down
 - c. tell Beth to take a nap....to improve her memory
 - d. help Beth to keep a calendar, and look at it several times a day
19. While at home you are planning a party with Kim, who has a brain injury. The radio is playing loudly, the dog is barking at the vacuum cleaner.....you notice, Kim is having trouble paying attention to the conversation. You would?.....
- a. continue to talk to Kim about the party plans
 - b. take away all the noise and distractions, then continue talking about the party plans
 - c. tell Kim to stay on track with the conversation
 - d. have Kim write down what you are talking about

20. You and Matt, who has brain injury are at a busy shopping mall. Matt wants to buy a CD in a music store. There is much laughter, noise and talking inside the store. You observe Matt having trouble counting out the correct money amount.....when abruptly Matt begins to loose his temper, swearing and pounding his fist on the counter. You would?....
- a. tell Matt to be quiet and buy the CD for him
 - b. gently lead Matt away from the noise and help him to calm down
 - c. ignore the situation and let Matt figure out how to deal with the situation by himself
 - d. scold Matt for his childish behavior

APPENDIX C

**APPENDIX C
POSTTEST QUESTIONS**

INSTRUCTIONS: Choose the best answer by circling the letter.

Since viewing the "Life After Brain Injury" video tape, have you used any other sources for brain injury information? Yes, No

1. Brain injury may result from:
 - a. being hit in the head
 - b. stroke
 - c. brain tumor
 - d. all of the above

2. A person with a brain injury suddenly has double vision or unequal pupils. If you are taking care of this person, you should:
 - a. do nothing
 - b. wait to see if it goes away
 - c. give them aspirin
 - d. call the doctor

3. After brain injury the person may:
 - a. sleep more than usual
 - b. not recognize family members
 - c. not know what day it is
 - d. all of the above

4. After a brain injury, a person may have seizures (fits).
Seizures:
 - a. always need the care of a doctor
 - b. may occur immediately after injury or months later
 - c. may stop on their own
 - d. both a & b

5. A person with a brain injury may:
 - a. pay more attention
 - b. have headaches similar to tension headaches
 - c. argue more
 - d. both b & c

6. A person with a brain injury:
- may not remember something they just learned to do
 - may need reminders in order to get something done
 - both a & b
 - will never need reminders
7. At home, a person with a brain injury is working on a new project and is having trouble with the project. This shows the brain injured person is:
- not trying hard enough
 - having trouble learning something new
 - confused
 - too tired
8. A person with brain injury is watching T.V. ...when friends drop by and their children come running into the room. You notice the brain injured person is becoming anxious, appears confused and is having trouble following the conversation. Name the problem the brain injured person is having:
- too much commotion going on
 - Alzheimer's disease
 - problems with memory
 - too tired
9. When leaving, the friend of a person with brain injury says "**let's hit the road**". As they are getting into the car, the brain injured person really "**hits**" the road with her hand. This is an example of:
- not able to understand the meaning of "**slang**" language
 - anger
 - being bored
 - self-centeredness
10. You and a person with brain injury are fixing a meal...when suddenly the brain injured person walks away into another room. This is an example of:
- memory loss
 - not being able to cook
 - not able to concentrate on task
 - laziness

11. A young mother with brain injury, does not want to go to an in-patient rehab unit for further therapy. She keeps saying "I just want to go home and be a mom to my kids"..... I'll get better that way". This is an example of:
- a. self-centeredness
 - b. lack of awareness of brain injury
 - c. being tired
 - d. wrongly using words
12. After a brain injury, the person cries easily, is irritable and shows uncalled for anger. This is an example of:
- a. wrongly uses words
 - b. having trouble with memory
 - c. mood and emotion swings
 - d. nothing to worry about
13. Ruth has a brain injury and is **always** demanding your time, talking about herself and is worried with how she "looks". This is an example of:
- a. self-centeredness
 - b. denial of injury
 - c. self pity
 - d. normal behavior
14. A person with brain injury shares with you several "**get rich quick schemes**" they wish to do after hospital discharge. This is an example of:
- a. mood and emotion swings
 - b. no motivation
 - c. normal behavior
 - d. does not understand the result of their actions
15. You see a person with brain injury who is robot-like, and dull. How would you begin to talk with them?
- a. you would not talk to them
 - b. encourage them to speak by using simple words and gestures
 - c. wait quietly
 - d. you would do **all the talking**

16. Sue, has a brain injury and wants to make an appointment over the phone. When she is unable to do so, Sue begins to swear and slams down the phone. You would?.....
- a. make the appointment for her
 - b. help her to calm down
 - c. stand by...offering no help
 - d. tell her...it's **OK** to swear
17. Pat has a brain injury and is in the middle of making lunch and baking a cake for tonight's dinner. The phone is ringing and Pat is looking flustered and upset. You would?.....
- a. tell Pat it's too early for lunch
 - b. bake the cake for Pat
 - c. help Pat to break down the task into smaller parts
 - d. allow Pat to figure out what to do next without your help
18. Beth, a mother with brain injury forgets to pick up her son after school each day. You would?.....
- a. pick up Beth's son from school
 - b. tell Beth to calm down
 - c. tell Beth to take a nap....to improve her memory
 - d. help Beth to keep a calendar, and look at it several times a day
19. While at home you are planning a party with Kim, who has a brain injury. The radio is playing loudly, the dog is barking at the vacuum cleaner.....you notice, Kim is having trouble paying attention to the conversation. You would?.....
- a. continue to talk to Kim about the party plans
 - b. take away all the noise and distractions, then continue talking about the party plans
 - c. tell Kim to stay on track with the conversation
 - d. have Kim write down what you are talking about

20. You and Matt, who has brain injury are at a busy shopping mall. Matt wants to buy a CD in a music store. There is much laughter, noise and talking inside the store. You observe Matt having trouble counting out the correct money amount.....when abruptly Matt begins to loose his temper, swearing and pounding his fist on the counter. You would?....
- a. tell Matt to be quiet and buy the CD for him
 - b. gently lead Matt away from the noise and help him to calm down
 - c. ignore the situation and let Matt figure out how to deal with the situation by himself
 - d. scold Matt for his childish behavior

APPENDIX D

APPENDIX D

THE EVALUATION OF EFFECTIVENESS OF VIEWING THE "LIFE AFTER BRAIN INJURY" VIDEO TAPE BY FAMILY CAREGIVERS

Study Participants Information Sheet

You are asked to take part in a research study. The purpose of this study is to determine the effectiveness of viewing a brain injury education video tape called "Life After Brain Injury".

The benefit of this study to you is twofold. First, you will learn more about problems that may be experienced during and after hospital discharge by a person who has suffered a brain injury. Second, you will be more prepared to care for your loved one in the event any of the problems develop following brain injury.

Your time involved in the study will be approximately forty-five (45) minutes for the first meeting and twenty (20) minutes for the second meeting. In the first meeting you will be interviewed for general information by the investigator. You will complete a pretest. After completing the pretest, you will view a twenty-two (22) minute brain injury education video tape called "Life After Brain Injury". Between twenty-four and seventy-two (72) hours after viewing the video tape. The investigator will schedule an appointment with you to complete the posttest. Questions on the pre and posttest are from the information presented in the brain injury education video tape. **You are asked not to watch the inhouse patient education television channel or read any brain injury education material until after you have completed the study.**

There is no anticipated risk of emotional or physical injury because of your participation in this study. Your information will be kept strictly confidential. Individual findings will be coded and used only as group data. Data obtained from this study will only be used for scientific literature. **You may withdraw from the study at any time without affecting the care provided to your loved one.**

Nan Meyers, R.N., Neuro Clinician at Borgess Medical Center is conducting this study. For questions, please contact her at 383-8373, Monday through Friday, 8am to 4pm.

APPENDIX E

APPENDIX E

Evaluation of the effectiveness of viewing
the "Life After Brain Injury" video tape by family caregivers

AUTHORIZATION TO PARTICIPATE IN THE STUDY

I have been given, read and understand the information sheet "Evaluation of the Effectiveness of Viewing the "Life After Brain Injury" Video Tape by Family Caregivers". I have been given time to ask questions about this study, and my questions have been answered. I understand that I may reach Nan Meyers, study investigator at #383-8373 for further questions. I understand my participation in this study is voluntary and I may withdraw from the study at any time without affecting the care of my family member.

I understand my information will be kept confidential, and the data obtained from this study will be used only as group data for scientific purposes.

Of my own free will, I understand and agree to participate in this study.

Participant Signature: _____ Date: _____

Witness Signature: _____ Date: _____

Subject Identification Number: _____

cc: Study Participant

APPENDIX F

APPENDIX F

General Information Interview

The study investigator will ask the following questions:

1. Study Subject Number: ____
2. Type of brain injury experienced by the brain injured survivor:

1 = craniotomy
2 = subarachnoid hemorrhage
3 = brain infection
4 = arteriovenous malformation
5 = cerebral vascular stroke
6 = traumatic brain injury
3. Age of family caregiver: ____
4. Sex: 1 = male; 2 = female
5. Highest level of school completed by family caregiver: ____
6. What is your relationship to the brain injured survivor?

1 = spouse
2 = significant other
3 = mother
4 = father
5 = daughter
6 = son
7 = sister
8 = brother
9 = aunt
10 = uncle
11 = grandmother
12 = grandfather
13 = step-mother
14 = step-father
15 = step-daughter
16 = step-son
17 = other: _____
7. Prior experience with brain injury:

1 = yes; 2 = no

8. Prior experience with rehabilitation facility:

1 = yes; 2 = no

9. Prior experience with brain injury support group:

1 = yes; 2 = no

APPENDIX G



1 CAMPUS DRIVE • ALLENDALE MICHIGAN 49401-9403 • 616/895-6611

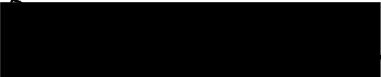
April 19, 1995

Nan Meyers
3464 Tibet
Parchment, MI 49004

Dear Nan:

Your proposed project entitled "*The Effectiveness of Viewing a Brain Injury Education Video Tape by Family Caregivers*" has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,


Paul Huizenga, Chair
Human Research Review Committee

BORGESS
Medical Center

May 15, 1992

Nan Meyers
3464 Tibet
Parchment, MI 49004-9103

Dear Nan:

The Nursing Research Committee is pleased to inform you that your proposal "The Effectiveness of Viewing a Brain Injury Education Video Tape by Family Caregivers" is approved for conduct at Borgess Medical Center.

As we discussed on the phone, we will need a copy of your abstract upon completion of the study. This information will be shared with the Quality Improvement Council and you may be asked to make a short presentation. Please let me know when permission is granted for the use of King's conceptual framework.

I am pleased that you are pursuing this research. If you have any questions please call me at 226-6798.

Sincerely,



Connie Pardee, MSN, RN, CEN
Chair, Nursing Research Committee