EFFECTS OF PREOPERATIVE PLAY ON POST-HOSPITAL ANXIETY IN SCHOOL AGE CHILDREN AND THEIR PARENTS

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Date

To the Dean for Graduate Studies and Research:

I am submitting herewith a dissertation written by Donna J. Wofford entitled "Effects of Preoperative Play on Post-Hospitalization Anxiety in School Age Children and Their Parents". I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Nursing.

Diane Ragsdale, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted

Leslie M. Thompson
Dean for Graduate Studies
and Research

DEDICATION

To my husband, Jim . . .
my constant encourager
who never gives up on me.
My gift from God.

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ABSTRACT

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An experimental three group before/after design was used to examine the effects of structured preoperative play with the nurse or the parent on post-hospitalization anxiety in school age surgical clients and their parents. Fifty-four children, from ages 5-11 years, undergoing elective day surgery were randomly assigned to experimental and control groups. Twenty-four subjects completed the study.

The experimental treatment was a board game, General Hospital, designed for pre-operative teaching of school age children. Experimental group A played the game with the nurse. Experimental group B played with their parent with minimal assistance from the nurse. The control group did not play the game. All groups received routine nursing care of the institution.

Anxiety in the children was measured by scoring preoperative and posthospital drawings of "a person" obtained from each subject. In addition, the children's preadmission stress level was assessed and the Post-Hospital Behavior Questionnaire was completed by the parent. The State-Trait Anxiety Inventory was used to measure parents' preoperative and posthospital anxiety.

Repeated measures analysis of variance and analysis of covariance revealed that posthospital anxiety was not significantly reduced as a result of preoperative structured play in school age children and their parents. Children who played with their parents had significantly higher posthospital scores than preoperative scores. These children's posthospital anxiety scores were significantly higher than scores of the other children. Factors found to be related to the anxiety levels of the children and their parents were age, grade, no previous surgery, income level, and years of education of the father.

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CHAPTER 1

INTRODUCTION

The role of the pediatric nurse includes assessing and facilitating the abilities of children, as well as their parents, to cope with mental, emotional, and physical changes. Many children, as well as parents, demonstrate behavioral changes both during and after hospitalization. (Jackson, Winkley, Faust, and Cermak, 1952; Langford, 1961; Peterson and Shigetomi, 1981; Prugh, Staub, Sands, Kirschbaum, and Lenihan, 1953; Vernon, Schulman and Foley, 1966). Appropriate psychologic preparation and supportive care such as puppet therapy (Cassell, 1965), alleviation of parental anxiety (Mahaffy, 1965; Skipper and Leonard, 1968), filmed modeling (Melamed and Siegel, 1975), stories and play (Williams, 1980; Wolfer and Visintainer, 1979), "stress point preparation" (Visintainer and Wolfer, 1975), and coping techniques (Peterson and Shigetomi, 1982) have been demonstrated to mitigate the stress of hospitalization and surgery for children and their parents. However, staff nurses may not have the time or the resources to provide anxiety reducing care. Many times the caregiver who provided the special preparation and care during a study was

a highly trained person whose only responsibility on the floor was to give the special care.

According to Wolfer and Visintainer (1975), clinical experiments must be conducted in such a way that effective procedures have a chance of being implemented by the staff nurse. Structured preoperative play involving children and their parents can be used to reduce anxiety during and after hospitalization and surgery. Parental involvement can also decrease the demands on the staff nurse. Therefore, the purpose of this study was twofold: 1) to investigate the effectiveness of structured preoperative play in reducing the posthospital anxiety of school age children and their parents and 2) to investigate the effectiveness of parents providing the structured play instead of the nurse.

Problem of Study

The problem for this study was: Will structured preoperative play with the nurse or the parent decrease post-hospitalization anxiety in school age surgical clients and their parents?

Justification of Problem

Numerous strategies have been found to reduce anxiety of children and their parents during and after hospitalization. However, only 74% of the 62 pediatric

hospitals surveyed by Peterson and Ridley-Johnson (1980) used preoperative teaching techniques. Inadequate staffing and lack of time have contributed to the deficit of preoperative preparation (Poston, 1982). In addition, the advent and popularity of day surgery have compounded the problem. There truly is limited time to spend with patients who are admitted the morning of their surgery.

Peterson and Ridley (1980) also found that the most commonly used preoperative teaching techniques were found to be narrative explanation and printed material such as coloring books and story books. The authors did not specify whether the narrative was structured or unstructured when the interaction took place, or who gave the explanation. They did not specify when the printed materials were used.

Several studies have indicated that structured preoperative teaching is more effective than unstructured in reducing anxiety and enhancing recovery (Lindeman, 1972; Schmidt and Wooldridge, 1973; King and Tarsitano, 1982). Structured preoperative play was used in this study. In a study of 163 children 3 to 12 years of age hospitalized for tonsillectomies, Wolfer and Visintainer (1979) tested the stress reducing effects of written and illustrated materials used as prehospital preparation for surgery. They found that the parents who used the materials (81% of parents) reported more satisfaction and less anxiety when they

received some in-hospital preparation than with home preparation alone. The children who used the materials alone or in combination with hospital preparation showed better adjustment than children in the control group.

Several investigators have suggested that it is beneficial to include parents in the care of their hospitalized child. According to the results of Mahaffy's (1965) experimental study with a sample of 43 surgical patients between the ages of 2 and 10, encouraging and assisting parents to care for their hospitalized child decreased their anxiety as well as the anxiety of their child. Skipper and Leonard (1968) who conducted an experimental study with a sample of 80 surgical patients between the ages of three and nine years concurred with Mahaffy's findings. Parents participated in the preoperative preparation in this study.

It is apparent that many preoperative teaching strategies have been developed, yet not all pediatric patients and their parents are receiving effective preoperative preparation. There is a need for an easy to use, time-saving approach to preoperative preparation.

This study examined the effects of parents not only participating in their child's preoperative preparation but also conducting the activity. The parents' anxiety level (preoperative and posthospital) was measured as well as the

child's. A board game, designed and developed by Farrier (1982) for preoperative teaching with the school age child, was used by parents with their child to impart information and to encourage expression of feelings prior to surgery. There have been no published attempts to systematically evaluate the anxiety reducing effects of this type of strategy.

Use of this unique preoperative preparation technique in facilitating the efficiency and effectiveness of the nurse was tested. Minimal time was required for preoperative preparation as parents used the game with their school age children. The time required of a nurse was for initiating the game and for answering questions after the game was played. The desired effect of preoperative play was for both parent and child to exhibit decreased post-hospitalization anxiety after playing the game.

Theoretical Framework

This study was based on Caplan's (1961) Crisis Intervention. He brought together research from different parts of the world in the field of preventive psychiatry. Caplan hypothesized that mental disorder results from accumulated maladaptation to periods of upset; successive failures that seem to build on one another. According to Caplan, repeated mastery of crises results in increased ego

strength, resources, and capacity for successfully mastering the next life crisis.

Caplan (1964) theorized that effective preventive programs in mental health could be implemented without first knowing the etiology of the mental disorder. Caplan's (1961) definition of "prevention" included reduction of the incidence of mental disorders in a community by: primary prevention (crisis intervention and anticipatory guidance); secondary prevention (early diagnosis and rapid, effective treatment); tertiary prevention (restoration and rehabilitation).

In studies with Peace Corps volunteers and armed services inductees who experienced an enormous dropout rate once they confronted the often grim realities of the faraway places to which they were assigned, Caplan (1961) developed the concept of anticipatory guidance. He stated that, "the arousal of anticipatory fear prior to exposure to a stressful life situation is one of the necessary conditions for developing effective inner defenses that enable a person to cope psychologically with the stressful stimuli" (p. 18). Caplan (1961) viewed anticipatory guidance as an intervention that effects the development of inner defenses. By helping individuals to worry ahead of time, realistically, and in the presence of support and hope, they will be prepared for the situation when it comes.

Caplan's work with preventive psychiatry led to the development of a process for crisis intervention. Crisis was defined by Caplan (1964) as an "upset in the steady state". He thought that a crisis is produced when individuals find their usual methods of problem solving ineffective for coping with an obstacle to important life goals. Psychological disequilibrium follows, accompanied by anxiety and disorganization. It is not the problem that creates the crisis, but the hopelessness arising from inability to move productively toward resolution.

Caplan (1961) found crisis periods to be self-limiting, since it is not possible to endure high states of stress and tension associated with an acute crisis state without breaking under the strain. A crisis may last a few hours, days, or weeks, but it cannot be sustained for much more than six weeks.

Initial anxiety, which is mobilized to solve a problem, becomes a burden and a disorganizing force when no solution can be found. Equilibrium must be achieved whether the resolution to the crisis results in a healthier, more positive state of being, a less healthy, more negative state of affairs, or some place between the two extremes. This amount of emotional discomfort usually demands some form of direct relief.

A correct balance between emotional upheaval or distress and relief is essential to healthy resolution of crisis. Too much relief does not stimulate realistic problem solving activity. Too much relief can be an internal or external problem for the system in crisis. Massive internal defenses can obliterate activity, just as massive external relief can overprotect and inhibit problem solution and growth. Crisis producing situations may be both serious and unavoidable, such as the death of a loved one; loss or change of a job; a threat to bodily integrity by illness, accident, or surgical operation; or change of role due to developmental or sociocultural transitions, such as going to college, getting married,and becoming a parent. (Caplan, 1964).

Crisis intervention, according to Caplan (1961), should provide hope, concern, and humor. It should be a relatively small amount of uncomplicated external support delivered during the period of disequilibrium, before coping strategies are set. Caplan (1964) stated, "crisis presents care-giving persons with a remarkable opportunity to deploy their efforts to maximum advantage in influencing the mental health of others" (p.54). According to Leavitt (1982), a clinical specialist in psychiatric and mental health nursing, techniques of crisis intervention to promote primary prevention involve assessing the current life

situation of the person or family in crisis from an objective viewpoint; helping the affected persons to become aware of the threat or loss; helping them to express their emotions about their situation; mobilizing social and environmental supports; and helping them regain their equilibrium with their self-esteem and hope intact.

In this study, surgery was viewed as the problem causing disequilibrium while preoperative teaching was the intervention used to increase the child's and parent's ego strength, resources, and capacity for successfully mastering the life crisis of surgery. Playing the board game preoperatively provided exposure to the surgical experience which helped the child and parent to worry ahead of time, realistically, and in the presence of support and hope. The desired outcome of this intervention was a correct balance between emotional upheaval or distress and relief or realistic problem-solving activity.

Caplan (1961, 1964) proposed that crisis intervention and anticipatory guidance resulted in development of effective inner defenses needed to maintain equilibrium during stressful events. In addition, he proposed that increased ego strength, resources, and capacity for successfully mastering a life crisis resulted in repeated mastery of stressful events. Therefore, crisis intervention

and anticipatory guidance resulted in repeated mastery of crisis events.

Assumptions

Based on Caplan's (1961, 1964) theoretical framework, the following assumptions were made:

1. Life events may lead to a state of disequilibrium. (Caplan, 1961, p. 18)
2. Interventions used to restore equilibrium must include helping the individual to gain an understanding of the life event, assisting the individual to express feelings, and finding and using situational supports. (Caplan, 1961)

Hypotheses

The following hypotheses were investigated:

1. School age children with whom their parents participate in structured preoperative play will exhibit less post-hospitalization anxiety than those who participate in the same play with a nurse.
2. School age children with whom their parents participate in preoperative play will have less post-hospitalization anxiety than those with no preoperative play.

3. School age children who participate in preoperative play with only a nurse will have less post-hospitalization anxiety than those with no preoperative play.
4. Parents who participate in preoperative play with their child will exhibit less post-hospitalization anxiety than those parents who do not participate.
5. The preoperative and post-hospitalization anxiety of the school age child will be related to the preoperative and post-hospitalization anxiety level of the parent.
6. Age of the child and parent, grade in school, annual family income, level of stress prior to admission and number in household will be related to the anxiety of the children.
7. Age of the child and parent, grade in school, annual family income, level of parents' education, level of stress prior to admission and number in household will be related to the anxiety of the parents.
8. Anxiety scores of the children will vary according to previous hospitalization and/or surgery, marital status, and household members.

9. Anxiety scores of the parents will vary according to previous hospitalization and/or surgery, and household members.

Definition of Terms

Variables in the study were defined as follows:

1. Anxiety is "subjective feelings of displeasure" associated with responses to situations calling for problem solving activity (Caplan, 1964, p. 40)
   a. Anxiety for the child is an emotional response of the body to stress as manifested by having 2 or more emotional indicators on the human figure drawing test developed by Koppitz (1968).
   b. Anxiety for the parent is a score of 50 or higher on the State Trait Anxiety Index (STAI) (Spielberger et al., 1970).
2. Human figure drawings are defined as the products of a child's efforts when asked to "draw a whole person."
3. Post-hospitalization period is four to six weeks following hospital discharge.
4. Preoperative period is the time from admission to the time of anesthesia.
5. School age children are 6-11 years of age who are being admitted to the hospital for elective day surgery.

6. Structured preoperative play is goal directed pretending (D'Antonio, 1984; Peller, 1952). For this study structured play consists of a board game designed for preoperative teaching which incorporates both imagination and reality in communicating with children 6 years and older.

Limitations

The uncontrolled variables in this study included experience with previous hospitalization and surgery, type of surgery, cultural influences, family relationships, personality and IQ of the child, and personality and interpersonal style of the nurse. Although a pretest was used, there were no measures of these variables and no control between the pretest and the posttest. Not controlling for these variables possibly biased the sample as well as decreased the homogeneity of the group. Because a small nonprobability sample was used, generalization of the findings was limited to the sample studied.

Summary

The role of the nurse includes assessing and facilitating the client's abilities to cope with mental, emotional, and physical changes. Numerous strategies have been demonstrated to reduce anxiety during and after

hospitalization and surgery. However, it is difficult for staff nurses to provide appropriate preoperative preparation due to inadequate staffing and lack of time. In order for children and their parents to receive preoperative preparation, the strategy must be able to be used by the child and parent with minimal involvement from the nurse. The purpose of this study was twofold: 1) to investigate the effectiveness of structured preoperative play in reducing the posthospital anxiety of children and their parents, and 2) to investigate the effectiveness of parents providing the play instead of the nurse. The level of the children's anxiety was assessed through interpretation of their human figure drawings. The level of the parents' anxiety was assessed through scores on the STAI.

In Chapter 1, several components were described. Justification for studying the problem, based on the literature, was presented. The theoretical framework, derived from Crisis Intervention (Caplan, 1961, 1964) was discussed. This was followed by assumptions on which the study was based, the hypotheses investigated, and the definition of the terms essential to this study. Limitations to the study which largely related to the generalizability of the study findings were also presented.

CHAPTER 2

REVIEW OF LITERATURE

Hospitalization and surgery are anxiety provoking experiences which may result in short or long term consequences. In this study, the effectiveness of structured preoperative play in reducing posthospitalization anxiety in children and their parents was investigated.

The review of the literature covers three areas. The first area is research that identified factors which influence the emotional responses of children to hospitalization and surgery. The second area is investigations that examined children's and parents' reactions to hospitalization and surgery. The final area is research conducted to explore strategies for reducing anxiety.

Factors Influencing Children's Adaptations to Hospitalization and Surgery

There are several interrelating factors which influence a child's response to hospitalization and surgery. These factors which will be discussed in the following paragraphs include developmental limitations, perceptions of illness and health care and parental anxiety.

Developmental Limitations

Children have limited cognitive, communication and coping skills, developmentally common fears, and varied perceptions of their bodies and bodily functions. In cognitive development, school age children have acquired a rudimentary conception of time, space, number and logic; are able to consider more than one characteristic at a time; can consider viewpoints other than their own; are able to do operational grouping; are flexible; and are able to know objects through the senses (Piaget, 1966).

The language development of school age children includes rapid growth in vocabulary, increasing comprehensibility and fluency of speech, longer and more complex and grammatically correct sentences. In addition, other skills are developing such as reading, writing, spelling, punctuation, and composition (Ausubel, 1970).

School age children commonly fear bodily injury, lack of safety, injury or death of loved ones, dying, school, and natural phenomena such as earthquakes, tornadoes, and fires (Miller, 1979). The exact nature of the threats depends on many factors, such as the age and developmental level of children, their previous experience with similar threats, amount and type of relevant information they possess, and the amount and type of support from parents and others

(Langford, 1961; Vernon, et al, 1966). Visintainer and Wolfer (1975) classified threats associated with hospitalization and surgery into five general categories:

> 1) physical harm or bodily injury in the form of discomfort, pain, mutilation, death; 2) separation from parents and the absence of trusted adults; 3) the strange, the unknown, the possibility of surprise; 4) uncertainty about limits and expected acceptable behavior; and 5) relative loss of control, autonomy, and competence (p. 187).

Children's perception of their bodies and bodily functions vary but are limited. This has been shown in studies by Porter (1974) and Denehy (1984). Porter (1974) gave a sample of 144 healthy children in first, third, and fifth grades a sheet of paper which contained the outline of the entire body of a nude child and instructed them to draw everything they knew that was inside their body. The most frequently named parts were the heart, brain, and bones. The three most frequently represented body systems were the cardiovascular, gastrointestinal, and musculoskeletal systems.

Denehy (1984) interviewed 60 healthy children and 80 hospitalized children about the function of their heart, lungs, stomach, kidneys, and bladder. All children interviewed had some knowledge of the functions of the

heart, lungs, and stomach. Few had a good understanding of the function of the kidneys or the bladder.

Perceptions of Illness and Health Care

New experiences such as illness and health care have been found to be threatening for children. In a study by Yamamoto (1979), 367 fourth, fifth, and sixth grade students in six southwestern metropolitan schools rated 20 life events on a scale ranging from most upsetting (7) to least upsetting (1). Having an operation was rated as the tenth most stressful life event with a rating of 5.51. Burstein and Meichenbaum (1979), examined the relationship involving 20 children's levels of situational anxiety, defensiveness, and play patterns 1 week prior to, during, and 1 week after hospitalization for minor surgery. Analysis of anxiety levels at the three observation periods indicated that the hospitalization was anxiety producing.

Several authors agreed that children often have distorted ideas about illness and what is being done to their bodies (Cassell, 1963; Gellert, 1958; Plank, 1962). Eiser and Patterson (1984) interviewed three groups of children, ages 5-6 years (N=21), 7-8 years (N=24), and 9-10 years (N=24), about their knowledge and attitudes toward hospitals. They were asked what they thought happened in hospitals, why people were admitted, and how they became

better. The responses of the 5-6 year old group indicated lack of knowledge when compared to the responses of both older groups. The youngest children believed that hospital admission was likely to be for much longer than did the 7-10 year old children. The youngest children believed that people went to the hospital for vague undefined reasons. Not only were the 5-6 year olds uninformed as to what might happen in the hospital to make them better, they also did not know about general aspects of operations and appearances of surgical suites.

Jolly (1985) asked 107 ten-year-old inner city students to write an account of what it was like, or what they thought it would be like to be ill in the hospital. The group who had not been hospitalized mentioned boredom, other sick patients, limited mobility, fear, feeling strange, sadness, being unable to control what happens, invasive procedures, and separation from parents. The group who had been hospitalized mentioned enjoyment, separation, loneliness, visitors, and invasive procedures such as injections.

Eiser and Patterson (1984) asked 5-10 year olds, 'What are the worst and the best things about being in the hospital?' All children (N=69) mentioned pain and discomfort. Both groups of older children were much more likely than 5-6 year old children to mention the social

restrictions of hospitals, including missing school, friends, and parents. Many of the youngest children could not identify the best thing about being in the hospital. The diversity of responses increased with the children's ages and included playing, watching TV, presence of other children, resting, presents, missing school, and having visitors.

Past studies have indicated that children associated punishment with illness and hospitalization. After 25 years of practice as a physician, Langford (1961) discussed the adaptation of pediatric patients to illness and hospitalization. He found that, "some children express concern that their illness is a punishment for the harboring of forbidden or unacceptable thoughts or impulses" (p.671).

Williams (1979) interviewed healthy (N=229) and hospitalized children (N=130) from first, third, and fifth grades. Among other tasks, children were asked to give the cause of an illness from which they had suffered. In analyzing these responses, Williams did not directly address the issue of self-causation. Nevertheless, the numerous examples of well children's responses provided in the text demonstrated the presence of self-causation beliefs among subjects at each grade level.

Parental Anxiety

Children sense anxiety in their parents and in response become anxious themselves. Langford (1961) and Mason (1965) stated that the more anxious and concerned the parents are about their child, the greater the difficulty of the child in dealing with the hospitalization.

Several parental concerns have been identified by health care givers while observing hospitalized children. Mahaffy (1965) identified three parental threats associated with the hospitalization of a child. These threats include: 1) the coolness and aloofness characteristic of hospital environments; 2) leaving their child alone in a hospital in which they feel the staff is not sincerely interested in their child; and 3) discerning what role they are to assume in the hospital and to what extent they will be allowed to care for their children.

Ogilvie (1990) interviewed nine families concerning their experience when a child is hospitalized for elective surgery. Sources of parental stress identified were: risks of surgery, the child's emotional response, the child's pain, hospital equipment, separation during surgery, waiting, confusion about how to parent a hospitalized child, lack of information, changes in home routine, and fear of AIDS.

The hospital staff may perceive the family to be demanding hostile, condescending, or in the way. Skipper and Leonard (1968) noted that routinely staff approach the patients and their mothers as work objects on which to perform tasks, rather than as participants in the work process or individuals who need help in adjusting to a new environment. Thus, medical and nursing personnel can actually become sources of stress for the parent. Probably little has changed since these authors made these observations. With the advent of day surgery the situation has probably worsened.

Graves and Ware (1990) found that health professionals do not share the parents' model of stress. These investigators developed an inventory and had 36 mothers, 14 fathers, 27 nurses, and 23 physicians rate 36 stressful stimuli. Mothers rated highest on parental uncertainty, annoyance, child discomfort, and negative emotional state.

The possibility that mothers and fathers might perceive the stress of their child's hospitalization differently could lead to misunderstanding between the parents. Graves and Ware (1990) found that fathers rated their child's discomfort and their own embarassment over the child's behavior lower than nurses and physicians did. The investigators suggested that health professionals could be

perceived by fathers as over solicitous or as misusing time and resources.

Reactions to Hospitalization and Surgery

Children and their parents react to hospitalization and surgery at different times and in different ways depending on their level of emotional, mental, and social maturity; the hospital environment; the nature of the illness; and previous experiences. Primary responses manifested by children and parents during or subsequent to health care are discussed below

During Hospitalization: Children

Behavioral as well as physical reactions of children during hospitalization are discussed in the literature. Reactions include regression, aggression, depression, hypochondriacal reactions, denial, and adaptation.

Several authors have observed the responses of school age children to hospitalization. Prugh, et al. (1953) observed and interviewed 100 hospitalized children ages 2-12 years. Children from 6-12 years (N=42) were found to manifest anxiety in response to separation and "potentially painful or new and frightening experiences" (p. 92). Reactions exhibited by these children included withdrawal,

feeding disturbances, hyperactivity, restlessness, somatization, and irritability.

Gellert (1958) concurred with Prugh, et al. (1953) concerning eating poorly and withdrawal. In addition, he stated that stress of hospitalization is manifested by crying, whining, screaming; clinging to parents; sleeping poorly; struggling against treatment and resisting medicine; exhibiting tenseness, fear, silence, sadness; behaving in a regressive, compulsive, or destructive manner.

Mahaffy (1965) supported the growth and development theory that children reflect their fear, apprehension and anxiety in both behavioral and physical actions. In an experimental study of 43 surgical patients between the ages of 2 and 10, Mahaffy (1965) found that the stress of hospitalization for tonsillectomy likely resulted in elevated temperature, pulse rate and blood pressure; disturbed sleep; postoperative vomiting; delayed postoperative voiding; and decreased ability to take fluids. Similar findings resulted from a study of 80 children between the ages of 3 and 9 admitted for tonsillectomy (Skipper and Leonard, 1968) and a two-group experimental study of 80 children, ages 3-14 years, admitted for minor elective surgery (Wolfer and Visintainer, 1975).

Adaptation is one of the primary reactions to hospitalization and surgery mentioned in the literature.

After 25 years of practice as a pediatrician, Langford (1961) observed that adverse reactions are usually short-lived as children learn to master their emotions and adapt to the new and different environment. He stated that some children actually come through the experience more mature. If the experience is not too overwhelming, some children are able to deal successfully with the troublesome reactions evoked by the hospitalization and emerge with renewed courage and vigor to move ahead in life. He added that school age children can learn how certain procedures are done, facts about anatomy and physiology, about the nature of their illness, and about various roles of hospital personnel. They can also make new friends.

Coping behaviors utilized by hospitalized school age children have been observed and categorized by several authors. In an exploratory study of 33 school age children (6-12 years) hospitalized for a surgical procedure, Tesler and Savedra (1981) observed that children use a variety of strategíes to manage the situation. The Rose (1972) Protocol was used to describe the coping behaviors of the children. Rose (1972) described categories for coding the coping behaviors as inactive (silent and non-participating), orienting or precoping (familiarizing self with environment), and active coping (includes cooperating, resisting, and attempting to control). Three categories of

data were collected by observation: level of involvement in the process of coping, communication style, and emotions. The observation times were: within 1 hour of admission, at first blood drawing, pre-surgery, four hours after return to the ward from the recovery room, morning and evening of the first postop day, and once a day until discharge. Preoperatively, 19 children used pre-coping and 11 used attempts to control behaviors. Boys attempted to control and girls used pre-coping behaviors. Postoperatively, all but one of the children used attempts to control.

All children demonstrated neutral emotions during the hospitalization with slight tendencies toward moderately positive or negative emotions. Over half (no number cited) of the children showed negative emotion during blood-drawing and the predominant emotion post-surgery was moderately negative. Eight of the children were totally nonverbal and 25 were both verbal and nonverbal. Crying was not frequent and when it did occur, children quickly brought their crying under control.

Based on preoperative interviews with 51 school age children, LaMontagne (1984) described three coping strategies: avoidant, active, and active-avoidant. Avoidant coping includes the following behaviors: avoids detailed information; focuses on nature and reason for surgery, benefits of surgery, and length of hospital stay;

is hesitant or unwilling to talk about feelings associated with the event; and, denies worry or is not specific as to what causes worry; uses parents as major support. Active coping includes the following behaviors: seeks detailed information; focuses on details of surgery; eagerly talks about surgery; acknowledges worry and is specific as to what causes worry; and expresses concern about the negative postoperative outcomes. Avoidant-active coping includes the following behaviors: seeks minor details about surgery; willingly talks about surgery and feelings; denies any worry or acknowledges one worry or fear; and is aware of some negative postoperative outcomes.

Thirty-nine published case studies of hospitalized children age 20 months to 10 years were examined by Caty, Ellerton, and Ritchie (1984) for the range and pattern of coping behaviors. Three major categories were used to analyze coping behaviors: information-exchange dimension, action-inaction dimension, and intrapsychic dimension. Fifty percent of the school age children used information-seeking behaviors predominantly, and 44 % used information-giving behaviors. Mastery and controlling behaviors (action-inaction dimension) were described in 49% of the school age children. Denial was the predominant behavior in the intrapsychic dimension for 71.4% of the school age children.

Children's defensiveness and anxiety level prior to hospitalization affect their coping abilities during hospitalization. Burstein & Meichenbaum (1979) examined the relationship involving 20 children's levels of situational anxiety (measured with Gilmore anxiety scale), defensiveness, and play patterns 1 week prior to, during, and 1 week after hospitalization for minor surgery. A 7-month follow-up was also conducted in order to assess the children's recall for hospital events and coping style. The subjects' ages varied from 4.8 to 8.6 years with an average of 7.1 years. Play was defined as touching or manipulating a toy during a 6-minute period. Each of the two pairs of toys consisted of 1 hospital related toy and 1 non-hospital related toy.

Analysis of the anxiety levels at the three observation periods indicated that the hospitalization was anxiety arousing. The mean anxiety levels were 1.6 before hospitalization, 3.2 during hospitalization, and 1.3 after hospitalization.

The results suggested that two classes of children could be identified. The children of one group distinguished themselves in terms of their disposition to engage in play with hospital related toys. They had a low level of defensiveness prior to hospitalization. Those in the second

group were highly defensive and avoided playing with hospital related toys.

During Hospitalization: Parent

Most parents have been observed to exhibit signs of anxiety, guilt, fear, as well as adaptation when accompanying their child to the hospital. Prugh et al. (1953) observed that some parents were unable to participate in their child's care. They exhibited isolation, denial, defensiveness, helplessness, and projection onto staff members. Gellert (1958) noted that parents may resent having to take a "back seat" while strangers take over the care of their child. On the other hand, Robertson (1962) stated that because parents are grateful for skilled medical attention, they are reluctant to complain of the distress and anxiety caused by hospital regulations and practices.

Parents have mentioned several feelings associated with hospitalization of their child (Ogilvie, 1990). One mother reported anger at her spouse for his lack of anxiety about risk and his lack of support to her. Parents felt there was something the matter every time an alarm went off. One mother said, "the worst part is the walk from the elevator or through the doors of the room to the elevator and just shortly after because you worry about your child's reaction and it takes a while for that to wear off . . ." (p. 53).

Parents may react to the hospitalization of their child with guilt. Langford (1961) stated that many parents believe it is possible "that disease in their child comes as punishment for their own past sins" (p. 672).

Fear has been observed in parents of hospitalized children. Scahill (1969) stated that parents often do not know what is going to happen to their child, nor do they ask. Through the use of questionnaires, Skipper (1966) studied 47 mothers of children (ages three to nine) who were admitted for tonsillectomy. They asked the mothers: "On the day before you brought your child to the hospital for the operation, how intense was the most severe fear or anxiety about your child's safety that you experienced when you thought about the fact that your child was going to have an operation?" Fifty seven percent of the mothers indicated that their fear was intense, 27.7% felt a moderate amount of fear, and only 14.9% felt very little fear.

Skipper (1966) further noted that in a study by Janis (1958) only 26% of adult surgical patients reported their fear to be intense the day before surgery. Possibly mothers suffer greater distress over the hospitalization and surgery of their own children than when they themselves are undergoing surgery (Skipper, 1966). The level of reported distress remained high for the mothers "during" the operation (57.4%, intense; 29.8% moderate; 12.8% slight).

During the first two hours following surgery, mothers indicated a much lower level of distress than either the day before or during surgery (17%, intense; 51.1% moderate; 31.9% slight).

Like children, parents have been observed to adapt to the stress of hospitalization and surgery. Prugh, et al. (1953) concurred that in general parents exhibited fear, overt anxiety, and guilt. However, the authors observed that well adjusted parents were able to effectively participate in their children's care by feeding them, playing with them, and putting them to bed.

Posthospital

Many children and their parents have been reported to exhibit behavioral and emotional upsets both directly after and months following hospitalization. The number of days between discharge and posthospital assessment reported in the literature vary from 1 week (Skippper and Leonard, 1968; Vernon et al., 1966; Wolfer and Visintainer, 1975) to 3-6 weeks (Cassel, 1965; Melamed et al., 1976; Prugh, 1953; Riffee, 1981) to 3 months (Jackson et al., 1953; Prugh, 1953), to 6-12 months (Peterson and Shigetomi, 1982; Prugh, 1953).

Changes in children's behavior following hospitalization were evaluated by Vernon, Schulman, and

Foley (1966). Changes in 387 children's behavior following hospitalization were evaluated by means of a questionnaire sent to parents a week after discharge. Factor analyses revealed that children's responses to hospitalization and illness were of six types: a. general anxiety and regression, b. separation anxiety, c. anxiety about sleep, d. eating disturbance, e. aggression toward authority, and f. apathy-withdrawal.

In a study of the psychological aspects of hospitalization, anesthesia, and surgery for 105 children, observations were made through the first three postoperative months (Jackson, et al, 1952). At the first interview after the operation, many (no number cited) were found to have been babyish and clinging, to have slept restlessly, or to have adopted substitute or new self-comforting mannerisms. At the end of the three month period, this less acceptable behavior had persisted in 17 (16%) children.

Chapman, et al. (1956), Prugh, et al. (1952), and Wilkinson (1978) also described posthospital upset which included the same symptoms and personality problems as Vernon, et al. (1966). In addition, they found hypochondriacal body concern, or actual delusions about body functions; aphonia after tonsillectomy; fantasy formation; denial of illness; and temporary handicaps.

Self esteem has also been found to be affected by hospitalization and surgery. Riffe (1981) studied changes in self esteem in three groups of children 9-12 years. He included those undergoing surgery (N=26), those hospitalized for nonsurgical reasons (N=25), and those not hospitalized (N=28). Self esteem was measured by the Coopersmith Self-Esteem Inventory. When group scores were compared, children hospitalized for surgery demonstrated a significant decrease, $F(2, 76)=7.76$, $p<.05$, in self esteem after a one-month interval when compared to children hospitalized for a nonsurgical reason or children not hospitalized.

Anxiety and defensiveness prior to hospitalization have been observed to effect post-hospitalization behavior. Burstein and Meichenbaum (1979) found that a low level of anxiety prior to hospitalization was associated with a higher level of anxiety following hospitalization. Children with low anxiety prior to surgery tended not to play with stress-related toys. High defensiveness was associated with a minimized tendency to be involved with stress-related play prior to hospitalization. These patients not engaging in play experienced higher post-hospitalization anxiety levels. It is interesting to note that during the 7 month follow-up children who had a disposition to play with the hospital related toys, were able to recall specific parental

statements to them that were relevant to the medical procedures and the consequences of these procedures.

Parental upset has also been observed following the discharge of their children from the hospital. Prugh et al. (1953) observed that marked parental ambivalence was frequent in the face of behavioral regression on the part of the child, either during or following hospitalization. Parental ambivalence, "overcompensatory indulgence," or punitiveness was involved in the perpetuation of symptoms after hospitalization. Following a period of confusion, resentment, guilt and anxiety, some parents intuitively handled post-hospitalization reactions in an effective way. The best-adjusted parents initially gave greater emotional support to the children and gradually weaned them from increased dependence.

Anxiety Reducing Effect of Preoperative Preparation

That the stressors of hospitalization and surgery can be mitigated by appropriate psychological preparation and supportive care has been an assumption underlying many clinical practices for several decades. Interventions that have been found to reduce stress include imparting accurate information, allowing meaningful rehearsal, and providing psychological support. Specific strategies will be discussed in the following paragraphs.

Accurate Information

Providing accurate preoperative information to children and their parents and allowing meaningful rehearsal of the upcoming event serves to reduce stressors related to hospitalization and surgery. Facts about the pending procedure are shared, emotional expression is encouraged, and a trusting relationship is established with the staff (Wolfer & Visintainer, 1975). Vernon, Foley, Sipowicz, and Schulman (1965) reviewed the literature and found two beneficial effects of information as preparation for hospitalization of children: 1. vague, undefined threats are more upsetting than threats which are known and understood, and 2. unexpected stress is more upsetting than expected stress.

Various methods have been used to impart information preoperatively to children and their parents. Explanations have been provided verbally (Gofman et al., 1957; Ogilvie, 1990; Plank, 1962; Skipper, 1966; Wolfer and Visintainer, 1975 and 1979), in writing (Wolfer & Visintainer, 1979), and through illustrations (Wolfer & Visintainer, 1979).

Verbal explanations have proven helpful to patients of all ages. Gofman et al. (1957) found children as young as 3 or 4 years of age gain some understanding of their illness and treatment if explanations are given in simple terms.

Adult surgical patients (N=166) were surveyed by Schoessler (1989). These patients perceived provision of situational and patient role information as the most important to receive following admission to the hospital.

The use of pamphlets has also been shown to significantly decrease stressors associated with hospitalization and surgery. Wolfer and Visintainer (1979) provided pamphlets to 107 children and their parents prior to admission for surgery. The pamphlets included a narrative description, photographs, and illustrations of major events and procedures that would be experienced from admission through discharge. When compared to the control group these children and their parents had evidence of decreased anxiety.

Basic information forms of preparation have been further enhanced through the inclusion of play experiences. Puppets (Cassell, 1965, 1967), dolls (Vessey, Braithwaite, Wiedmann, 1990; Wolfer and Visintainer, 1975), and toys (Burstein & Meichenbaum, 1979) have been used. Several potential results of the use of play were suggested by Thompson (1985): 1) abstract information may become more comprehensible; 2) children's understanding of the information may be assessed; 3) fears and concerns may be expressed; and 4) potentially threatening items and situations may be mastered.

A three group quasi-experimental design with repeated measures served as the basis for comparing two teaching methods on children's knowledge of their internal bodies (Vessey et al., 1990). The sample consisted of 159 healthy children, ages 4 1/2 to 7 1/2 years. Subjects in the first experimental group were taught about their bodies using a multisensory teaching modality employing anatomic dolls. The second experimental group used a cognitive-perceptual teaching modality using 2-dimensional drawings. While both groups of children who were taught about their bodies knew significantly ($p < .05$) more than a control group, those children who learned through the use of a doll remembered significantly more ($p < .05$) than those who were taught identical content but with flat pictures. Other results of statistical analysis were not reported.

Cassell (1965, 1967) compared 20 children who ranged in age from 3-11 years and who received special psychological preparation prior to cardiac catheterization with a control group of 20 children who did not receive such preparation. The children in the experimental group were prepared for surgery by means of structured puppet play. In addition, they participated in a puppet therapy session following surgery. Children who received preparation were found to be less emotionally disturbed during catheterization than were the children who did not receive preparation ($t=2.69$,

$p<.02$). In addition, the postsurgery comments of the prepared children were more positive than those of the unprepared children (Chi square=6.98, $p<.05$). Posthospital psychological upset was measured by means of a questionnaire sent to parents three days after discharge and again one month after discharge. The questionnaire concerned changes in the child's behavior (from pre-to post-hospitalization) in a variety of areas of functioning (e.g., eating habits, sleeping habits, interest in surroundings, and fear of strangers). Analysis of the data from the one month questionnaire revealed that the children who had been prepared were more positive in their attitudes toward returning to the hospital than were the children who had not been prepared (Chi square=23.77, $p<.001$).

Several guidelines for providing information to children and their parents have been proposed in the literature. The hospitalized child who is about to experience some medical procedure should be told what will happen, why it will happen, and what will be experienced. Complete honesty is another important factor to be considered when providing explanations to children (Bielby (1984). Children will lose confidence in adults who lie to them about procedures.

Frequently, children need to hear facts many times before they can assimilate them. Plank (1962) advocated an

approach which includes parents and doctor prior to admission; and surgeon, anesthesiologist, nurses, and play workers after admission.

Meaningful Rehearsal

Another method of reducing stress in children hospitalized for surgery and their parents is meaningful rehearsal. Strategies which provide meaningful rehearsal include filmed modeling and play. Filmed modeling has been purported to lessen children's emotional distress by allowing them to observe the behavior of a model who encounters a threatening stimulus without suffering adverse consequences.

The use of filmed modeling as a preoperative preparation procedure has been suggested to be more effective than information presentation alone and no preparation at all. Vernon (1974) assigned 38 children (4 to 9 years of age, hospitalized for minor elective surgery) to either an experimental or control group. Approximately thirty to sixty minutes prior to surgery, experimental group subjects viewed a film depicting four children (ages 5-9 years) responding calmly to anesthesia induction. Equipment and techniques commonly used in the procedure were shown in the movie. Control group children remained in their bedrooms during the presurgical period, viewing no

film. Results indicated that experimental group children were significantly less anxious than subjects in the control group when in the surgical waiting area and upon entering the anesthesia room. However, group differences were not apparent during the induction procedure itself. Nor were there significant differences in the behavior of children following discharge from the hospital.

Vernon (1974) used filmed modeling to prepare minor elective surgical patients for injections, varying the content of the modeling films presented to children. Thirty subjects, 4 to 9 years of age, were randomly assigned to see: 1) a "no pain movie", 2) a "pain movie" which was similar to the first except that the models exhibited some negative reaction to the injection, or 3) "no movie" at all. Observations of children during preoperative injections (using the Global Mood Scale) revealed that the greatest upset was among the "no-pain" movie group, with least upset manifested by subjects in the "pain" movie group. Vernon suggested that modeling which presents inaccurate or distorted information, as did the no-pain movie, may actually contribute to children's discomfort, rather than ameliorate it.

Elective surgical patients (N=60), 4 to 12 years of age, were assigned to either an experimental or control group, whose subjects were matched for age, sex, race, and

type of operation (Melamed and Siegel, 1975). Children in the experimental group were shown a film, upon admission, depicting a seven-year-old male who, though initially apprehensive, successfully encounters a variety of normal hospital experiences. The control group subjects were shown a nature film of comparable length and interest value to control for the possible beneficial effects of merely viewing a film. After viewing their respective films, children in both groups were given standard preoperative instruction. Trait and state anxiety were assessed during the period of hospitalization and on a postoperative return visit to a clinic. Three measures were used to assess trait anxiety: Anxiety Scale (Klinedinst, 1971), Children's Manifest Anxiety Scale (Castaneda et al., 1956), and Human Figure Drawing Test (Koppitz, 1968). State anxiety was measured by using the Palmar Sweat Index (PSI), the Hospital Fears Rating Scale (Scherer and Nakamura, 1968), and the Observer Rating Scale of Anxiety.

Results of the PSI demonstrated that an insignificant increase in physiological arousal occurred among children in the modeling group immediately after the film was shown. However, when measured again the evening before surgery, the PSI levels of experimental group subjects were significantly reduced, $F(3,174)=12.72$, $p< .0001$, with this lower level of anxiety also evident during the posthospital assessment.

Control group children, on the other hand, exhibited lower anxiety immediately after viewing their film. However, their anxiety was significantly elevated in the preoperative period and during the posthospital clinic visit. A significant increase, $t(29)=2.23$, $p< .05$, in the behavior problems of control group children was recorded following hospitalization. Self-report ratings and behavioral observations document a decline in the upset of children in the experimental group during the preoperative and posthospital periods.

Filmed modeling has been compared with other information based interventions such as reading pamphlets, looking at pictures, and manipulating surgical equipment (ie masks). Results suggest that children participating in any of these forms of preoperative preparation experienced less stress postoperatively and after discharge than children who received no preparation (Bielby, 1984; Melamed, Meyer, Gee, and Soule, 1976). Bielby (1984) reported on a study of 400 children (ages 4-12 years) who saw either the film, slides taken from the film or who where read a booklet, also taken from the film; a combination of preparation methods; or saw no preparatory material. Children receiving any preparation had lower (no statistics reported) scores on the fear-related variables and required less postoperative analgesia than children in the control group.

Posthospitalization, children who were in the preparation groups were less behaviorally disturbed than those in the control group. They also made an earlier physical recovery and returned to school sooner.

Age of the children and when the film is viewed are factors affecting the amount of stress reduction associated with filmed modeling. Timing of the presentation of the film was controlled in a study conducted by Melamed et al. (1976). The sample consisted of 48 children, four to twelve years of age, who were to be hospitalized for minor elective surgery. Subjects were shown the same modeling film as that used by Melamed and Siegel (1975), either six to nine days prior to admission, or upon arrival at the hospital. Half of the children in each group also received minimal inhospital preparation, while the remainder received "standard" preparation, which included use of picture books and surgical masks. Trait anxiety was assessed by using the Anxiety Scale of the Personality Inventory for Children and the Children's Manifest Anxiety Scale. The PSI, the Hospital Fears Rating Scale, and the Observer Rating Scale of Anxiety were used to assess state anxiety. The Behavior Problem Checklist was also used to assess the child's emotional and behavioral adjustment, and the Parent's Questionnaire was used to measure maternal anxiety related to the child's hospitalization.

Considering the factor of timing, responses to the Children's Manifest Anxiety Scale indicated that subjects who had not seen the film prior to admission were significantly, $F(1, 44)=13.03$, $p< .001$, more anxious upon arrival at the hospital than those who had already viewed it. Age of children was also found to influence the optimal time for presentation of a modeling film. When analysis was confined to the older children in the sample, it was found that those who had seen the film prior to hospitalization exhibited a greater, $t(22)=2.82$, $p< .01$, reduction in posthospital behavior problems than subjects viewing the film upon admission. Among children who were shown the modeling film upon arrival at the hospital, younger subjects displayed less, $t(22)=2.50$, $p< .05$, physiological arousal than did older children. The authors suggested that although older children may benefit from the viewing of a modeling film prior to admission, younger subjects may need more immediate preparation for hospitalization.

Filmed modeling is limited as an intervention that reduces anxiety in children and their parents. Based on a recent survey, Peterson and Ridley-Johnson (1980) suggested that 37% of pediatric hospitals are currently using modeling films to prepare their child patients. However, even these improved preparation techniques may be less than optimal for several reasons (Peterson and Shigetomi, 1981). First,

although children and their parents may view a child model successfully coping with distress, they are typically not provided with techniques to manage such coping themselves. Second, modeling or information procedures may not provide a vehicle for continuing emotional support for the child throughout the hospital stay. Finally, current preparation procedures typically do not offer techniques to reduce postoperative pain.

Psychological Support

In addition to imparting accurate information and allowing meaningful rehearsal, providing psychological support is effective in reducing anxiety in children and their parents. Strategies to be discussed in the following paragraphs are teaching coping skills, parental preparation, and emotional support.

Although many of the stressful elements of hospitalization and surgery cannot be eliminated, their capacity for producing distress may be reduced if patients exercise specific cognitive techniques to control their emotional responses. Among the skills typically taught are coping procedures and stress immunization.

Peterson and Shigetomi (1981) assessed sixty six middle class children, ages 2.5-10.5 years, and their parents for the effectiveness of information preparation and one of the

following procedures: information only, coping, filmed modeling, or coping plus filmed modeling. The preoperative information procedure included inviting all children to a "Big Bird" party 4 days prior to surgery where a "Big Bird" puppet told the children about a typical hospital experience. The narrative lasted about 15 minutes and included information about blood tests, preoperative medications, postoperative discomforts, and necessity for fluid consumption. Coping procedures included teaching the children cue-controlled deep muscle relaxation, distracting mental imagery, and comforting self-talk. The children first heard a technique described, watched Big Bird perform it, and then were helped to practice it. "Ethan Has an Operation" (Melamed and Siegel, 1975) was used for filmed modeling.

Their reactions to hospitalization and elective tonsillectomies were evaluated using several observational, behavioral, physiological, and self-report techniques. Results indicated that children receiving instruction in coping plus modeling techniques were more, $F(1,42)=3.77, p<.06$, calm and cooperative during invasive procedures than children receiving coping or modeling alone. Other measures indicated that the coping procedures were significantly more effective than modeling only procedures for both parents and children.

Forty mothers from the preceding study were contacted and interviewed 1 year following the children's hospitalization (Peterson and Shigetomi, 1982). The majority of mothers (62%) reported that their children recalled many more positive than negative aspects (22%) of hospitalization. Eighty eight percent of parents listed verbal assistance (explanation, information, distraction) as the most common way of assisting their children to cope. The majority of the parents (90%) reported that prehospital preparation had been helpful for their child.

Stress immunization, an anxiety-mediating intervention, was designed to improve children's manner of coping with stress and enhance their sense of mastery (Walker and Clement, 1981). Fire drills are a form of stress immunization. Children learn how to behave while maintaining a sense of control during the practice drills thereby reducing the tendency to panic if a real fire should occur. Introduction of minimal anxiety provoking prototype situations will potentiate the child's mastery later in similar circumstances that are considerably more stressful.

According to Poster et al. (1983), several forms of stress immunization (systematic desensitization, cognitive rehearsal, and modeling) have been found to be useful in preparing pediatric patients for stressful medical and surgical events. Systematic desensitization utilizes

stories about the procedure, manipulation of the equipment, and ventilation of fears and anxieties. Cognitive rehearsal is a form of mental practice (role play). Modeling requires the child to learn certain behaviors by observing others. Several principles should be kept in mind to potentiate the effectiveness of stress immunization techniques (Poster et al., 1983):

1. Techniques should be practiced over a period of time prior to the stressful situation.
2. Parents should be included in the presentation of the techniques to young children.
3. Reinforcement in the form of praise after successful completion of any technique should be part of the nurse's intervention.
4. Children should receive feedback on how they are performing.
5. Play activities should be used with young children.

There are several factors influencing the effectiveness of psychological preparation of children. Vernon et al. (1965) found that age, intelligence, type of disability, and personality were factors to be considered. Gofman et al. (1957) interviewed 100 hospitalized children ages 3 to 15 years and found a positive relationship between age and adequacy of preparation.

Parental Preparation

Since parental anxiety has been repeatedly associated with the emotional distress of children in health care settings, interventions capable of reducing parents' upset may also be beneficial to children. Alleviating the parents' anxiety can be a worthwhile goal of preoperative preparation.

After studying children (ages 2-10) and their parents, Mahaffy (1965) and Skipper and Leonard (1968) suggested that the reduction of parental distress would facilitate their efforts to care for their child. A special nurse listened to parents' feelings and beliefs and helped them be with their children during the critical time of hospitalization and to provide care for their child. The child's distress was found to decrease during hospitalization as well as after discharge. It has been suggested that parents perceive the stress of their child's hospitalization differently than the child. Therefore, parents need special preparation prior to their children's hospitalization and surgery.

Wolfer and Visintainer (1979) found that children and their parents did indeed respond differently to different preoperative education. They tested the stress-reducing effects of written and illustrated materials which were

designed to prepare children and their parents for hospitalization for tonsillectomies and adenoidectomies. One hundred sixty-three children 3-12 years of age were randomly assigned to one of five experimental groups or a control group. Of the 107 parent-child units that received the materials, 87 (81%) used them at least once. The authors found that special preparation given by the nurse during the hospital experiences and the combination of home preparation and either stress-point preparation or consistent supportive care were helpful. However, when compared to the control group, there was no improvement in parents' anxiety or satisfaction with care when home preparation was the only intervention. As was previously noted, the children who used the pamphlet as preparation for hospitalization and surgery, indicated less anxiety than the control group although there was no significant difference.

Skipper (1966) also noted less upset in mothers who were given verbal preparatory information about their child's surgery. The association between forty-seven mothers' level of advance information about their childrens' hospitalization for tonsillectomy and their level of distress and adaptation to their childrens' hospitalization was reported. Twenty-two (47%) mothers reported receiving a great deal of advance information from the physician and 8 (36%) stated that they suffered intense fear the day before

the operation. Nineteen (76%) mothers who received very little or no advance information reported intense fear. Findings supported the hypothesis that advance information received by the mother is associated with less difficulty in adaptation to their children's hospitalization.

Parental involvement in coping procedures is another strategy for decreasing parental anxiety. Peterson and Shigetomi (1981) encouraged parental involvement in cue-controlled deep muscle relaxation, distracting mental imagery, comforting self-talk and modeling. Postoperatively, parents who received the coping procedures rated themselves as more competent and less anxious, $F(1,62)=8.28$, $p< .01$, than parents receiving modeling procedures, $F(1,62)=7.74$, $p< .01$.

Parents focus on different issues from their children. According to Ogilvie (1990), parents appeared to have a need for reinforcement on three key issues: 1) that the decision to have the surgery was rational, 2) that the surgeon was good, and 3) that the child's behavior, which some parents found distressing, was not unusual for hospitalized children of a similar age. Graves and Ware (1990) noted that explanations by the health care worker about differences between children's and parents' perceptions may promote family harmony.

Nurses who express an interest in the family and child and who offer accurate and consistent information are appreciated by parents. Those who listen carefully to parental concerns and teach parents how to comfort or care for their child, and negotiate staff and parental roles in the child's care are viewed as effective communicators who are respectful of parents (Ogilvie, 1990).

Guidelines for educating and supporting adult surgical patients have been noted by several authors. These guidelines help health care workers provide information for parents of hospitalized children as well. Several authors found that adult surgical patients indicated a preference for education between admission and surgery (Schoessler, 1989; Alberts, Lyons, and Moretti, 1989). McHugh, Christman, and Johnson (1982) noted that providing adult patients with information about typical experiences they can expect during a given procedure will assist them to form a realistic mental image. When they find their experience coincides with the schema they have been assisted to develop, they will be more apt to continue to attend to the sensory input and interpret it within that framework. In addition, Alberts, Lyons, Moretti, and Erickson (1989) reviewed the literature and found several advantages to information-based interventions with adult patients. These advantages were improved and quicker recovery, decreased

analgesic utilization, reduced hospital costs, and increased communication with staff and family.

Emotional Support

In addition to providing hospitalized children and their parents with information, skills, or experiences, interactions with supportive representatives of the health care setting may enhance the development of a relationship, foster trust, and facilitate the expression of emotions and concerns. This contact in itself, regardless of the information provided may contribute to the reduction of anxiety of children and their parents.

Several studies support the effectiveness of emotional support in decreasing anxiety of hospitalization and surgery for children and their parents. Prugh et al. (1953), in a study of 100 children (ages 2-12 years), found the incidence of psychological upset after discharge to be more common and to last longer among patients who had not been exposed to the experimental ward management program (no statistics reported). An unstructured program of psychological preparation and emotional support for all diagnostic and medical procedures was provided for the experimental group. Study of the control group was carried out for four months prior to initiating the experimental program on the ward. Psychological upset in this study was measured in a global

fashion by the incidence of disturbance in eleven areas (eg. feeding, sleeping, toilet habits, withdrawal, and hyperactivity). Distinctions among degrees of upset (minimal, moderate, and severe) were made on the basis of the length of time the reactions persisted. All children showed at least minimal reactions to the experiences of hospitalization. Ninety-two per cent of the children in the control or unsupported group exhibited moderate and severe immediate reactions as opposed to 68% in the experimental group. There were no severe reactions among children 6-12 years of age who were supported. Three months after hospitalization, 58% of the control group exhibited what were regarded as disturbing reactions of at least moderate degree; in the experimental group 44% exhibited similar reactions.

Pediatric patients have been observed to use a variety of strategies to manage hospitalization and surgery. Several guidelines for appropriate supportive preoperative nursing interventions have been formulated. Tessler and Savedra (1981) included orienting; providing opportunities to look, listen, ask questions, explore; acknowledging feelings; assessing knowledge; explaining procedures; and including parents.

LaMontagne (1984a) identified specific interventions in relation to three coping strategies: avoidant, active, and

avoidant-active. During avoidant coping, reassurance and support rather than detailed information may be needed. Play, books, and peer support are among interventions mentioned. During active coping, concrete descriptions and opportunities for expression of feeling may be provided. Specific recommendations included using models and diagrams to illustrate explanations and focusing on benefits of the procedure. During avoidant-active coping, clarification of information and reassurance are important. Suggested nursing interventions included teaching relaxation techniques and positive thinking exercises.

Health care providers should recognize and accept children's feelings about the experience (Gofman, 1969). Fears of physical harm or bodily injury in the form of pain, mutilation, or death need to be addressed when caring for hospitalized children. Gohsman and Yunck (1979) recommended choosing words like "fix" or "repair" when discussing restoration of damaged or dysfunctional body parts. Also, children often view illness and hospitalization as punishment. Roberts (1983) found that children perceived health care personnel as all-powerful people who enjoy hurting children and against whom parents are ineffective. It is important that parents and staff avoid referring to any treatments as punishment, such as, "Stop crying or that nurse will give you a shot!" (Gohsman and Yunck, 1979).

It is important to emphasize the helping things children do rather than to tell them they are a good boy or girl. Telling children they are "good" gives them the impression that if they do not cooperate they are bad,thus adding to their suspicion that hospitalization is a punishment. When it is time for an injection, Gohsman and Yunck (1979) suggested allowing children to choose the site, having them count to see how long it takes, applying a dressing, and comforting afterwards by telling them that "you are sorry you had to hurt them. You know that they tried to help."

Stress point preparation was one of the most often mentioned strategies for providing emotional support. Six stress points have been identified: admission, before the blood test, late in the afternoon the day before the operation, shortly before the preoperative medications, before transport to the operating room, and upon return from the recovery room. Information is provided about what to expect and how to respond shortly before these events, along with support and reassurance during the events.

In an experimental study of 80 surgical patients (ages 3 to 14 years) and their parents, Wolfer and Visintainer (1975) tested the hypotheses that children who received systematic psychologic preparation and continued supportive care, in contrast to those who did not, would show less

upset behavior and more cooperation in the hospital and fewer post-hospital adjustment problems. In addition, their parents would be less anxious and more satisfied with information and care received. Supportive care was provided at the stress points by the same nurse.

Behaviors were assessed using behavioral ratings, ease of fluid intake, pulse rates, recovery room medication, time to first voiding, posthospital adjustment and parental measures. The experimental group had significantly less upset and were significantly more cooperative during the stress points, registered lower pulse rates in response to blood tests ($F=8.88$, $p< .005$) and injections ($F=25.55$, $p< .001$), voided earlier following surgery ($F=10.91$, $p< .001$), and had fewer problems in posthospital adjustment ($F=12.31$, $p< .001$) than children in the control group. Parents of children receiving stress-point preparation were lower ($F=9.03$, $p< .001$) in self-reported anxiety and expressed greater satisfaction with the care ($F=17.99$, $p<.001$) and information they received ($F=84.82$, $p<.001$) than control group parents.

Visintainer and Wolfer (1975) further examined the effectiveness of stress point preparation by contrasting this intervention with two others: "single-session preparation" which included presentation of information similar to that of stress-point preparation but given in a

single 45-minute session upon admission rather than prior to each period of threat, or "consistent supportive care" in which a nurse offered parents and children support and reassurance at stress points, but without systematic presentation of information. Eighty-four minor elective surgery patients between three and twelve years of age were assigned to one of four groups (single-session preparation, consistent supportive care, stress point preparation, and control). Children receiving stress point preparation had significantly more favorable ratings of cooperation and upset behavior at stress points, lesser need for postoperative medications, greater ease of fluid intake following surgery ($F=3.86$, $p<.05$), and fewer posthospital behavioral disturbances than subjects in each of the remaining three conditions. Similarly, parents participating in stress-point preparation rated themselves as less ($F=5.29$, $p< .01$), anxious more adequately informed ($F=24.90$, $p< .001$) and better satisfied with the care they had received ($F=6.85$, $p< .001$) than did parents of other children.

Wolfer and Visintainer (1979) also compared the effectiveness of stress-point preparation with the use of written and illustrated home preparation materials. The 163 children, 3 to 12 years of age, who were scheduled for tonsillectomies, were assigned to one of five groups:

stress-point preparation only, home-booklet preparation only, home preparation plus stress-point preparation, home preparation plus consistent supportive care, or a control condition.

Findings suggested that stress-point preparation alone was not significantly (no statistics reported) more effective than treatments involving a home preparation component. When compared with the control group, each of the experimental conditions resulted in lower levels of children's upset, as well as greater parent satisfaction with information and care received. However, parents' self-reported anxiety was reduced by the stress-point intervention, but not by any of the three conditions incorporating home preparation.

Summary

The review of the literature was focused on the adaptations of children and their parents to hospitalization and surgery, and on effective interventions for reducing their anxiety. The literature supported the assumption that hospitalization and surgery are anxiety producing for children and their parents. Indications that preoperative intervention can reduce the anxiety caused by hospitalization and surgery were also found in the literature.

Observations of children undergoing surgery have generated concern that anxiety reducing strategies are not being implemented. Investigators have observed that nursing units are often understaffed. Therefore, strategies that were found helpful in reducing anxiety in a research setting are not implemented in the work setting.

Support has been found in the literature for the need to simplify implementation of strategies. In order for staff nurses to be able to provide preoperative preparation, strategies must be usable and feasible.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

An experimental three group before-after design was used for this study. Two main characteristics of this design are manipulation of the independent variable and pre and post testing (Abdellah, 1979). In this study, the experimental group A subjects played the game (independent variable) with the nurse. Children in experimental group B played the game with their parent. The control group subjects did not play the game.

The dependent variable (anxiety) was measured before application of the independent variable and served as a basis for comparing the terminal measurement after the independent variable was applied. Anxiety was measured by assessing the number of emotional indicators on the children's human figure drawings. Following admission and prior to surgery, all children in the sample produced a human figure drawing. The experimental groups drew prior to playing the game. In addition, the parents completed the STAI. Post-hospitalization measures were obtained by mail using the same instruments. The results of the pre and post

measures were compared to determine any differences between and within groups.

Children in the control group received no structured play. The only preoperative teaching they might have received would have been from the staff or their parents. Staff nurses occasionally had children and their parents view a photo album of what would happen to them and talked with them briefly about the procedure. Experimental group A participated in structured play with the researcher as the parents observed. Any questions the child and parent (father or mother) had were answered. The intervention lasted no longer than 30 minutes. Experimental group B participated in structured play with the parent. The researcher set up the game, explained the rules, and left the two alone to play the game. At the end of 20 minutes, the researcher answered any questions the two might have. The intervention lasted no longer than 30 minutes. The child was allowed to play the game twice if desired and time allowed. Both experimental groups had also received unstructured preoperative teaching occasionally from the staff and their parents.

The board game, General Hospital, was designed for preoperative teaching and was the type of play used in this study. The dependent variable, anxiety, was manifested by changes in the child's preoperative and post-hospitalization

Human Figure Drawings (HFD) and the parents' preoperative and post-hospitalization scores on the STAI.

Setting

The setting was in a southwestern coastal city of about 400,000 people. The hospital is a 200-bed facility for children from newborn to 16 years of age. Of the approximately 240 surgeries performed in this hospital each month, 175 are day surgeries. The majority of school age children undergo surgical procedures during the summer months.

The day surgery department located on the 7th floor consists of 10 private rooms, 1 semi-private, 1 solarium/waiting area, a nurses' station, and a playroom. The play area was equipped with a child-sized table and 4 chairs, toys, and games. Parents were allowed and encouraged to stay until the child is discharged. The tests and game were administered in the child's room. This environment was comfortable and adequate for testing, drawing, and playing the game. All rooms were equipped with carpet, private bath, one hospital bed with automatic controls, over bed table, color television, telephone, one single hide-away bed, and two chairs.

Population and Sample

The population consisted of all children ages 6-11, without a chronic condition, undergoing elective day surgery in the children's hospital. A convenience sample of 54 children were identified from the hospital's surgery schedules. The sample was limited to school age children who were:

1. between the ages of 6 and 11 years
2. admitted to the hospital for elective day surgery
3. free from chronic disease, mental retardation, emotional illness or neurologic condition
4. able to read and communicate in English
5. accompanied by at least one parent who is able to read and communicate in English.

There were no subjects who refused to participate in the study. Those who met the criteria for inclusion were randomly assigned to one of three groups. A grid, filled in with the subject number as each subject was identified, provided an ongoing summary of the sample constitution and numbers in each group. Of the 54 children who were tested preoperatively, 24 returned the post-hospitalization packet.

Problems Related to Sample Size

Unexpected difficulties were encountered during data collection which account for the small sample size in this study. There were a limited number of school age patients in day surgery, even during the summer months when most children are scheduled for elective surgery. Also, as explained below, the time spent with the subjects was limited.

Originally, the sample size was proposed to be 150 subjects, 50 in each of the three groups. However, after gathering data for three summers, 54 qualified subjects were found with 44% of them mailing back the posthospital packet.

There are several studies in the literature using a similar design. Mahaffy (1965), Wolfer & Visintainer (1979), and McClowry (1990) did not mention rate of return for their post-hospital questionnaire . However, Visintainer & Wolfer (1975) did report an 87% return rate. Eight days after discharge, they had contacted each parent (N=84) by phone and reminded them to return the questionnaire by mail. In addition, these children were admitted to the hospital, not Day Surgery, for minor elective surgery. It is possible that there was more time available to establish rapport and encourage returning the

questionnaire. No studies were found that had been conducted in a Day Surgery Unit.

In this study, subjects often arrived at the Day Surgery Unit less than one hour prior to their scheduled surgery. Therefore, the researcher had limited time to establish some rapport with the subjects much less inspire them to return the packet. In addition, questionnaires were to be returned in 30-45 days. This increased lapse of time between hospitalization and returning the packet could have influenced the return rate.

Protection of Human Subjects

This study was reviewed by the Human Subjects Review Committee of Texas Woman's University (Appendix A) and that of the hospital (Appendix B). Subjects were identified from the surgery schedule of the hospital. Potential subjects and parents were approached directly by the researcher on the day prior to surgery at the hospital with a standardized introduction (Appendix C). If interested, subjects and parents were asked to read over their written consent form with the researcher. Subjects and parents were assured that the option to participate was theirs and the option to withdraw was available at anytime. They were told that their decision would in no way affect the care they received in the institution.

Consent forms (Appendix D) included an explanation of the procedures, the experimental nature of the study, and duration of the study. Benefits and risks and alternatives involved with talking about intraoperative procedures were described. Since the treatment was intended to increase awareness of intraoperative procedures, anxiety could be increased or decreased for either group depending upon the children and their past experiences. There was also the possibility for embarrassment for subjects and parents by revealing themselves through drawings and questionnaires.

Assurance of confidentiality, the option to withdraw without penalty, and a disclaimer that no money was involved were also included in the consent form. Any questions were answered. Since the researcher was not an employee of the hospital, the researcher's name and phone number as contact person for answers to pertinent questions or concerns related to the study were in the post-hospital packet.

If both parent and subject were interested in participating, they were asked to sign their consent forms along with the researcher. If the parent had consented and the child did not, the child would not have participate in this study. However, all subjects that were approached consented to participate.

Instruments

The instruments that were used for this study included General Hospital, a board game, the Parent/Child Demographic Data Sheet, Stress Scale for Children, Emotional Indicators in Human Figure Drawings, State-Trait Anxiety Inventory, and the Post-Hospital Behavior Questionnaire. The Demographic Sheet was developed by the investigator after reviewing the literature concerning the effects of hospitalization and surgery on school age children and their parents.

General Hospital-Board Game

This educational board game was designed by a nursing student as partial fulfillment of the requirements of a pediatric nursing course. The object of the game is to be discharged from the hospital before your opponent. Each player receives a designated amount of cash to begin the game. Players take turns throwing dice to determine the number of spaces to advance around the board. There are 19 question cards and 10 direction cards Appendix E). Various spaces around the board direct the player to draw a card. If the player answers the question card (Appendix E) correctly, the amount of money indicated on the card is received by the player from the bank. If the question is incorrectly answered, the player pays the bank the designated amount.

This game was used in a study of 28 school age (6-11 years) children undergoing tonsillectomy, adenoidectomy, and/or pressure equalization tube insertion conducted by this investigator (Wofford, 1985). A two group before-after experimental design was used to determine if playing the game preoperatively had any effect on the post-operative and post-hospital anxiety of the child. Vital signs, amount of postoperative emesis, amount of time between recovery room admittance and first voiding and a post-hospital questionnaire were used to measure anxiety. No significant differences were found between groups. There have been no other attempts to systematically evaluate the anxiety reducing effects of this type of strategy. This study further evaluated the value of this tool by using psychological rather than physiological methods of measuring anxiety.

Parent/Child Demographic Data

This form (Appendix F) was used to obtain data regarding the extraneous variables of age, sex, cultural background, previous experience, parents' marital status, parents' level of education, parents' age, socioeconomic status, and number in household. According to Vernon et al. (1966), Koppitz (1968), and Klinzing and Klinzing (1977) the child's age, past experiences with hospitals, understanding

of hospitalization and procedures, interpersonal relationships, intelligence, cultural background, socioeconomic status, current level of stress, parents' age, parents' level of education, and family composition are factors that affect a child's reaction to hospitalization and surgery. Understanding of hospitalization and procedures, interpersonal relationships, and intelligence were not assessed in this study due to the limited time available with the parent and child. Current level of stress was evaluated using the Stress Scale for Children and the STAI for the parents.

Stress Scale for Children

Second, the Stress Scale for Children (Coddington, 1972a) (Appendix G) was administered initially to determine the level of stress in the child's life for the year prior to hospitalization. Coddington (1972a) modified the Holmes and Rahe (1967) Social Readjustment Rating Scale (for adults) for use with children. Holmes and Rahe developed the Social Readjustment Rating Scale by having 394 subjects rate 43 life events empirically derived from clinical experience. In order to modify this scale, Coddington sampled 131 teachers, 25 pediatricians, and 87 mental health workers. These subjects were asked to rate a series of life events according to their relative degree of necessary

readjustment for children of four different age groups (preschool, elementary school, junior high school, and senior high school). In order to rate a life event, the sample compared each event with event 1 (the birth of a sibling) which had been given the arbitrary value of 500. If the event was viewed as requiring less readjustment than event 1 then the value would be proportionally smaller and vice versa. Items were arranged in rank order according to means. A Kruskal-Wallis one-way analysis of variance and a Mann-Whitney U-test were used to investigate differences in the value assigned a given item by the subjects. No significant differences appeared in the rank order assigned to the items for any age group by group or subgroup (professions, sex, religion, marital status, experience working with children) of the respondents. Life change units were calculated by dividing the geometric mean of each item by 10. Lists of life events with life change units for each event were developed for each age group. The elementary school age group life events were used for this study.

For this study the social adjustment scores of the school age surgical child indicated the significance of the past year's life events on their anxiety level. Scores below 150 indicate average stress load, scores between

150-300 indicate above average stress load and scores above 300 indicate severe stress load.

Emotional Indicators in Human Figure Drawings

The third instrument, the Emotional Indicators in Human Figure Drawings (Appendix H), was used to measure the dependent variable, children's anxiety. Drawings of "a whole person" were evaluated using the Scoring Manual for 30 Emotional Indicators on Human Figure Drawings (HFDs) of Children developed by Koppitz (1968). Prior to the systematic investigation of HFDs of children by Koppitz, there had been no comprehensive study of childrens' HFDs, taking into account all aspects of such drawings and relating them to each other. Goodenough (1926), the original developer of the Draw-a-Man Test, took the developmental approach to HFDs and standardized and validated the Draw-A-Man Test. Harris (1963) reported numerous studies which indicated high correlations between the scores on the Draw-A-Man Test and IQ scores from intelligence tests. Machover (1949) used the Draw-A-Person Test as a projective instrument with adults and adolescents. But she offered no scoring system and no controlled research data to support her claims. It was Koppitz' (1968) intent to eliminate confusion related to developmental and projective signs on Human Figure Drawing (HFDs).

The Emotional Indicator (EI) scoring technique (Koppitz, 1968) consists of a list of 30 objective signs which reflect a child's anxieties, concerns, and attitudes at a given moment. The list is divided into three categories. The first category consists of items which might relate to the quality of human figure drawings such as broken lines, poor integration of parts, shading, asymmetry, slanting by 15 degrees or more, figures less than 2 inches and greater than 9 inches, and transparencies (body parts show through clothing or skin). The second category consists of special features not usually found in HFDs such as a head less than 1/10 of total height or greater than the body; vacant eyes; side glances; crossed eyes; teeth; arms shorter than torso or beyond kneeline; hands absent, hidden, or bigger than face; legs pressed together; genitals; arms clinging to body; monster or grotesque figure, and a sun, moon, clouds, or rain. The third category consists of omitted body parts such as eyes, nose, mouth, body, arms, legs, feet, and neck.

Each of the EIs identified in the HFDs is scored as +1. 0 is the optimum score. A score of 2 or more indicates emotional problems and possible unsatisfactory personal relationships (Koppitz, 1968).

For more than 30 years, Koppitz (1984) considered HFDs to be an "invaluable and enormously productive" tool in the

assessment of school age children. Koppitz (1968), assisted by Wilson, established the reliability of the EI scoring technique by scoring the HFDs of 10 randomly selected second graders and 15 children who were referred to a school psychologist because of learning and behavior problems. They found 95% agreement between the groups on all items scored. True test-retest reliability of the results cannot be established because physical abilities and cognitive skills change over time as children develop (Abdellah, 1978).

Koppitz (1968) demonstrated validity of the 30 EIs by comparing HFDs of 76 pairs of public school children with 76 patients of a child guidance clinic matched for age and sex. Group A consisted of 76 patients of a child guidance clinic. Group B consisted of 76 pupils from the suburban elementary school. Twelve of the EIs were found significantly more often on HFDs of the clinic patients than on the drawings of the well-adjusted pupils. Chi-square values for poor integration, shading of body and/or limbs, slanting figure, and tiny figure were significant at the 0.01 level. Big figure, short arms, cut off hands, and omission of neck were significant at the 0.05 level. Drawings of children with emotional problems were shown to have significantly higher numbers of EIs than drawings of children without serious emotional problems (chi-square 69.26, $p \leq .001$).

Hall and Ladiere (1970) compared six different systems for scoring young children and found that only the Koppitz and Evanston Early Identification Scale (EEIS) systems significantly distinguished between problem and non-problem children. The authors stated that the choice between the two must be based on considerations such as normative developmental orientation, which is the strength of the Koppitz system, or scoring ease and brevity, which are the advantages of the EEIS.

There have been discrepancies in the literature concerning use of only whole person drawings as opposed to both whole person and self drawings (Irwin and Kovacs, 1979; Newsom, 1983). Koppitz (1968) concurred with Machover (1949) that whole person drawings of prepubertal children and young adolescents capture the essence of the child. They found that the persons children know best are themselves. Therefore, their pictures of a person become a portrait of their inner selves and attitudes. Koppitz (1968) also found that for most younger elementary school pupils, a second HFD of the opposite sex rarely adds sufficient additional information to justify the time and effort involved in obtaining it. Therefore, for this study, only whole person drawings were utilized in an effort to facilitate time and effort of the investigator and the patient.

In this study, two independent observers established interrater reliability at 85%. After the drawings were scored by the observers using Koppitz' (1968) technique, a mean of the two scores was obtained. The dependent variable, intraoperative anxiety of the child, was measured in relation to the mean scores on the drawings.

State-Trait Anxiety Inventory

The fourth instrument, the State-Trait Anxiety Inventory (STAI) (Spielberger, 1970) (Appendix I) was used to measure the dependent variable, parents' intraoperative anxiety. This Likert type instrument consists of 40 brief self-report items. Twenty of the items assess how the person feels at the time (state anxiety), and 20 assess how the person feels in general (trait anxiety). There are four possible responses to each of the 40 items. Only one answer is to be circled for each statement. There is an equal number of positively worded and negatively worded statements. The scoring keys reverse the direction of nonanxiety items so that a high score suggests high anxiety. The range of possible scores is from a minimum of 20, low anxiety, calmness, and serenity, to a maximum of 80, high anxiety, intense apprehension and fearfulness approaching panic. Intermediate scores reflect moderate levels of tension and apprehensiveness.

The possible responses are different for each form. The responses for the STAI Form X-1 (state anxiety) are: very much so, moderately so, somewhat, or not at all. The responses for the STAI Form X-2 (trait anxiety) are: almost always, often, sometimes, or almost never.

The reliability of the STAI was established by the test-retest method. A sample of undergraduate students were exposed to a brief period of relaxation training, a difficult intelligence test, and a film depicting accidents which resulted in serious injury or death. The reliabilities for the scores were reported separately for males and females as follows: one-hour interval: .33 (males) and .16 (females) for state, .84 and .76 for trait; 20 days: .54 and .27 for state, .86 and .76 for trait; 104 days: .33 and .31 for state, .73 and .77 for trait. Alpha reliability coefficients for the normative samples (377 high school juniors, 982 college freshmen, 484 college students enrolled in introductory psychology) varied from .83 to .92 for state scores and .86 to .92 for trait scores. Alpha coefficients were more suitable reliability indicators for Form X-1 (state) than test-retest coefficients.

Concurrent validity of the STAI was established by high correlations with the Taylor Manifest Anxiety Scale, the Affect Adjective Checklist, and IPAT anxiety scales. For 126 college women, coefficients were .80, .52, and .75,

respectively. It has been demonstrated in numerous studies that state scores increase in response to situational stress and decline under relaxed conditions, and that trait scores reflect relatively stable individual differences in anxiety proneness that are impervious to situational stress (Knox, 1980; Spielberger et al., 1973; Wolfer and Davis, 1970).

In this study the parental state and trait anxiety scores were assessed. The parental state anxiety score was indicative of feelings of apprehension, tension, nervousness, and worry associated with the hospitalization and pending surgery. Spielberger, Gorsuch, Lushene, Vagg, Jacobs (1983) stated "scores on the state anxiety scale increase in response to physical danger and psychological stress and decrease as a result of relaxation training" (p.2). The parental trait anxiety score was indicative of the usual level of anxiety correlated with the child's anxiety scores to determine its significance for each group.

Post-Hospital Behavior Questionnaire

The fifth instrument, the Post-Hospital Behavior Questionnaire (PHBQ) (Vernon, Foley, and Schulman, 1966), provided additional information concerning post-hospital anxiety. In this study, mean scores on the PHBQ will be used in addition to HFD scores to measure the children's post-hospital anxiety.

This Likert type instrument (Appendix J), which was completed by the parent, consisted of 27 items. Parents were asked to compare their child's typical behavior after hospitalization with typical behavior prior to hospitalization. Vernon et al. (1966) derived these questionnaire items primarily from six studies. All symptoms mentioned in 2 or more of the studies were represented in the questionnaire. For each item, five response alternatives were provided: much less than before; less than before; same as before; more than before; and, much more than before. Item scoring ranged from 1-5 with 1 being much less than before and 5 being much more. Six types of responses to illness and hospitalization have been distinguished on the basis of factor analysis of the questionnaire (Vernon et al., 1966): 1. general anxiety and regression; 2. separation anxiety; 3. sleep anxiety; 4. eating disturbance; 5. aggression toward authority; and, 6. apathy and withdrawal.

Reliability and validity has been supported by several studies. Cassel studied the effect of brief puppet therapy upon the emotional responses of children hospitalized for heart catheterization. Cassell (1963) had parents evaluate changes in their children's behavior both three days and one month after discharge. The scores from these two tests were positively correlated ($r=0.65$, $p \leq 0.001$ by two-tailed test).

In another study, Cassell (1965) found the Post-Hospital Behavior Questionnaire to have an internal consistency with a Cronbach coefficient alpha of .77.

Vernon et al. (1966) compared the questionnaire total scores with independent ratings of nondirective interviews with parents and found support for the validity of the questionnaire. The correlation between the total scores and ratings of change in behavior following hospitalization was 0.47 ($0.05>p>0.02$ by two-tailed test). In addition, a clinical psychologist's independent ratings of taped recordings of the interviews showed high agreement with the ratings of a psychiatrist ($r=0.95$, $p<0.001$).

Data Collection

After approval by Texas Woman's University Human Subjects Review Committee and the hospital administration, potential subjects were identified from the hospital surgery schedule. All potential subjects were approached on the morning of their surgery. After being admitted to their room on the day surgery unit, an explanation of the project was given, consent forms were signed if agreeable to participation, subject number and group assignments were made, and the Stress Scale for Children was completed. While the patient drew a picture of a "person", the parent

completed the State Trait Anxiety Inventory. Then, the appropriate treatment was administered.

Post-hospitalization data was gathered by mail within four to six weeks after discharge. A packet containing an instruction sheet, self-addressed stamped envelope, a second STAI and the Post-Hospital Behavior Questionnaire to be completed by the parent and a sheet of paper for the child's second drawing were given to the parent prior to discharge. Parents were telephoned and asked to return the packet if it had not been received by 7 weeks after discharge. If parents had misplaced the packet, a duplicate copy was sent. Nineteen of the 54 subjects who were tested preoperatively returned the packet without further contact. Ten were contacted by phone with 5 returning the packet. Three of the 5 who returned the packet were mailed a duplicate.

Treatment of Data

Data obtained from the Demographic Data Sheet were analyzed by descriptive statistics. Sex, parental age and education, parental marital status, first hospitalization, first operation, and family composition were described by frequency distribution. The mean and standard deviation were used to compare the variables of age, grade in school, and income among the groups of subjects in the study.

Inferential statistics were used to make inferences regarding the subjects in the study and to evaluate the hypotheses. Two-way analysis of variance for repeated measures and one-way analysis of covariance were used to analyze whether or not changes in anxiety levels were statistically significant in relation to the preoperative structured play. Kruskal-Wallis was used to compare SSC and PHBQ since the distribution of these scores were skewed.

Spearman rank correlation coefficient was used to test the relationship between the children's anxiety scores and the parental anxiety scores. The relationship between extraneous variables and the anxiety levels of the children and parents were tested using the Spearman rank correlation coefficient, Two Tailed t-Test, and one-way analysis of variance. For all data analysis the level of significance was established at $p < .05$. In this study, interactive significance was identified. The post hoc Tukey HSD Test was used to determine where the differences were occuring.

CHAPTER 4

ANALYSIS OF DATA

An experimental study was conducted to examine the effects of preoperative play on post-hospital anxiety in school age children and their parents. The primary variable, anxiety scores, was measured pre and post operatively. The data were analyzed by use of analysis of variance, analysis of covariance, Kruskal-Wallis, two-tailed t-test, and Spearman rank correlation coefficient. This chapter includes a description of the sample and report of the findings.

Description of Sample

The sample of this study consisted of 24 children who were admitted to the hospital for day surgery. All patients who met the specified criteria agreed to participate in the study. A total of 56 children agreed to participate. Only 24 of the subjects completed and returned the posthospital packet and were therefore included in the sample. The descriptive statistics which follow were calculated from answers obtained on the demographic data sheet and from scores on the Stress Scale for Children and the Posthospital

Behavior Questionnaire. The demographic variables of age, sex, and race of the children are presented in Table 1.

The children studied ranged in age from 5 to 10 years. The sample consisted of one (4.2%) 5 year old, five (20.8%) 6 year olds, seven (29.2%) 7 year olds, three (12.5%) 8 year olds, five (20.8%) 9 year olds, and three (12.5%) 10 year olds. The mean age was 7.63 years. Ten

Table 1

Distribution of Sample
According to Age, Sex, and Race.

Race	Hispanic		Caucasian		Asian		Total
Sex	M n(%)	F n(%)	M n(%)	F n(%)	M n(%)	F n(%)	n(%)
Age							
5			1(4)				1(4)
6	3(12)		2(8)	1(4)			5(20)
7	2(8)	2(8)	1(4)			1(4)	7(29)
8	2(8)	1(4)					3(13)
9		1(4)		3(13)	1(4)		5(21)
10	1(4)	1(4)	1(4)				3(13)
Total	8(32)	5(20)	5(20)	4(17)	1(4)	1(4)	

(41.7%) of the children were female and fourteen (58.3%) were male.

Thirteen (54.1%) were Hispanic, nine (37.5%) were Caucasian, and two (8.33%) were Asian. There were no black children in this study. All of the children were United States citizens and spoke English.

The sample of 24 children was divided into three groups. Group A (N=7) played the game with the nurse, Group B (N=7) played the game with their parent, and Group C (control group, N=10) did not play the game. The age, sex, grade in school, and income are summarized according to groups in Table 2.

There were 3 (42.9%) males and 4 (57.1%) females in group A. Their ages ranged from 7 to 9 with a mean age of 8.14 and a standard deviation of 0.9. Group B consisted of three (42.9%) males and four (57.1%) females. These children ranged in age from 6 to 10 years with a mean age of 7.57 and a standard deviation of 1.51. There were eight (80%) males and two females (20%) in the control group. Their ages ranged from 5 to 10 with a mean age of 7.3 and a standard deviation of 1.77.

Concerning the grade in school, seven (29.2%) were first graders, seven (29.2%) were second graders, two (8.3%) were third graders, four (16.7%) were fourth graders, three

Table 2

Distribution of Sample According to Age, Sex, Grade in School, and Income of the Groups (N=24)

Variable	Group A		Group B		Group C	
	n	%	n	%	n	%
Age in years						
5					1	10
6			2	28.6	3	30
7	2	28.6	2	28.6	3	30
8	2	28.6	1	14.3		
9	3	42.9	1	14.3	1	10
10			1	14.3	2	20
Sex						
M	3	42.9	3	42.9	8	80
F	4	57.1	4	57.1	2	20
Grade						
1	1	14.3	3	42.9	3	30
2	1	14.3	2	28.6	4	40
3	2	28.6				
4	1	14.3	2	28.6	1	10
5	2	28.6			1	10
6					1	10
Income						
<10,000	1	14.3	2	28.6	4	40
>10,000	1	14.3	2	28.6	1	10
>20,000	2	28.6			2	20
>30,000			2	28.6	1	10
>40,000	3	42.9	1	14.3	2	20

(12.5%) were fifth graders, and one (4.2%) was a sixth grader. The mean grade in school was 2.6 with a standard deviation of 1.58.

In group A, there was one (14.3%) in first grade, one (14.3%) in second grade, two (28.6%) in third grade, one (14.3%) in fourth grade, and two (28.6%) in fifth grade. The mean grade was 3.29 with a standard deviation of 1.50. In Group B, three (42.9%) were in first grade, two (28.6%) were in second grade, and two (28.6%) were in fourth grade. The mean grade was 2.14 with a standard deviation of 1.35. In the control group three (30%) were in first grade, four (40%) were in second, one (10%) was in fourth, one (10%) was in fifth, and one (10%) was in sixth. The mean grade was 2.6 with a standard deviation of 1.78.

The annual family income reported by the parents in the sample ranged from $4,000 to $80,000. Six (25%) of the families reported income of less than $10,000. five (20.8%) reported income of $10,000 to $19,000, seven (29.17%) reported $20,000 to $30,000, and six (25%) reported $40,000 to $80,000. The mean annual family income reported was $24,375.

The annual family income of Group A ranged from $4,000 to $50,000. One (14.3%) reported $4,000, one (14.3%) reported $10,000, two (28.6%) reported $20,000 to $30,000,

and three (42.9%) reported $40,000 to $50,000. The mean annual income for Group A was $27,285. The annual family income of Group B ranged from $4,000 to $50,000. Two (28.6%) reported $4,000, two (28.6%) reported $10,000 to $19,000, two (28.6%) reported $30,000, and 1 (14.3%) reported $50,000. The mean annual income for Group B was $20,428. The annual family income of the control group ranged from $4,000 to $80,000. Three (30%) reported income below $10,000, two (20%) reported income of $20,000, one (10%) reported income of $30,000, and two (20%) reported income of over $40,000. The mean annual income for the control group was $25,000.

Education and age of the mothers and fathers are summarized according to groups on Table 3. Six (25%) of the mothers in the sample were between the ages of 20-29, fourteen (58.3%) were between the ages of 30-39, and four (16.7%) were between the ages of 40-49. Thirteen (54.2%) of the mothers in the sample had 6-12 years of education, ten (41.7%) had 1-4 years of college, and 1 (4.2%) held a masters degree. Two (8.3%) of the fathers were between the ages of 20 to 29, seventeen (70.8%) were 30 to 39 years of age, and five (20.8%) were between 40 to 49 years of age. Fourteen (58.3%) of the fathers had 6-12 years of education, eight (33.3%) had 1-4 years of college, and two (8.3%) held a masters degree.

Table 3

Distribution of Sample According to Parental Age and Education of the Groups

Variable	Group A		Group B		Group C	
	Mom n(%)	Dad n(%)	Mom n(%)	Dad n(%)	Mom n(%)	Dad n(%)
Age						
20-29	1(14)	1(14)	2(27)		3(30)	1(10)
30-39	5(71)	5(71)	4(57)	6(86)	5(50)	6(60)
40-49	1(14)	1(14)	1(14)	1(14)	2(20)	3(30)
Education						
6-12 yrs	5(71)	5(71)	3(43)	5(71)	5(50)	4(40)
13-14yrs	1(14)	2(27)	2(27)	1(14)	3(30)	5(50)
Bachelors	1(14)		1(14)		2(20)	
Masters			1(14)	1(14)		1(10)

In Group A, one (14.3%) mother was 20 to 29, five (71.4%) mothers were 30 to 39, and one (14.3%) was 40 to 49. Five (71.4%) had 6-12 years of education, one (14.3%) had 13-14 years of education, and one (14.3%) had a bachelors degree. One (14.3%) father was 20 to 29, five (71.4%) were 30 to 39, and one (14.3%) was 40 to 49. Five (71.4%) had 6-12 years of education and 2 (had 13-14 years of education. In Group B, two (28.6%) of the mothers were 20 to 29, four (57.1%) were 30 to 39, and one (14.3%) was 40 to 49. Three (42.9%) had 6-12 years of education, two (28.6%) had 13-14

years of education, one (14.3%) had a bachelor's degree, and one (14.3%) had a master's degree. Six (85.7%) of the fathers were 30 to 39 and one (14.3%) was 40 to 49. Five (71.4%) fathers had 6-12 years of education, one (14.3%) had 13-14 years, and one had a master's degree.

In the control group, three (30%) of the mothers were 20 to 29 years of age, five (50%) were 30 to 39, and two (20%) were 40 to 49. Five (50%) had 6-12 years of education, three (30%) had 13-14, and two (20%) had a bachelor's degree. One (10%) father was 20 to 29 years of age, six (60%) were 30 to 39, and three (30%) were 40 to 49. Four (40%) of the fathers had 6-12 years of education, five (50%) had 13-14, and one (10%) had a master's degree.

The demographic variables of previous hospitalization and surgery are presented in Table 4. This was the first hospitalization for eight (33.3%) of the children in the sample and the first operation for fifteen (62.5%). Sixteen (66.6%) were previously hospitalized and nine (37.5%) of the children had previous surgery. In Group A, only one of the children had never been in the hospital before. Four of the seven never had surgery. In Group B, four of the children had never been in the hospital. Five had never had surgery. In the control group, three of the ten had never been hospitalized. Six had never had surgery.

The demographic variables of marital status, who the child lives with and total number in household are summarized in Table 5. Seventeen (70.8%) of the parents inthe sample were married, one (4.2%) was separated, five (20.8%) were divorced, and one (4.2%) was never married. The seven children who had non-married parents lived with

Table 4

Distribution of Sample According to First Hospitalization and First Surgery of the Groups

Variable	Group A		Group B		Group C	
	n	%	n	%	n	%
1st Hospital						
Yes	1	14	4	57	3	30
No	6	86	3	43	7	
1st Surgery						
Yes	4	57	5	71	6	60
No	3	43	2	29	4	40

Table 5

Distribution of marital status, who child lives with and number in household of the groups

Variable	Group A		Group B		Group C	
	n	%	n	%	n	%
Marital Status						
Married	5	71	6	86	6	60
Separated/ Divorced	1	14	1	14	4	40
Never Married	1	14				
Live with						
Both Parents	5	71	6	86	6	60
Mother only	2	29	1	14	4	40
Total in House						
2					1	10
3					2	20
4	3	43	3	43	2	20
5	4	57	4	57	2	20
6					2	20
7					1	10

their mothers. One (4.2%) child in the sample lived alone with mother, two (8.3%) had a total of three in the household, eight (33.3%) had a total of four in the household, ten (41.7%) had a total of five in the household, two (8.3%) had a total of six in the household, and one (4.2%) had a total of seven in the household. Five (71.4%) of the children in Group A lived with both parents who were

married. The other two (28.6%) children lived with their unmarried mother. Three (42.9%) lived in a household with a total of four members. Four (57.1%) lived in a household with five members. In Group B, six of the children lived with both parents who were married. One lived with an unmarried mother. All lived in a household with either 4 or 5 members. In the control group, six (60%) of the children lived with both parents who were married. Four (40%) lived with their unmarried mother. Total number in the household ranged from 2 to 7. The mean was 4.5 and the standard deviation was 1.58.

Scores from the Stress Scale for Children were used to determine the level of stress each child was experiencing prior to hospitalization. A score of 150 or less suggested an average stress load. A score of 151 to 300 suggested a better than average chance of showing some symptoms of stress. Scores over 300 suggested a heavy stress load and a strong likelihood for experiencing a serious change in health and/or behavior.

The SSC scores for the sample ranged from 62 to 548, with a mean score of 202.79. SSC scores for Group A, ranged from 62-334, with a mean score of 174.57. The scores for group B ranged from 118 to 548. The mean score was 229.86. Scores for the control group ranged from 100 to 342. The mean score was 213.60.

Parents used the PHBQ to report their child's behavior after hospitalization. These scores are summarized in Table 7. The sample scores ranged from 27-83, with a mean of

Table 6

Distribution of PHBQ Scores by Groups

	Group A		Group B		Group C	
	n	%	n	%	n	%
Score						
27					1	10
53			1	17		
55	1	14				
60					1	10
67			1	17		
69	1	14	1	17		
70	1	14			1	10
75					1	10
76	2	27				
77	1	14				
78			2	33	3	30
79					1	10
80			1	17	1	10
82					1	10
83	1	14				

71.22 and a standard deviation of 12.61. The PHBQ scores of Group A ranged from 55-83 with a mean score of 72.29 and a standard deviation of 8.94. The PHBQ scores of Group B ranged from 53 to 80 with a mean score of 70.83 and a standard deviation of 10.23. (Only 23 subjects returned the Post STAI and PHBQ.) The control group scores on the PHBQ ranged from

27-82 with a mean score of 70.70 and a standard deviation of 16.62.

Findings

The purpose of this study was two-fold: (1) to investigate the effectiveness of structured preoperative play in reducing the posthospital anxiety of school-age children and their parents and (2) to investigate the effectiveness of parents providing the structured play instead of the nurse. The dependent variable measured in this study was anxiety of the children and their parents.

The children's level of anxiety was determined by scoring human figure drawings. The children's drawings were scored using the Emotional Indicators Scoring Technique. Zero is the optimum score. A score of 2 or more indicates emotional problems. These scores are summarized on Table 7.

The preoperative drawing scores of the sample ranged from 0-5 with a mean score of 2.46 and a standard deviation of 1.47. The post hospital drawing scores ranged from 0-6 with a mean of 2.67 and a standard deviation of 1.61.

Group A had preoperative drawing scores ranging from 1-4 with mean a score of 2.43 and a standard deviation of 0.98. One (14.3%) scored 1, three (42.9%) scored 2, two (28.6%) scored 3, and one (14.3%) scored 4. Post hospital drawing

Table 7

Distribution of Drawing Scores by Groups

	Group A		Group B		Group C	
	Pre	Post	Pre	Post	Pre	Post
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Score						
0		1(14)	1(14)		2(20)	1(10)
1	1(14)	2(29)	1(14)	1(14)	1(10)	1(10)
2	3(43)	2(29)	3(43)	1(14)		3(30)
3	2(29)		2(29)	1(14)	2(20)	3(30)
4	1(14)	1(14)		3(43)	3(30)	1(10)
5		1(14)			2(20)	1(10)
6				1(14)		

scores ranged from 0-5 with a mean score of 2.14 and a standard deviation of 1.77. One (14.3%) scored 0, two (28.6%) scored 1, two (28.6%) scored 2, one (14.3%) scored 4, and one (14.3%) scored 5.

Group B had preoperative drawing scores ranging from 0 to 3 with a mean score of 1.85 and a standard deviation of 1.07. One (14.3%) scored 0, one (14.3%) scored 1, three (42.9%) scored 2, and two (28.6%) scored 3. Post hospital drawing scores ranged from 1 to 6 with a mean of 3.43 and a standard deviation of 1.62. One (14.3%) scored 1, one

(14.3%) scored 2, one (14.3%) scored 3, three (42.9%) scored 4, and one (14.3%) scored 6.

The control group had preoperative drawing scores ranging from 0 to 5 with a mean score of 2.9 and a standard deviation of 1.91. Two (20%) scored 0, one (10%) scored 1, two (20%) scored 3, three (30%) scored 4, and two (20%) scored 5. Post hospital drawing scores ranged from 0-5 with a mean score of 2.5 and a standard deviation of 1.43. One (10%) scored 0, one (10%) scored 1, three (30%) scored 2, three (30%) scored 3, one (10%) scored 4, and one (10%) scored 5.

The parents' level of anxiety was determined by STAI scores. Pre and post STAI scores were compared using the analysis of variance and covariance with repeated measures. Parental state and trait anxiety were measured preoperatively and 4-6 weeks after discharge using the STAI. The range of possible scores was from a minimum of 20, low anxiety, to a maximum of 80, high anxiety. The parental anxiety scores are summarized on Table 8 and 9. Preoperatively, the parental trait anxiety score for the sample ranged from 28 to 58, with a mean score of 39.5 and a standard deviation of 8.14. The state anxiety score ranged from 26 to 62, with a mean score of 42.54 and a standard deviation of 8.82.

Table 8

Distribution of STAI-State Scores by Groups

	Group A		Group B		Group C	
	Pre	Post	Pre	Post	Pre	Post
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Score						
20-30	1(14)	1(14)			1(10)	4(40)
31-40	3(43)	4(57)	2(29)	4(57)	3(30)	1(10)
41-50	2(29)		3(43)	2(29)	4(40)	2(20)
51-60	1(14)	2(29)	2(29)		1(10)	3(30)
61-70					1(10)	

The posthospital parental trait anxiety scores for the sample ranged from 25 to 62, with a mean score of 39.78 and a standard deviation of 10.68. The state scores ranged from 21 to 52, with a mean of 37.57 and a standard deviation of 9.95.

Preoperatively, Group A had trait anxiety scores ranging from 29 to 51 with a mean score of 39.71 and a standard deviation of 8.63. State scores ranged from 26 to 50 with a mean score of 38.43 and a standard deviation of 8.75

Postoperatively, Group A had trait anxiety scores ranging from 28 to 62 with a mean score of 42.14 and a standard deviation of 11.23. State scores ranged from 27 to 52 with a mean of 38.43 and a standard deviation of 9.43.

Table 9

Distribution of STAI-Trait

	Group A		Group B		Group C	
	Pre	Post	Pre	Post	Pre	Post
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Score						
20-30	2(29)	2(29)	1(14)		1(10)	5(50)
31-40	1(14)		2(29)	3(43)	5(50)	1(10)
41-50	3(43)	4(57)	2(29)	2(29)	4(40)	2(20)
51-60	1(14)		2(29)	1(14)	1(10)	2(20)
61-70		1(14)				

Group B had preoperative trait anxiety scores ranging from 29 to 58 with a mean score of 42.42 and a standard deviation of 9.90. State anxiety scores ranged from 36 to 57 with a mean score of 45 and a standard deviation of 7.75.

Postoperatively, Group B had trait anxiety scores ranging from 31 to 51 with a mean of 40 and a standard deviation of 8.07. State anxiety scores ranged from 31 to 49 with a mean score of 38.83 and a standard deviation of 6.82.

Preoperatively, Group C had trait anxiety scores ranging from 28 to 47 with a mean of 37.3 and a standard deviation of 6.50. State anxiety scores ranged from 28 to

62 with a mean score of 43.7 and a standard deviation of 9.40.

Postoperatively, Group C had trait anxiety scores ranging from 25 to 59 with a mean score of 38 and a standard deviation of 12.27. State anxiety scores ranged from 21 to 51 with a mean score of 36.20 and a standard deviation of 12.36.

Nine hypotheses were established for the purpose of analysis of the data. For each hypothesis the inferential test used as well as the results of the findings are discussed.

H_1: School age children whose parents participated in preoperative play with them will exhibit less post-hospitalization anxiety than those who participated in the same game with a nurse.

H_2: School age children whose parents participated in preoperative play will have less post-hospitalization anxiety than those with no preoperative play.

H_3: School age children who participated in preoperative play with only a nurse will have less post-hospitalization anxiety than those with no preoperative play.

Data for Hypotheses 1, 2, and 3 were analyzed by means of a repeated measures analysis of variance (Table 10) and analysis of covariance.

The results of the data comparing the effect of preoperative play on post-hospitalization anxiety between the groups did not show a significant play main effect (F=4.89). However, the computed probability (p=.018) level when compared with the $p<.05$ desired level of significance indicated a significant interactive effect (Figure 1).

To determine where the differences were occurring, the Tukey HSD Test was used to evaluate the pairwise comparison among the means. Calculation of Tukey's HSD signified that in order to be statistically significant at a probability of $p<.05$, the difference between the pair of means had to be at least 1.02. Analysis of the data revealed that the mean difference between preoperative and posthospital drawing scores for Group B was significant at -1.57. The data revealed that for Group B the means for preoperative drawing scores were significantly lower than the means for the post operative drawing scores.

With analysis of covariance previous stress was eliminated and any change since the treatment was measured. Mean posthospital HFD scores for Group A were compared with Group C, mean scores for Group B were compared with Group C, and Group B was compared with Groups A and C. Group B

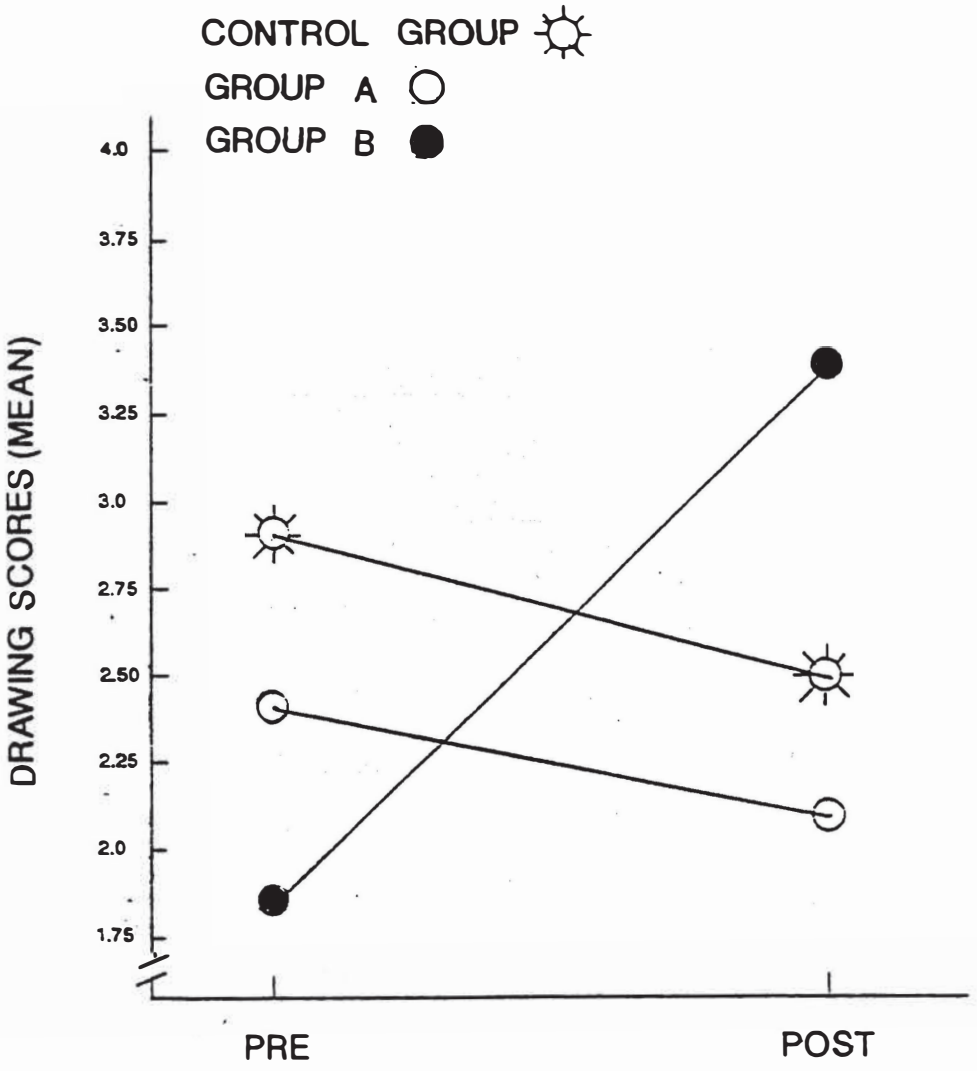

FIGURE 1

PRE & POST DRAWING SCORES

posthospital HFD scores were found to be significantly higher than the other groups at the $F=3.59$ ($p=0.046$).

Table 10

Two-Way Analysis of Variance of Pre and Post Drawing Scores Between Groups (N=24)

Source	SS	df	MS	F	p
Between Groups	1.541	2	0.77	0.21	0.820
Error	78.771	21	3.751		
Within Groups	1.016	1	1.017	1.08	0.310
Interaction	9.207	2	4.603	4.89	0.018*
Error	19.77	21	0.941		

$p<.05$

H4: Parents who participated in preoperative play with their child will exhibit less post-hospitalization anxiety than those who did not participate.

Two-way analysis of variance and one-way analysis of covariance of parental preoperative and posthospitalization STAI scores did not reveal a significant difference between

or within groups (Table 11 and 12). Hypothesis 4 was not supported.

H_5: The preoperative and post-hospitalization anxiety of the school age child will be related to the preoperative and post-hospitalization anxiety of the parent.

A Spearman rank correlation coefficient was calculated to measure the relationship between pre and post anxiety of the children and their parents. The results indicated that there was no significant relationship. Hypothesis 5 was not supported.

Table 11

Two-Way Analysis of Variance of Parental Pre and Post STAI-State Scores Between Groups (N=23)

Source	SS	df	MS	F	p
Between Groups	41.57	2	20.79	0.20	0.82
Error	2057.30	20	102.9		
Within Groups	166.2	1	166.2		
Interaction	115.9	2	57.9	0.76	0.48
Error	1530.7	20	76.5		

Table 12

Two-Way Analysis of Variance of Parental Pre and Post STAI-Trait Scores Between Groups (N=23)

Source	SS	df	MS	F	p
Between Groups	95.97	2	47.98	0.31	0.74
Error	3086.89	20	154.34		
Within Groups	13.26	1	13.26	0.55	0.47
Interaction	9.59	2	4.79	0.20	0.82
Error	484.32	20	24.22		

H_6: Age of the child and parent, grade in school, level of parents' education, annual family income, level of stress prior to admission and number in household will be related to the anxiety of the children.

H_7: Age of the child and parent, grade in school, level of parents' education, annual family income, level of stress prior to admission and number in household will be related to the anxiety of the parents.

A Spearman rank correlation coefficient was used to analyze Hypotheses 6 and 7. The results indicated a negative relationship between the preoperative anxiety scores of the

children and age and grade in school: r=-0.60 and r=-0.44 ($p<.05$). Scores on the SSC were negatively related to the income level of the family: r=-0.66. Preoperative trait scores of the parents and the education level of the father were found to be negatively related r=-0.46.

H_8: Anxiety scores of the children will vary according to previous hospitalization and/or surgery, parents' marital status, and who child lives with.

H_9: Anxiety scores of the parents will vary according to previous hospitalization and/or surgery, parents' marital status, and who child lives with.

One-way analysis of variance and two-tailed t-tests were used to test Hypotheses 8 and 9. There was no significant relationship between preoperative HFD scores of the children and previous surgery, marital status, and who child lives with. However, there was a significant relationship between the postoperative HFD scores and no previous surgery. There was no significant relationship in the preoperative STAI scores of the parents and previous hospitalization and/or surgery, parents' marital status, and who the child lives with.

Summary of Findings

Anxiety scores of children and their parents with regard to preoperative play were analyzed. Pre and posthospital

scores were evaluated to determine the effect of preoperative play on posthospital anxiety.

The statistical data did not support hypotheses 1 through 5 and 7. For hypothesis 2 an inverse relationship was found. Children who participated with their parents (Group B) had significantly higher posthospital anxiety scores than preoperative anxiety scores. In addition, Group B had significantly higher posthospital anxiety scores than the other two groups.

Hypotheses 6 and 8 were partially supported by the data. Posthospital anxiety scores were significantly higher in children with no history of prior surgery. There was an inverse relationship between children's age and grade in school and preoperative anxiety scores.

CHAPTER 5

SUMMARY OF STUDY

The purpose of this study was to investigate the effects of preoperative play on posthospital anxiety of school age children and their parents. Drawing scores and STAI scores for the three groups were the primary variables to which other variables were compared. The research hypotheses tested were:

H_1: School age children whose parents participated in preoperative play with them will exhibit less post-hospitalization anxiety than those who participated in the same play with a nurse.

H_2: School age children whose parents participated with them in preoperative play will have less post-hospitalization anxiety than those with no preoperative play.

H_3: School age children who participated in preoperative play with only a nurse will have less post-hospitalization anxiety than those with no preoperative play.

H_4: Parents who participated in preoperative play with their child will exhibit less

post-hospitalization anxiety than those who did not participate.

H_5: The preoperative and post-hospitalization anxiety of the school age child will be related to the preoperative and post-hospitalization anxiety of the parent.

H_6: Age of the child and parent, grade in school, annual family income, level of parents' education, level of stress prior to admission and number in household will be related to the anxiety of the children.

H_7: Age of the child and parent, grade in school, annual family income, level of parents' education, level of stress prior to admission and number in household will be related to the anxiety of the parents.

H_8: Anxiety scores of the children will vary according to previous hospitalization and/or surgery, marital status, and household members.

H_9: Anxiety scores of the parents will vary according to previous hospitalization and/or surgery, and household members.

Summary

An experimental three group before-after design was used for this study. A convenience sample of children admitted to the day surgery was randomly assigned to one of three groups. English speaking school age children who were accompanied by at least one parent were asked to participate in the study. All subjects who were approached agreed to participate in the study. From the 54 subjects which were included in the study, 24 (44%) completed and returned the post-hospital packet.

There were two experimental groups and a control group. Group A participated in preoperative structured play with the researcher as the parents observed. Group B participated in preoperative structured play with their parents. Group C was the control group and received no structured play. The board game, General Hospital, was designed for preoperative teaching and was the type of play used in this study.

The dependent variable, anxiety, was manifested by changes in the child's preoperative and post-hospitalization HFD scores and the parents' preoperative and post-hospitalization STAI scores. For analysis of data, descriptive and inferential statistics were used.

Discussion of Findings

The results of this study indicated that structured preoperative play did not significantly lower posthospital anxiety. The appropriate time span between discharge and posthospital followup has not been established. Various studies report followup from 1 week to 1 year. In this study, 4-6 weeks was selected for collection of posthospital data.

There were no significant differences between the preoperative and posthospital scores of children who played the game with the nurse or the group who played with their parent or the group who did not play at all. Therefore, hypotheses 1 through 5 were not supported in this study.

Consistent with this study, there were those researchers who have found that offering one intervention was not as effective in reducing anxiety as intended (McClowry, 1988). Cassell (1965) found puppet therapy to be effective during heart catheterization but not significant following the procedure or after hospitalization. Peterson and Shigetomi (1981) found filmed modeling (a method of meaningful rehearsal) less than optimal for reducing anxiety in hospitalized children.

Inconsistent with this study, there were those who reported significant effects with preoperative teaching interventions. Schulman (1965), Wolfer and Visintainer

(1975, 1979), Bielby (1984), Ogilvie (1990) and others have found that imparting accurate preoperative information to children and their parents serves to reduce stressors related to hospitalization and surgery. Meaningful rehearsal was another effective method of reducing stress in children hospitalized for surgery and their parents (Vernon, 1974; Melamed and Siegel, 1975; Bielby, 1984).

There was a significant interaction between preoperative and posthospital HFD scores for Group B. Posthospital HFD mean scores were significantly higher than preoperative scores. The data suggested that these children who had played the game with their parents were more anxious after hospitalization. Similar findings were reported by Burstein and Meichenbaum (1979). A low level of anxiety prior to hospitalization was associated with a higher level of anxiety following hospitalization. The children in their sample had a mean age of 7 years and were admitted overnight for minor surgery.

Hypotheses 6 through 9 were partially supported by this study. This study indicated that younger children had higher preoperative anxiety; but, no significant relationship was found between posthospital anxiety and age. The mean age for the sample was 7.63 years and the mean preoperative HFD score was 2.45. A HFD score of 2 or more was indicative of emotional upset. Melamed and Siegel

(1975) reported no significant differences with HFD scores. However, consistent with the findings in this study, the Children's Manifest Anxiety Scale revealed children under seven years of age have higher scores. In addition, younger females were reported to be more anxious after hospitalization than older females. Males of all ages reported less anxiety during hospitalization than females.

Past experience with the hospital is another significant factor influencing reactions to hospitalization and surgery (Vernon et al., 1966). In this study, 66.7% of the sample had been in the hospital before but 62.5% of the sample had never had surgery. Posthospital anxiety scores were significantly higher in children who had not had surgery before.

According to this study, children with a high level of stress prior to hospitalization were from lower income families. Forty-six percent of the children in this study were from families with incomes below $15,000 per year. Although the statistics were not significant, the sample mean for the SSC scores was 181. Fifty percent of the children in this sample had SSC scores above 150. A score between 150 to 300 suggests above average stress load. The fact that they were hospitalized automatically gave them a score of 62. Consistent with this study, McClowry (1988) concluded that families of hospitalized children have a

higher proportion of previous concurrent life stressors than comparison families whose children did not require hospitalization. Changes in family income and loss or changes of jobs are among the stressors listed on the SSC.

There was no significant relationship between parental anxiety and the children's posthospital anxiety in this study. Four (17%) of the parents scored above 50 on the preoperative STAI-State and 3 (13%) scored above 50 on the STAI-trait. Seventeen percent scored above 50 on the posthospital STAI-State and STAI-trait. The mean scores on each test were below 40. (Possible scores were 20-80.) These finding are inconsistent with several researchers, who reported parental anxiety is a factor affecting children's reaction to hospitalization and surgery (Langford, 1961; Mason, 1965; Mahaffy, 1965; Ogilvie, 1990; and Graves and Ware, 1990).

It is interesting to note that parental preoperative STAI-Trait scores were inversely related to the fathers' level of education. However, there were no significant relationships between childrens' level of anxiety and parents' education in this study. This finding is inconsistent with researchers who reported that parents' level of education is a factor that affects a child's reaction to hospitalization and surgery (Vernon et al., 1966).

Conclusions and Implications

Due to the small sample size in this study, the conclusions and implications cannot be generalized to the population. Based on the findings of this study, the following conclusions were made:

1. Children and their parents who participate in structured preoperative play do not exhibit less post-hospital anxiety than those with no preoperative play.
2. The preoperative and post-hospitalization anxiety of the school age child is not related to the preoperative and post-hospitalization anxiety level of the parent.
3. Children who have had previous surgery have lower post hospital anxiety than children who have never had surgery.
4. Anxiety levels of children and their parents do not vary according to parents' marital status and household members.
5. Age of the child and their grade in school are inversely related to the preoperative anxiety levels of the child.

6. Annual family income is inversely related to the level of stress the child experiences prior to admission.
7. Age of parent and total number in household are not related to the anxiety levels of the children.
8. The level of the father's education is inversely related to the preoperative anxiety levels of the parents.
9. Age of child and parent, grade in school, income, level of stress prior to admission, and family composition are not related to the anxiety level of the parents.

The conclusions of this study imply that providing a short time for structured preoperative play on the day of surgery does not decrease post-hospital anxiety for school age children and their parents. Day surgery may not be the appropriate time or place for preoperative structured play. In addition, more than one tool or method may need to be employed in order to mitigate the stressors of hospitalization and surgery.

Families with: lower income and less education, no previous experience with hospitalization and surgery and with high stress prior to admission may have increased anxiety posthospital. These patients and their families may benefit from the care that a primary nurse could provide

throughout all operative phases. In addition, tours conducted by child life specialists prior to the day of surgery may be helpful in decreasing the stressors of hospitalization for children and their parents.

Recommendations for Further Study

1. Replicate this study using a larger sample size to increase generalizability.
2. Replicate this study providing the play prior to the day of surgery. On the day of surgery there is limited time at best to provide preoperative preparation, establish rapport and encourage return of the posthospital packet.
3. Supportive activities should be provided for children and their parents in addition to the game. A single intervention prior to surgery may not be sufficient to mitigate stressors of hospitalization and surgery.
4. Differences between inhospital and day surgery patients need to be investigated. There is more time to establish rapport with inhospital patients and to provide appropriate assessments and intervention.
5. Differences between presence of mother versus father and the childrens' anxiety need to be investigated. In this study a relationship was found between fathers'

education and parents'anxiety. Since most of the parents in this study were mothers, perhaps outcomes would be different if fathers participated.

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Appendix A
Human Subjects Review Form
Texas Woman's University

TEXAS WOMAN'S UNIVERSITY
Box 23717 TWU Station
Denton, Texas 76204

HUMAN SUBJECTS REVIEW COMMITTEE

Name of Investigator: Donna J. Wofford Center: Houston

Address: Rt. 1 Box 79 Date: _____

Robstown, TX 78380

Dear Mrs. Wofford

Your study entitled EFFECTS OF PREOPERATIVE PLAY IN REDUCING POST-HOSPITAL ANXIETY OF SCHOOL AGE CHILDREN AND THEIR PARENTS

has been reviewed by a committee of the Human Subjects Review Committee and it appears to meet our requirements in regard to protection of the individual's rights.

Please be reminded that both the University and the Department of Health, Education, and Welfare regulations typically require that signatures indicating informed consent be obtained from all human subjects in your studies. These are to be filed with the Human Subjects Review Committee. Any exception to this requirement is noted below. Furthermore, according to DHEW regulations, another review by the Committee is required if your project changes.

Any special provisions pertaining to your study are noted below:

____Add to informed consent form: No medical service or compensation is provided to subjects by the University as a result of injury from participation in research.

____Add to informed consent form: I UNDERSTAND THAT THE RETURN OF MY QUESTIONNAIRE CONSTITUTES MY INFORMED CONSENT TO ACT AS A SUBJECT IN THIS RESEARCH.

____The filing of signatures of subjects with the Human Subjects Review Committee is not required.

____Other:

____No special provisions apply.

Sincerely,

Kevin R. Grauf

Chairman, Human Subjects Review Committee

at Houston 8-2-88

Appendix B
Agency Approval

October 1, 1991

Donna Wofford, MS RN
Rt. 1 Box 79
Robstown TX 78380

Dear Donna:

In response to your request of July 21, 1988 to conduct your research for dissertation at our institution, I am pleased to inform you that approval has been granted to proceed with your data collection. Your proposal has been discussed with and approved by both Mr. Allison and Dr. Brosnan.

If you need further assistance, please let me know.

Sincerely,

Judy Hayden R.N.

Judy Hayden, R.N.
Director of Risk Management

3533 South Alameda • P.O. Drawer 6530 • Corpus Christi, Texas 78466-6530 • Phone 512/850-5000

Appendix C
Standardized Introduction

VERBAL INTRODUCTION TO POTENTIAL SUBJECT AND PARENT

My name is Donna Wofford. I am a nurse working on a doctorate degree in nursing at Texas Woman's University in Houston. You are eligible to participate in my study of school age children who are having surgery at this hospital. I have a brief explanation of the study which I would like to read with you. (If the subject and parent indicate a desire to proceed. the researcher will sit down and read over the written consent forms with them.)

Appendix D
Informed Consent Forms

CONSENT TO ACT AS A SUBJECT FOR RESEARCH AND INVESTIGATION

I am willing to do the following:

1. Complete a one page information sheet about myself and my family after coming to the hospital.
2. Complete a Stress Scale for Children after coming to the hospital.
3. After coming to the hospital, draw a picture of a person. Donna Wofford will keep this picture.
4. Play a game or talk about surgery with the investigator before I go to surgery.
5. 4-6 weeks after I go home from the hospital, I will draw a second picture of a person. I will mail this picture to Donna Wofford.

I understand that playing the game or talking about surgery may increase my understanding about what is going to happen. I understand that this study will help nurses learn more about children in the hospital understand that no money will be given to me for this study. I understand that I have a choice to be part of this study or not to be part of this study. All of my questions about this study have been answered. I can call Donna Wofford at 886-1320 if I have any more questions.

_____ _____

Subject Date

_____ _____

Witness Date

CONSENT OF PARENT FOR CHILD TO ACT AS A SUBJECT
FOR RESEARCH AND INVESTIGATION

I hereby authorize Donna Wofford to perform the following procedure(s) or investigation(s):

UPON ADMISSION:

1. Request my child to draw a picture of a person which Donna Wofford will keep.
2. Request my child to complete the Stress Scale for Children.
3. Request me to complete the State-Trait Anxiety Inventory.
4. Play a game or talk with my child about going to surgery. This will take no more than 30 minutes.

AT OUR HOME IN 4-6 WEEKS:

1. Request me to complete a second State-Trait Anxiety Inventory.
2. Request me to complete a Posthospital Behavior Questionnaire.
3. Request my child to draw a picture of a person which Donna Wofford will keep.

I understand that the procedures or investigations described above involve the following possible risks or discomforts:

1. Playing a game or talking about surgery may or may not increase my child's awareness of what is going to happen.
2. There is the possiblity for embarassment by revealing self through drawings and questionnaires.

I understand that the procedures and investigations described above have the following indirect benefit to myself and/or others:

1. Participation may increase our knowledge of hospital routines and surgical procedures.
2. Participation in this study may assist in increasing nursing's knowledge about how to assist pediatric surgical patients.

I understand that no medical service or compensation is provided to subjects by Texas Woman's University as a result of injury from participation in this study. I understand that no compensation will be offered for participating in this study. I understand that our participation is strictly voluntary. I understand that I may terminate our participation in the study at any time and our care in the hospital will not be affected. An offer to answer all of our questions regarding the study has been made. I may contact Donna Wofford at 881-6320 if further information is needed.

_____ _____

Father/Mother Date

_____ _____

Witness (non-family member) Date

Appendix E
General Hospital Answer Sheet

GENERAL HOSPITAL
ANSWER SHEET

1. What is a thermometer used for?
ANSWER: An oral or rectal thermometer is used several times daily to measure your body temperature--a clue to your state of health.
2. You are having your tonsils removed (tonsillectomy). Point to the area on your body where they are located.
ANSWER: Point to throat area
4. What is a bedpan?
ANSWER: A bedpan is necessary to use when you cannot get out of bed to go to the bathroom.
5. Name this person. (picture of a doctor)
ANSWER: Doctor
6. You are having surgery tomorrow. The nurse says you will be NPO after supper. What does NPO mean?
ANSWER: Nothing by mouth (no more food opr liquids for you from the time specified until after operation)
7. Name this person. (picture of a nurse)
ANSWER: Nurse
8. What does the term "pre-op" mean?
ANSWER: Before surgery
9. What is an IV used for?
ANSWER: IV (intravenous)--feeds you or gives you blood through a vein.
10. What does O2 stand for?
ANSWER: Oxygen--may be given to aid breathing; commonly given through tubes in nose.
11. What is anesthesia in surgery used for?
ANSWER: to put you to sleep.
13. What are sutures?
ANSWER: Stitches used to sew up cut.
14. You are admitted for a tonsillectomy. What is a tonsillectomy?
ANSWER: The surgical removal of the tonsils.
15. What is this painless device used for? (picture of sphygmomanometer).
ANSWER: To measure your blood pressure.
16. Name one member of the health team you would expect to see in the hospital.
ANSWER: doctor, nurse, lab technician, nurse's aid, respiratory therapist, physical therapist, or x-ray technician.
17. What is this instrument used for? (picture of stethescope).
ANSWER: Used to listen to your chest (heart & lungs)
18. What is a needle and syringe used for? (picture of needle & syringe)
ANSWER: To inject medications and draw blood samples for testing.

Appendix F
Demographic Data Sheet

Demographic Data Sheet

Fill in the blank or circle the correct answer. This information will remain confidential.

Age____ Date of birth_____ Sex: Male Female

Cultural background:_____ _____
_

Citizenship: past _____

present _____

Grade in school: _____ Annual family income: _____
__

Mother's education:
1. 6-12 Years
2. Bachelors Degree
3. Masters Degree
4. Doctorate

Mother's age:
1. 20-29
2. 30-39
3. 40-49
4. 50-59

Father's education:
1. High School
2. Bachelors Degree
3. Masters Degree
4. Doctorate

Father's age:
1. 20-29
2. 30-39
3. 40-49
4. 50-59

My parents are:
1. married
2. separated
3. divorced

I live with:
1. both parents
2. father only
3. mother only
4. neither parent

Total number in household: _____

This is my first time to be in the hospital: Yes No

This is my first operation: Yes No

Appendix G
Stress Scale for Children

Stress Scale for Children*

Life events	Preschool age	Elementary school age
Beginning nursery school, first grade, or high school	42	46
Change to a different school	33	46
Birth or adoption of a brother or sister	50	50
Brother or sister leaving home	39	36
Hospitalization of a brother or sister	37	41
Death of a brother or sister	59	68
Change of father's occupation requiring increased absence from home	36	45
Loss of job by parent	23	38
Marital separation of parents	74	78
Divorce of parents	78	84
Hospitalization of a parent (serious illness)	51	56
Death of a parent	89	91
Death of a grandparent	30	38
Marriage of a parent to a stepparent	62	65
Jail sentence of a parent of 30 days or less	34	44
Jail sentence of a parent of 1 year or more	67	67
Addition of third adult to family (ie, grandparent)	39	41
Change in parents' financial status	21	29
Mother beginning to work	47	44
Decrease in number of arguments between parents	21	25
Increase in number of arguments between parents	44	51
Decrease in number of arguments with parents	22	27
Increase in number of arguments with parents	39	47
Discovery of being an adopted child	33	52

Life events	Preschool age	Elementary school age
Acquiring a visible deformity	52	69
Having a visible congenital deformity	39	60
Hospitalization of self (child)	59	62
Change in acceptance by peers	38	51
Outstanding personal achievement	23	53
Death of a close friend (child's friend)	38	53
Failure of a grade in school	—	57
Suspension from school	—	46
Pregnancy in unwed teen-age sister	—	36
Becoming involved with drugs or alcohol	—	61
Becoming a full-fledged member of a church or synagogue	—	25
Not being accepted into an extracurricular activity the child wanted to be involved in (ie. team, band)	—	—
Breaking up with a boyfriend or girlfriend	—	—
Beginning to date	—	—
Fathering an unwed pregnancy	—	—
Unwed pregnancy	—	—

*Different life events used

Appendix H
Emotional Indicators in Human Figure Drawings

SCORING MANUAL FOR 30 EMOTIONAL INDICATORS ON HFDs OF CHILDREN
(Koppitz, 1968)

QUALITY SIGNS

1. Poor integration of parts (Boys 7, Girls 6): One of more parts not joined to rest of figure, part only connected by a single line, or barely touching.
2. Shading of face: Deliberate shading of whole face or part of it, including "freckles", "measles", etc,; an even light shading of face and hands to represent skin is not scored.
3. Shading of body and/or limbs (Boys 9, Girls 6)
4. Shading of hands and/or neck (Boys 8, Girls 7)
5. Gross asymmetry of limbs: One arm or leg differs markedly in shape from the other arm or leg. This item is not scored if arms or legs are similar in shape but just a bit uneven in size.
6. Slanting figures: vertical axis of figure tilted by 15 degrees or more from the perpendicular.
7. Tiny figures: Figure two inches or less in height.
8. Big figure (Boys and Girls 8): Figure nine inches or more in height.
9. Transparencies: Transparencies involving major portions of body or limbs, single line or lines of arms crossing body not scored.

SPECIAL FEATURES

10. Tiny head: Height of head less than one-tenth of total figure.
11. Crossed eyes: Both eyes turned in or out; sideway glance of eyes not scored.
12. Teeth: Any representation of one or more teeth.
13. Short arms: Short stubs for arms, arms not long enough to reach waistline.
14. Long arms: Arms excessively long, arms long enough to reach below knee or where knee should be.
15. Arms clinging to body: No space between body and arms.
16. Big hands: Hands as big or bigger than face of figure.
17. Hands cut off: Arms with neither hands nor fingers; hands hidden behind back of figure or in pockets not scored.
18. Legs pressed together: Both legs touch with no space in between, in profile drawings only one leg is shown.
19. Genitals: Realistic or unmistakably symbolic representation of genitals.
20. Monster or grotesque figure: Figure representing non-human, degraded, or ridiculous person; the grotesqueness

of figure must be deliberate on part of the child and no the result of his immaturity or lack of drawing skill.

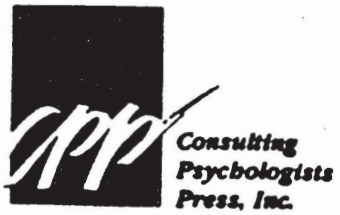
21. Three or more figures spontaneously drawn: Several figures shown who are not interrelated or engaged in meaningful activity; repeated drawing of figures when only "a" figure was requested; drawing of a boy and a girl or the child's family is not scored.
22. Clouds: Any presentation of cloud, rain, snow,or flying birds

Omissions

23. No eyes: Complete absence of eyes; closed eyes or vacant circles for eyes are not scored.
24. No nose: (Boys 6, Girls 5)
25. No mouth
26. No body
27. No arms: (Boys 6, Girls 5)
28. No legs
29. No feet: (Boys 9, Girls 7)
30. No neck: (Boys 10, Girls)

All Emotional Indicators are considered valid for boys and girls age 5-12 unless otherwise indicated. Each item which is present in the human figure drawing is given a score of +1 while absent items are scored as 0. Two or more Emotional indicators on a human figure drawing are highly suggestive of emotional problems and unsatisfactory personal relationships.

Appendix I
State-Trait Anxiety Inventory



SAMPLE ITEMS FOR THE

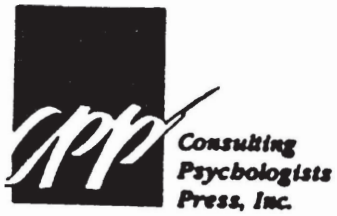
STATE-TRAIT ANXIETY INVENTORY

FORM Y-1

by Charles D. Spielberger, R.L. Gorsuch, R. Lushene, P.R. Vagg, and G.A. Jacobs

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

Anxiety Present	not at all	somewhat	moderately so	very much so
I am tense.	1	2	3	4
Anxiety Absent				
I feel calm.	1	2	3	4
I feel secure.	1	2	3	4



SAMPLE ITEMS FOR THE

STATE-TRAIT ANXIETY INVENTORY

FORM Y-2

by Charles D. Spielberger, R.L. Gorsuch, R. Lushene, P.R. Vagg, and G.A. Jacobs

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

Anxiety Present	not at all	somewhat	moderately so	very much so
I feel nervous and restless.	1	2	3	4
Anxiety Absent				
I feel pleasant.	1	2	3	4
I feel satisfied with myself.	1	2	3	4

Appendix J
Post-Hospital Behavior Questionnaire

POSTHOSPITAL QUESTIONNAIRE

INSTRUCTIONS: Please circle the number beside each item that best describes your child's behavior since being discharged from the hospital.

	much less than before	less than before	same as before	more than before	much more than before
1. Does your child seem to be afraid of leaving the house with you?	1	2	3	4	5
2. Is your child uninterrested in what goes on around him/her?	1	2	3	4	5
3. Does your child bite his/her finger nails?	1	2	3	4	5
4. Does your child seem to avoid or be afraid of new things?	1	2	3	4	5
5. Does your child have difficulty making up his/her mind?	1	2	3	4	5
6. Is your child irregular in his/her bowel movements?	1	2	3	4	5
7. Does your child suck his/her fingers or thumb?	1	2	3	4	5
8. Does your child get upset when you leave him/her alone for a few minutes?	1	2	3	4	5
9. Does your child seem to get upset when someone mentions doctors or hospitals?	1	2	3	4	5
10. Does your child follow you everywhere around the house?	1	2	3	4	5
11. Does your child spend time trying to get or hold your attention?	1	2	3	4	5

12. Does your child have bad dreams at night or wake up and cry?	1	2	3		5
13. Does your child make a fuss about going to bed at night?	1	2	3	4	5
14. Is your child afraid of the dark?	1	2	3	4	5
15. Does your have trouble getting to sleep at night?	1	2	3	4	5
16. Does your make a fuss about eating?	1	2	3	4	5
17. Does your child spend time just sitting or lying and doing nothing?	1	2	3	4	5
18. Does your child have a poor appetite?	1	2	3	4	5
19. Does your child have temper tantrums?	1	2	3	4	5
20. Does your child tend to disobey you?	1	2	3	4	5
21. Does your child wet the bed at night?	1	2	3	4	5
22. Does your child need a lot of help doing things?	1	2	3	4	5
23. Is it difficult to get your child interested in doing things (like playing games, with toys, and so on)?	1	2	3	4	5
24. Is it difficult to get your child to talk to you?	1	2	3	4	5
25. Does your child seem to be shy or afraid around strangers?	1	2	3	4	5
26. Does your child break toys or other objects?	1	2	3	4	5

Appendix K
Author's Permission to Use Instruments

A L L Y N & B A C O N

Simon & Schuster Education Group
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617-433-1250
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August 13, 1991

Donna J. Wofford
Rte. 1 Box 79
Robstown, TX 78380

Dear Ms. Wofford:

Thank you for your letter of July 19, 1991. We will be happy to grant you permission to use Table 13, p. 41; Table 14, p. 42; Table 15, p. 45; Table 16, p. 48; Table 17, p. 50; and Table 18, p. 53, from PSYCHOLOGICAL EVALUATION OF CHILDREN'S HUMAN FIGURE DRAWINGS by Koppitz to be included in your unpublished dissertation for Texas Woman's University, Houston, provided proper credit is given.

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Barbara Tsantinis
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BT/sh

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Permission Specialist

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