EFFECTS OF STRUCTURED GROUP TEACHING UPON POSTOPERATIVE RESPONSES IN PEDIATRIC PATIENTS WITH ELECTIVE SURGERY

by

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CHAPTER I

INTRODUCTION

For over thirty years hospitalization has been documented as an invariably stressful event for children. It produces a variety of immediate and long-term responses which are primarily negative. The hospital experience has been modified, in response to an increased awareness of the emotional needs of children in combination with consumer pressures.

While the hospital experience may be viewed as a stressor, other factors also directly affect the child's response to the hospital experience. These factors include developmental level, family relationships and preparation for hospitalization. The age of the child and the family relationships are predetermined factors which guide the nurse in planning care, while preparation for the hospital experience is a variable which can be manipulated, in an effort to reduce the anxious and fearful responses produced in the child.

Many approaches have been used to prepare the child for hospitalization with the ultimate goal of eliminating psychologic trauma and providing a beneficial and constructive experience. Recent studies have endeavored to quantify measurement of children's responses in order to compare the effectiveness of various programs.

Hospitalization can be conceptualized as the stimulus or stressor affecting the child which produces an observable

response. Preparation for the hospitalization is an independent variable which can be manipulated in order to alter the child's response to the hospital experience.

The purpose of this study is to evaluate the effects of a preoperative teaching program upon self-report of fear and postoperative behavioral responses of children having elective ear, nose and throat surgery. In addition, the study will look for relationships between children's in-hospital and post-hospital blood pressure and pulse rates, to post-hospital behaviors and self-report of fear.

Review of the Literature

The literature review includes a discussion of hospitalization as a stressor and examines the child's age and family relationships as factors which affect the child's response to hospitalization. The review considers methods of preparation which have been used to modify hospitalization as a stressor for children. It then compares the various measures used to evaluate the effectiveness of these hospital preparation programs in altering children's responses to the hospital experience.

The Hospital Experience

It is estimated that over 3½ million children under the age of 15 are hospitalized annually in the United States and each hospitalization carries the potential of adverse psychological effects, particularly for the preschool child (Prugh & Jordan, 1975). Not only are preschool children more vulnerable to the impact of hospitalization but there is evidence that single and repeated admissions of pediatric patients under the age of five are occurring more frequently than 25 years ago, thus the potential for this problem of adverse effects may be increasing. Increased difficulties are encountered if the child is admitted to the hospital three or more times, particularly before the age of five years (Douglas, 1975).

Manipulation of the hospital environment for the purpose of decreasing negative responses was the purpose of an early

exploratory study in which 100 children were matched for age, sex and diagnosis. Prugh (1953) altered the traditional ward management routines by introducing liberal visiting hours, encouraging parental involvement in care and providing psychological preparation and support for treatment and procedures. Ward Conferences were initiated to discuss the care of children among the staff. In evaluating the traditional with the modified approach, he found only minimal reactions to hospitalization in children in the experimental condition as compared with considerably greater numbers of severe reactions to hospitalization in the control group.

Manifestations of anxieties interfering with the child's adjustment longer than three months following discharge were considered to be severe, and mild transient disturbances occurring largely in-hospital were considered to be mild. Prugh also found that some children who appeared to adjust well in the hospital exhibited rather severe behavioral disturbances after discharge. Ten percent of the children in the experimental condition actually showed improved behavior following their hospital experience which suggested that when new experiences were coped with successfully by the child and family, positive growth could occur.

Increased awareness of emotional needs of children and consumer pressures have been a major cause of changes in pedi-

atric care (Shrader, 1979; Mason, 1978). Hospital changes now include expanded or open visiting hours, encouragement of rooming-in, better preparation of the child and parent prior to hospitalization, and education of personnel to increase understanding of and effectiveness in meeting children's special needs (Hardgrove & Dawson, 1972; Petrillo, 1980; Plank, 1971; Robertson, 1958 & 1965; Wallinga, 1978). A recent survey of all nonchronic care pediatric hospitals in the United States revealed that the majority or 70% of these hospitals offer pre-admission preparation to both the parent and child (Peterson & Ridley-Johnson, 1980). Current goals of pediatric care include not only decreasing trauma but providing a positive experience in which the child achieves a sense of mastery (Petrillo, 1980).

Despite improvements in pediatric care, however, observeable distress responses to hospitalization are often evidenced by crying, whining, screaming, clinging, altered eating and sleeping patterns and struggling against medications or treatments. Sadness, withdrawal, regression and compulsive or destructive actions are also seen (Gellert, 1958; Robertson, 1976). Classical responses on the part of the young child who is hospitalizaed may include the protest-despair-denial stages as formulated and described by Bowlby and Robertson.

While immediate responses to hospitalization are signifi-

cant, it is equally important to examine the varied and long-term effects of hospitalization which are manifested in behavioral and developmental changes (Bowlby, 1973; Douglas, 1975; Prugh, 1953; Quinton & Rutter, 1976; Robertson, 1958; Vernon, 1966).

The condition for which the child is admitted is important to consider since the severity of the illness may be associated with more painful or frightening procedures and increased concern and anxiety on the part of parent and child. Early studies cited from the 1940's indicated a possible relationship between operative experiences in childhood and subsequent emotional problems (Jessner, Blom & Waldfogel, 1952). Surgical intervention involving anesthesia appeared to increase the risk of later post-hospital upset and children with tonsillectomies were more likely to show deteriorated behaviors than children with other "minor" surgical procedures (Douglas, 1975). For children of all ages, injections were high-level stressors with venipuncture the single most distressing event for most children (Burling & Collipp, 1969). Intrusive procedures are sometimes viewed by a child as punishment or hostile attacks (Blom, 1958; Rae, 1981).

Hospitalization places additional demands upon a child at a time when injury or illness frequently challenge the child's coping abilities. This discrepancy between the demands and the potential to meet the demand result in stress

(Menke, 1981). One's habitual response to stress may be largely determined by childhood experiences, however mastery of stress is not necessarily related to a particular type of reaction (Funkenstein, King & Drolette, 1957). According to Jessner (1952), the child's inner preparedness may be defined as the extent to which the child has been able to master anxiety and cope with impending danger and the most vulnerable child seems to be one that is highly dependent upon the mother or one who is under stress at the time of hospital admission (Douglas, 1975). Although stress actually refers to the nonspecific response of the body to any demand made upon it, damaging or unpleasant stressors resulting in distress are generally implied by the term stress (Selye, 1974). In this study, hospitalization, for the purpose of elective surgery, as a perceived danger or threat is the specific stress(or) which produces a (distress) response in the child.

Developmental Age

In order to minimize adverse effects and decrease distress responses to hospitalization it is important to consider the developmental age and family relationships since these directly relate to the individual child's vulnerability profile (Bowlby, 1973; Robertson, 1958; Vernon, 1965, Visintainer & Wolfer, 1975 & 1979). Knowledge of growth and development by hospital personnel is fundamental to providing an optimal hospital experience since the child's

developmental level significantly affects not only physical growth, but communication, emotional and intellectual processes (Castledine, 1979; Prugh & Jordan, 1975; Petrillo, 1980).

For the first four years a child tends to think in a symbolic manner in which a mental image, word or object may represent another unrelated item. The child engages in a type of magical thinking in which illness may be viewed as the result of human action and language is distorted to fit the child's mental structure. Reasoning is faulty in relation to previous experiences, with the child reasoning from one particular event to another particular event which may be totally unrelated. Concepts are at times too generalized or too specific. For example the same person may be perceived as someone else if in another dress, or all gardens may be considered the same garden (Peters, 1978; Piaget from Ginsberg & Opper. 1959). As the child age four to seven progresses into the intuitive stage, prelogical reasoning is utilized but the child usually can concentrate on only one part or characteristic at a time, with those under five unlikely to perceive the sequence of events. Fantasy continues to play a large part in the child's world, with factual communication becoming more important than fantasy about age seven (Chapman, Loeb & Gibbons, 1956; Ginsberg and Opper. 1969).

Children's concepts of body structure and function are

often inadequate or distorted. In Gellert's study done in 1962 with 96 children ages 9 months to 16 years, the subjects had widely varying interpretations of what was "inside" their bodies. Younger children thought more of their body parts such as hair, were indispensable, and young subjects frequently thought their skin kept everything in or together. Lungs were rarely listed below age nine and often mislocated. There was a progressive increase in the number of body parts spontaneously included on the anatomical outlines with increasing age, with a sharp rise in number of body parts included at age nine. The most frequently listed parts included bones, blood, and blood vessels with heart, brains and eyes usually included. However, body parts tended to be inappropriate in size and location and it was implied by some children that individuals varied in what their bodies contained.

The young child lacks comprehension of an illness and its treatment, is lacking in time sense and possesses only transient ability for reality testing. In addition, achievment of autonomy and initiative are hampered by the enforced dependency of hospitalization and regression frequently results (Blom, 1958; Chapman, Loeb & Gibbons, 1956; Eckhardt & Prugh, 1975; Rae, 1981; Wilkinson, 1978). The younger the child the more alarming the hospital situation will seem. The child may view the hospital as a foreign country where patterns of living are disrupted and enforced depen-

ency interferes with normal growth and development (Gellert, 1958).

Because children lack inner resources to maintain emotional or behavioral control when confronted with overwhelming fear, anxiety or pain, they may respond with maladaptive or damaging coping and defenses against their fears (Rae, 1981). The fears a child experiences are very age-specific, and the focus of anxiety shifts with age. While the toddler is most threatened by separation anxiety, the preschooler is not only fearful of being abandoned but fears body mutilation and is preoccupied with body intactness. Minor procedures arouse intense fears, especially in relation to head, eyes or genitalia (Eckhardt & Prugh, 1978). There is also a tendency to fantasize about death and annihilation, and the extent of surgery may not be as important as the fact of interference with the child's body (Robertson, 1958).

An added fear for the school age child is loss of control, especially in relation to anesthesia and the fear of possibly not awakening (Jessner, Blom & Waldfogel, 1952; Prugh, 1965).

Family Relationships

The greatest cause of distress for young children however, is neither the illness or pain inflicted so much as it is the separation from the mother, according to Robertson (1965). In his classic 1951 movie, "A Two-Year-Old Goes To The Hospital", he clearly portrayed the distress of a young child in

the hospital that has since then resulted in extensive changes in pediatric practices.

Studies prior to 1965 clearly documented that children from six months to three or four years of age are most likely to manifest psychological upset following hospitalization (Bowlby, 1972; Robertson, 1958; Vernon, 1965). During this age period, verbal explanations are not well understood, separation effects are maximal and nothing is an effective substitute for the mother, upon whom the child is emotionally dependent (Bowlby, 1972; Oremland, 1972; Robinson & Clarke, 1980; Robertson, 1977). Bowlby maintained that three critical phases for developing human relations occur: in infancy, from six months through three years, and from four to five years. After five years, the child can adjust more satisfactorily to hospitalization providing the separation is not sudden or without preparation (Robinson & Clarke, 1980).

Fagin, (1966), documented the importance of maternal attendance in her study of children ages one through three. The attitude of the mother appeared of lesser importance than thatshe simply be in attendance. Fagin's study raised some challenges to previously held assumptions that some mothers would do harm to the child if allowed to remain in hospital and that mothers wishing to remain with their child were those most likely to wish to keep their child dependent (Fagin, 1966). Another researcher has

replicated her study and confirmed her findings (McGillicuddy, 1976). Robertson (1958), also concluded that an anxious mother was better than none.

Separation from home and family is frequently mentioned as a source of upset in hospitalized children and may persist after discharge. Maintaining family relationships is of utmost importance and has received major emphasis in progressive hospitals with a variety of methods encouraging parental participation in care. It has been demonstrated that parental involvement has benefits for the child, the parent, and the staff, both in-hospital and after discharge.

A child may feel abandoned when hospitalized and can benefit from the extra time and attention provided by the family member. Significant others help the child ward off feelings of helplessness and loneliness as well as in maintaining a sense of normalcy (Crocker, 1980). In a research study conducted in a pediatric setting with children under five years of age, actual companionship provided by staff other than contact for care and treatment was shown to be less than 20 minutes in a 24-hour period (Hardgrove & Dawson, 1972).

If family ties are not maintained, parents may unconsciously withdraw emotionally, leaving the child feeling even more deserted. The child may then find it difficult upon discharge to re-establish his former relationships with parents and siblings, which contributes to further dis-

ruption in the family unit (Rae, 1981).

Family equilibrium, disrupted by illness, may progress to a crisis situation for the family (Goslin, 1978). Parents may feel guilty and blame themselves for the child's illness and their inability to protect the child from pain or hospitalization. They may feel their rightful role has been usurped by strangers, and the child, in turn, may be confused by the parents' apparent lack of authority (Hardgrove & Dawson, 1972). By involving parents in the care of their child, the nurse can assist parents to gain increased self-confidence in their ability to cope with the child's illness, and to develop additional parenting skills.

Staff benefits related to parental involvement include enhanced opportunities for parent and patient teaching and opportunities to evaluate parent-child interactions. The nurse can learn from the parent those methods used at home that are particularly effective with their child and additional time to work with children whose parents are unable to be in attendance becomes available to the nurse.

Methods To Improve Responses To Hospitalization

Attempts to provide effective intervention for children to decrease negative responses to the hospital experiences have included a variety of approaches and techniques. Most often the emphasis has been upon providing explanation at the time of admission to the hospital and supportive care

thereafter. Hospitalization, as a specific stressor, can be modified by substituting knowledge and comprehension for fear and ignorance. The format, timing and approach to preparation should be adapted to the age and needs of the specific child and parent. Consideration also should be given to the possible need for more than one explanation and an opportunity for debriefing or talking about the experience afterwards to clarify misconceptions (Plank, 1972).

A child who has not been prepared for hospitalization may not be frightened initially, but later reactions can be severe and the value of preparation may not become evident until later (Ferguson, 1979; Goslin, 1978).

While patient teaching is advocated and expected, the systematic and consistent practice of patient teaching frequently does not occur in a busy hospital setting (Healy, 1968; Lindeman, 1972; Mezannotte, 1970). Moreover, it is not always clear what kind of teaching or preparation is actually most effective in decreasing children's negative responses to hospitalization. In addition to verbal explanation and information, opportunity to practice or rehearse the future event and pre-admission programs using tours and audiovisual aids have been provided. Activities to aid in rehearsal have included role play, puppets, storytelling and various types of play therapy. Types of preparation using individual and combined approaches have focused upon parental preparation, child preparation or parent-child

preparation. Since 1968, studies have been attempted which would quantify results and facilitate replication (Goslin, 1978).

Parental Preparation

Some early studies indicated that parental explanations may be incomplete or may create misconceptions when the responsibility of preparing the child for surgery is assigned to the parent (Jessner, Blom & Waldfogel, 1952). In addition, in a recent study involving 18 subjects, a significant correlation was found between preschoolers and parental anxiety levels. The mothers' anxiety was measured with Spielberger's State Anxiety Inventory and correlated with the urinary excretion levels of 17-hydroxycorticosteroid (17-OHCS). Mothers' urinary excretion rates of 17-OHCS also showed significant correlation with their children's excretion levels of 17-OHCS (Vardaro, 1978).

Two days before admission to the hospital, the State Anxiety Inventory was administered to the mother and the 24-hour urine collections explained. The morning of admission a second home visit was made and both urine samples were obtained. Since the children had no previous hospital experience nor prehospital preparation, anxiety levels of the children were presumed to relate to parental anxiety. Mothers in the study were found not to differ from the general population in distribution by low-medium-high anxiety levels.

Parental preparation was the main focus of two studies conducted by Mahaffy (1965) and Skipper & Leonard (1968) who felt that if parental anxiety was decreased the child's negative response to hospitalization would also decrease. Mahaffy randomly selected 43 children, ages 3-10, who were undergoing surgery for tonsillectomy and adenoidectomy and who had no previous hospital experience. He compared the responses of 21 children whose parents were given information and encouraged to stay with their child, to 22 children who received routine care. For the 21 children in the experimental condition where emphasis was placed upon reducing parental anxiety, positive outcomes of statistical significance were reported. Measures taken included vital signs, fluid intake, time to first voiding, amount of vomiting and post-hospital behavior. Recovery time and need for medical consultation after discharge were also evaluated.

A later field experiment conducted by Skipper and Leonard (1968) also emphasized providing information to the mother. Children ages 3-9 admitted for tonsillectomies were divided into two experimental groups. Group I, numbering 24 children and parents with an equal number of controls, were met by the special nurse at the time of admission and at four other times throughout the hospital stay. Group II, consisted of 16 child-parent dyads, who were met by the special nurse at the time of admission only.

Response outcomes were evaluated using vital signs, fluid intake, time to first voiding, amount of emesis, complications, recovery times and childrens' behaviors. Statistically significant positive treatment effects were reported for Group I and Group II and mothers in these two groups reportedly were less anxious and more confident in assisting with their child's care. It would appear that decreasing parental anxiety directly affects the child's anxiety in a positive manner.

Patient Preparation

In consideration of children's developmental levels and the difficulty with comprehension of verbal explanations, innovative approaches have been utilized. Three recent studies focused upon preparation of the child using audio-visual aids.

In the first study information including a description of the sensations to be encountered was shown to be more effective in decreasing distress than information which simply described the procedure to be carried out. In an experiment designed to help children realistically anticipate an event, Johnson, Kirchoff and Endress (1975) used two different tapes for 84 school-age children undergoing cast removal. One tape described the procedure of cast removal and the second described the sensations which would be encountered including the sound of the cast cutter and the appearance of the extremity when the cast was

removed. Pulse rates, observation of distress and children's self-report of fear were compared for each of the two groups listening to the tapes and both were compared to a control group.

Two other studies used filmed modeling in an effort to reduce negative emotional responses in hospitalized children. These studies claimed positive outcomes for children who viewed a film portraying children using successful coping behaviors during the hospitalization and surgical experience.

Melamed and Siegal (1975) matched 60 children, aged 4-12, who were admitted for tonsillectomies, hernias or genito-urinary conditions. These children were shown either the movie,"Ethan Has An Operation" or an unrelated film of equal interest and length. The children were assessed using several anxiety measurement scales, observer ratings and physiologic measures including galvanic skin response, heart rate and palmar sweat index. Measures were taken prior to and following the film, prior to surgery and three to four weeks post-discharge when the child returned for follow-up appointment with the physician. Mothers rated their own and their child's anxiety level on admission and post-discharge. There were statistically significant positive outcomes from the treatment effect for children viewing the filmed modeling movie and a significant increase in behavioral problems identified in the control group

who viewed the alternate movie. All children, including the control group, received pre-operative preparation by the staff including pictures and demonstration and a visit and explanation by the anesthesiologist. This audiovisual approach did appear to make a significant impact upon children's responses to hospitalization and surgery when used in addition to the regularly scheduled preoperative preparation.

A second study compared filmed modeling with pre-admission preparation and examined the effects of the two approaches used singly and in combination. One group had a preadmission visit, a second group viewed the peer modeling movie, a third group had both the preadmission visit and viewed the movie, while the control group viewed an alternate movie and did not have the preadmission visit. Subjects consisted of 82 children aged 3-7 undergoing elective tonsillectomy. The movie, "Yolanda and David Have Their Tonsils Out" was shown. During the preadmission home visit by the nurse, various hospital forms were completed, hospital policies and routines were explained and a description of what to anticipate was given. All subjects were met by the nurse at the hospital and escorted through the admission process, which took 15 minutes for the pre-admitted patients and an hour for those without the pre-admission visit.

Hospital responses were evaluated by repeated measures of the child's adjustment using self-report of anxiety, electromyographic (EMG) measures of muscle tension in the trapezius muscle and behavioral ratings. Post-hospital adjustment was evaluated with Vernon's Post Hospital Behavior Inventory and maternal satisfaction with care and information was obtained through questionnaire.

Undesirable behaviors were significantly decreased on Vernon's Post Hospital Behavior Inventory for all children viewing the modeling film. Preschoolers had the lowest degree of upset scores in the hospital-admitted filmed modeling-group whereas six and seven-year-olds in the preadmitted, filmed modeling groups were less upset. Only for the six and seven-year-old chilren was the combination of pre-admission and filmed modeling stronger than the movie used alone in reducing negative responses to hospitalization.

Mothers in all treatment conditions scored higher on psychological well-being with mothers who had preadmission visits scoring significantly higher in levels of satisfaction with care and information. Children in the filmed modeling groups scored lower on EMG muscle tension which was monitored during administration of the Hospital Fears Rating Scale. A mean and variance score on the range between resting and high scores was completed, rather than computing EMG scores at different times which involves replacement of electrodes. Observer ratings did not show any significant difference

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except that subjects viewing the peer-modeling film scored lower at the time of the post-operative measure. Results showed correlation between children's self-reported anxiety and physiologic responses but not to behavioral ratings given during hospitalization.

This study lends support to the value placed upon accurate preknowledge in reducing hospital related anxiety for children and their mothers and further illustrates that observed behaviors frequently do not correlate with self-report and physiologic measures.

Parent-Child Preparation

Rather than focusing upon parent or child, a combined approach was used in a series of studies which treated the parent and child as a unit. Visintainer and Wolfer (1975, 1979) conducted three studies combining information and rehearsal techniques with a variety of nursing interventions. They evaluated these interventions using a variety of measures to determine which were most effective in reducing emotional distress and promoting positive adjustment to hospitalization.

In the first study, 30 children aged 3-14 who were undergoing surgery for tonsillectomies, adenoidectomies, myringotomy, and polyethylene tubes (P.E. Tubes) as well as hernia operations were selected. Random assignment was made to an experimental or control group. The experimental condition pro-

vided information including description of sensations to be encountered and play techniques were used for rehearsal with preschool-age children. Preparation was provided at six specific stress times. These six times were at the time of admission, prior to laboratory work, the afternoon before surgery and upon return from recovery room. Expected coping behaviors were identified by the child and nurse and rehearsed prior to each event.

Before being seen by the nurse researcher, the children and parents were rated on the Manifest Upset Scale and the Cooperation Scale by an independent observer to assure that there was no significant difference between groups. Observer ratings were taken at the time of blood tests, preop medication administration, transport to surgery and anesthetic induction. Additional measures included amount of medication given in recovery room, ease of fluid intake, and time to first voiding. Children's post-hospital adjustment was evaluated using Vernon's Inventory, and the mother's self-rating of anxiety and satisfaction with care and information was obtained by questionnaire. The research nurse was on the unit six days a week from 7 a.m. to 4 p.m. She assisted in direct care and support of children, other than those in the study, in the capacity of a clinical specialist so that care of the experimental group of patients was an integrated part of her role.

Outcomes for children in the experimental condition indicated less upset and more cooperation, significantly lower pulse rates following blood tests, greater ease of fluid intake, voiding sooner post-surgery and lower upset scores on the post-hospital behavioral test. Parental scores indicated less anxiety and greater satisfaction with care and information in the prepared group.

In second study of 84 children aged 3-12 having similar surgical procedures, an attempt was made to separate the effect of nurse-patient interaction from the process of information and preparation (Visintainer & Wolfer, 1975). A four-group experimental design included one group which received stress point preparation (SPP) at the six stress points. A second group received single session preparation (SSP) including the same information and rehearsal techniques but in a single 45-minute session upon admission. The third group had the same nurse present at each of the stress points but without advance information or rehearsal and was designated the consistent supportive care group (CSC).

The same measurement tools and protocol were utilized as for the first study in evaluating children's responses to hospitalization. Stress Point Preparation resulted in children with less upset, more cooperation, and parents with decreased anxiety and more satisfaction. On seven of the eleven outcomes SPP produced statistically significant

positive treatment effects, but on only two measures, pre-operative medication and fluid intake, were scores significantly better than the single session preparation. Younger children were generally less cooperative and more upset in all groups with differences most pronounced in the control and consistent supportive care groups.

Experiment three introduced the use of home preparation materials which included a booklet for the parent and one for the child, as well as a kit with materials which enabled the parent and child to rehearse the event prior to admission.

A five-group experimental design with modified random assignment was used, in which the home preparation materials were used alone for Group I, stress point preparation was used for Group II, home preparation was combined with stress point preparation for Group III, and with consistent supportive care for Group IV. Routine hospital care was given to Group V. Essentially the same measures and methods were used as in the second study. Stress point preparation again proved most effective and was more effective than the combined use of home preparation and stress point preparation. Home preparation alone was significantly better than no preparation in improving children's post-hospital behavioral responses, but did not increase parent satisfaction or decrease parental anxiety. It appeared that written materials served as a good adjunctive method but was not effective in meeting parents'

needs for information and reassurance when used alone (Wolfer & Visintainer, 1979).

It would appear that appropriate preparation for hospitalization does reduce anxiety levels and degree of upset for both parent and child. Preschool children consistently responded with more upset to hospitalization and appeared to benefit more in response to filmed modeling or rehearsal techniques; schoolage children also benefited positively from verbal explanation, instruction and information.

Measuring Responses To Hospitalization

In assessing children's reaction to hospitalization, a multidimensional approach has been used in recent studies in order to more accurately reflect the child's total response. Measurement of response to a stressor is generally arrived at in one of three ways. Outward motoric behavior may be observed, subjective data may be obtained through interview, self-report and questionnaire, or physiologic arousal may be measured by use of various instrumentation (Ferguson, 1979; Knight, 1979; Lindeman, 1972; Mahaffy, 1965; Melamed & Siegal, 1975; Johnson, Kirchoff & Endress, 1975; Skipper & Leonard, 1968; Visintainer & Wolfer, 1975; Wolfer & Visintainer, 1979).

Data obtained from observation, subjective self-report and physiologic measurements often do not correlate well with each other (Borkovec, Weerts & Bernstein, 1977).

There tends to be general lack of correlation even among different measures of physiologic reactivity to stress within the same individual (Lewinsohn, 1956).

It is important, therefore, to examine the various measuring tools in order to select those which appear to offer the most reliability and which can be quantified for purposes of comparison.

Observer Rating

Although observer rating has been used in almost every major study, observational tools have two distinct disadvantages. The first is related to the task of achieving interrater reliability and relying on other persons for assessment of behaviors. The second weakness is that children's overt behavior may not be an accurate indicator of distress levels. Information given regarding anticipated hospitalization procedures may produce anxiety initially and the prepared child may appear more anxious than the unprepared patient, even though post-hospital sequelae for the prepared child tend to be less (Hardgrove & Dawson, 1972; Oremland & Oremland, 1972).

Lack of anxiety has been referred to as a negative sign since acknowledgement of fear and expression of anxiety in play may aid the child in assimilation and mastery. Denial does not allow the child to process the information and achieve mastery, nor does stress always produce distress, depending upon how the event is perceived, interpreted,

fantasized, and defended against (Janis, 1958; Jessner, Blom & Waldfogel, 1952; Knight, 1979).

Observer ratings of upset frequently do not correlate with actual physiologic responses. For example, on Ferguson's 1979 study, electromyographic measurements of muscle tension and children's self-report of fear did not correspond with the observer ratings of children's outward motoric behavior. Measurements of 17-hydroxycorticosteroid levels (17 OHCS) in 24-hour urine samples of 11 children having open-heart surgery showed no difference in values for children rated as overtly anxious and less anxious children. Observer ratings for these children were done by a child psychiatrist and a pediatric nurse specialist (Barnes, 1972). Some studies indicate that psychologic and physiologic response to stressors may not be uniform for all subjects. How the individual perceives and copes with the stressor may in fact, determine how distressing the situation becomes. A child who appears more anxious initially may actually have a more positive final outcome.

In a study of 25 children ages 7-11 coping styles were compared with 24-hour urine cortisol production rates. An inverse relationship was found between the effectiveness of coping with the hospitalization and the cortisol production rate (Knight, Atkins, Eagle, Evans, Finkelstein, Fukushima, Katz & Weiner, 1979).

The children were hospitalized for a variety of minor elective surgical conditions, and measures were taken in the out-patient surgery clinic, on the day after admission and the day after surgery. Measures included an interview with the Rorshach Test taken prior to and following admission, 24-hour urinalysis for cortisol production rate at home and during hospitalization, and observer rating of ward adjustment.

One group of children coped effectively throughout the study using intellectualization as their main defense and showed decreased cortisol production rates (14.24 mg/g. creatine/24 hrs.) from pre-admission to hospitalization. These children were rated as Good-Good. A second group coped well prior to admission but poorly in-hospital. This second group used rigid defenses, cortisol production increased (15.78 mg/g. creatine/24 hrs.) and they were rated Good-Poor.

The third group, rated Poor-Good, coped poorly pre-admission but did well after hospitalization. Their coping style went from rigid to flexible and cortisol rates decreased (13.56 mg/g. creatine/24 hrs.) The last group coped poorly throughout, used denial as their major defense and had the highest hospital cortisol production rate (21.47 mg/g. creatine/24 hrs.) They were categorized as Poor-Poor. This study would seem to indicate that coping styles may vary and may play a significant role in how a child reponds to hospitali-

zation and surgery (Knight et al, 1979).

Questionnaire and Self-Report

In order to obtain subjective responses which directly affect the child's hospital experience, various self-report techniques including interviews, questionnaires and psychologic tests have been administered. The more recent studies have made an effort to include tools which are quantifiable or measurable so that scoring, replication, and evaluation of results are facilitated.

Vernon devised a Post-Hospital Behavior Inventory in 1966 after piloting and modifying a previous tool used by Cassell (1965). Vernon's tool has been used widely in recent studies evaluating children's responses to hospitalization and permits the researcher to quantify and compare results (Ferguson, 1979; Melamed & Siegel, 1975; Visintainer & Walter, 1975, 1979).

In an effort to assess children's feelings of fear by self-report, Johnson, Kirchoff & Endress (1975) had children identify which of several stick figures was most like them in degree of fear, one stick figure being "very, very afraid," the next being "a little bit afraid," and the third one "not at all afraid." The child's report of fear was the single consistent factor which correlated with distress scores as measured by observation and pulse rate changes. Barnett (1969) asked schoolage girls to rate their degree of

fear in relation to a threatening object (snakes) and found a high correlation between the child's self-rating of fear and the actual observed fear behaviors. Self-report of anxiety was also found by Martin (1961) to be the most consistent measurement correlating with various physiologic measures.

Physiologic Measures

A variety of physiologic measures have been used as indicators of the degree of distress response to hospitalization and surgery including electromyographic measures, 24-hour urine cortisol production rates, palmar sweat tests, galvanic skin response and other sophisticated techniques. However, vital sign measurements along with intake and output are most frequently assessed in determining the general well-being of most postoperative patients.

It is difficult to separate physiologic and psychologic effects when examining vital signs taken following a surgical procedure. Expected physiologic outcomes of the surgical experience which acts as a type of controlled stressor include hypermetabolism, accompanied by increased cardiac output, increased blood pressure and increased pulse rates. Blood shunting to the brain, heart and skeletal muscles produce a reciprocal decrease in urinary output which is frequently decreased further due to restricted fluid intake and insensible fluid loss in the intraoperative period (Marcinek, 1977; Stephenson, 1977).

Whether blood pressure and pulse rates decrease or increase may depend upon a number of interrelated factors. Early studies exploring physiologic stress responses in indiviuals indicated that blood pressure and pulse might be affected differently dependent upon whether the reaction was predominantly one of "fight or flight". Anger directed outward or a "fight" response produced a norepinephrine-like substance and resulted in increased systolic and diastolic blood pressures, with unchanged or decreased pulse rates. Anger directed inward as in anxiety or fear typical of a "flight" type of response produced an increase in epinephrine-like substance and was accompanied by marked increase in systolic blood pressure with lowered diastolic pressures. Pulse rates were significantly increased (Funkenstein, King & Drolette, 1957; Martin, 1961).

In addition to evaluating vital signs and intake and output, studies have included a comparison of the amount of pain medication required, frequency of vomiting postoperatively, time to first voiding, postoperative recovery time and lack of complications. Intercorrelations among physiologic measures used to indicate response to stressors tend to be low and it would appear that no single physiologic measure has yet proved unquestionably superior or definitive.

A review of the literature indicates that children's responses to hospitalization are directly affected by age and family relationships and that distress responses can

be decreased by providing preparation for the hospital experience through a variety of methods. No one method of preparation or measurement tool has been clearly shown to be superior although some methods of preparation and measures of effectiveness appear to provide more convincing evidence of improved outcomes.

The purpose of this study was to evaluate the effectiveness of a structured group teaching program in reducing hospital stress responses in pediatric patients undergoing elective surgical procedures. Following the literature review, the following hypotheses were formulated for testing.

Hypotheses:

1. Children attending the structured teaching program known as the "Pre-Op Party" will demonstrate fewer behavioral changes as measured by Vernon's Post-Hospital Behavioral Inventory than children of the same age group who do not attend the program.
2. Children attending a structured teaching program will manifest less self-reported fear related to hospitalization than children who do not attend such a program.
3. Children attending the structured teaching program will demonstrate fewer physiological changes as measured by reduced change between pre-operative and post-operative heart rate and blood pressure values.

CHAPTER II

METHODS

Design Overview

The purpose of this study was to compare two groups of children for differences in behavioral and physiological responses to their hospital experience. Children attending a planned preoperative teaching program were compared to a similar group of children having the same surgical procedures but who did not attend the structured group teaching program. The content and teaching strategies of the program were based on studies demonstrating positive behavioral and physiological responses, resulting from factual information provided prior to a child's hospital experience. The study was designed to evaluate the effectiveness of the structured teaching program known as the "Pre-Op Party". It examined post-hospital behavioral responses, pre and post-hospital, self-report of fear, and vital signs including blood pressure and pulse rates taken at three times.

Because of self-selection by groups and lack of a pre-test, the design of this study was pre-experimental or non-equivalent control group with post-test only: $\begin{matrix} X & 0 \\ & 0 \end{matrix}$

Self-selection rather than randomization suggests that there is a high likelihood that the two groups may be dissimilar prior to the experiment. Since it was not possible to arrange for pre-testing, the status of the subjects prior to

the group teaching or prior to hospital admission was not available for comparison. Individual variations in parent-child interactions and children's coping styles are not well-controlled in a small sample size and reliability and possible generalizations may be limited.

While the favored research method is the classic experimental design, this method is frequently not feasible in nursing research. Constraints include the fact that nursing takes place in an environment where there is a complex interplay of shifting variables. Control of all intervening variables is generally not possible except under artificial laboratory conditions and laboratory findings are not always applicable to clinical practice (Stevens, 1979).

Nursing value systems also require that a control or experimental condition not deprive patients of essential nursing care or jeopardize the patient welfare. This study was designed to interfere as little as possible with the usual care received by patients on the Pediatric Nursing Unit.

Setting

Hospital A, a non-profit community hospital located in the mid-Willamette Valley has a total bed capacity of 414 beds. The Pediatric Unit contains 18 cribs for children under two years of age and 18 beds for older children. The hospital presently provides open and flexible visiting hours and encourages family participation in the care of children. While there are no formal live-in accommodations, parents may

sleep in a lounge area adjoining the unit or stay at the bedside in the four private rooms.

All children having elective surgery are invited to attend a structured, hour-long teaching program the week before hospitalization. This program is publicized in doctors' offices, through written publicity such as newspaper articles, and by word of mouth. Family members, including siblings are encouraged to attend.

This teaching program was begun by the Salem Hospital pediatric nurses in November 1979. During the first four months of the program, eighty-three children, representing fifteen different physician's services attended. A large number of these children underwent various types of ear-nose-throat (ENT) surgical procedures. Four Otolaryngologists regularly admit patients for surgery and each of these four physicians had at least ten children attending the structured teaching program.

Children scheduled for ENT surgical procedures in the morning are usually admitted the prior evening and dischargd the afternoon or evening of surgery. Those children having surgery in the afternoon are usually admitted the morning of surgery and discharged the following morning. Upon admission to the hospital, personal information and a nursing history are obtained, hospital equipment and procedures are explained, vital signs are taken and laboratory work which has not been completed is obtained. If the time of surgery is

known, as is usually the case, parents and child are told approximate times of preoperative activities. The surgical suite is on the same floor as the Pediatric Unit thus parents may accompany the child to the Operating Room entrance.

Subjects and Sample Selection

Subjects for this study were drawn from pediatric patients admitted to Salem Hospital for elective ENT surgical procedures from November 1980-March 1981. Since ENT patients comprised the largest number of similar type surgical procedures, this group was chosen as a convenient sample, with children not attending the structured group teaching program serving as controls.

The children in Group I consisted of those children, ages 3-9, having elective ENT surgical procedures, including tonsillectomies, adenoidectomies or a combination of these procedures, with or without accompanying myringotomies, and polyethylene ear tubes, who attended the structured group teaching program.

Group II, the control group consisted of children of the same ages, having similar surgical procedures who did not attend the structured group teaching program.

Exclusions from the study included:

A. Children with hospital experience within the last year.

B. Children who did not remain in the hospital overnight.

C. Non-English speaking families and their children.

D. Patients developing postoperative complications which required an extended hospital stay, postoperative bleeding requiring return to surgery, or additional medical intervention on the nursing unit or later readmission treatment.

It was expected that responses of children with recent hospital experiences might reflect the previous experience rather than the current hospitalization. In order to have as equal an experience as possible, the duration of hospital stay was controlled for by requiring that all subjects be in-hospital overnight, the standard procedure for children having this type of surgery at Salem Hospital. Communication was seen to be a possible intervening variable which would produce unreliable findings so all subjects and their families were required to have good command of the English language. Children who had complications following surgery were anticipated to be more likely to feel and respond negatively toward hospitalization due to increased pain, anxiety and fear and so were excluded.

A total of 32 children who attended the "Pre-Op Party" were recruited and interviewed for the study, however five of these children were later excluded due to failure to remain in the hospital overnight. Four were treated on an outpatient basis because of lack of space on the Pediatric Unit and one child treated on the Pediatric Unit was admitted and discharged

the same day. One child in the experimental group was taken to the Emergency Room due to postoperative bleeding but no treatment was required so the child was retained in the study.

Thirty-three children were interviewed initially for the control group. However, since there were no 2 or 10-year-olds in Group I, eight children in these age groups were eliminated from the controls. The final sample consisted of 27 children ages 3-9 in the control group. Only five parents who were approached declined to participate in the study. If a parent appeared reluctant after a brief introduction and explanation, no further effort was made to obtain consent.

Variables and Measurement

The Independent Variable

In this study the independent variable was structured preoperative teaching provided for children having elective ENT surgical procedures. The ongoing program was a planned format which is carried out at each session with a slide presentation, a tour of the hospital and a question and answer period for parents. During the question and answer period, children are supervised by a second staff nurse and are permitted to manipulate some of the equipment that is used in the hospital. The narrative accompanying the slide presentation describes some of the common sensa-

tions such as the cold alcohol sponge, the funny smell of the medicine by mask for the "special sleep" of anesthesia, and the sore throat following a tonsil operation. An outline was followed during the question period for parents so that essentially the same information would be provided at each program, regardless of which pediatric nurse was responsible for the presentation. The class outline and discussion guide are included in Appendix A.

The Dependent Variable

The dependent variable was the child's response to the stressor of hospitalization and surgery. The three measures chosen to examine children's responses to hospitalization included:

1. Vernon's Post Hospital Behavioral Inventory
2. Children's Self-Report of Fear
3. Blood Pressure and Pulse Rates

While correlations between observation, self-report or questionnaire and physiologic measures frequently vary in the same individual, a combination of methods was chosen as more reliable than a single method.

For purposes of this study terms are used in the following manner. Distress is an unpleasant or painful sensation resulting from perceived threat of danger or harm and a stressor is an unusual stimulus, likely to produce some measure of distress. In this study hospitalization for the purpose of performing a surgical procedure is the specific

stressor. Responses are those reactions to hospitalization manifested in physiologic or psychologic changes indicating presence or absence of distress. When there is little or no change in response, distress is considered minimal or absent.

Vernon's Post Hospital Behavior Inventory

Vernon's Post Hospital Behavior Inventory was used to evaluate behavioral changes in children following discharge from the hospital. (The Questionnaire is displayed in Appendix B.) This questionnaire compares pre and post-hospital behaviors and includes 28 items most often cited in the literature as occurring in children after a hospital experience. One modification was made on item number 4 in which the use of a "security object" was substituted for "pacifier" to make the question applicable to a wider age range.

Each response alternative is a Likert type scale with five possible responses. The parent is asked to compare typical behavior to post-hospital behavior and decide if the child is demonstrating a behavior "much less than before", "less than before", "same as before", "more than before", and "much more than before". "Less than before" receives a score of one and "much more than before" a score of five.

Vernon based his questionnaire on a similar tool used by Cassell at Northwestern University of Chicago in 1963. Cassell's tool contained two less items and had only three response alternatives. Thirty-seven children, aged 3-11,

undergoing cardiac catheterization, were rated by parents at three days and one month post-discharge. The scores from the two administrations of the questionnaire yielded a test-retest reliability coefficient of 0.65 with $P < .001$.

To establish validity, Vernon compared parents' responses to the questionnaire to information obtained through non-directed interviews. Parents of 20 clinic patients ages 2-10 undergoing tonsillectomies had filled out the Behavioral Inventory and were then interviewed by an experienced child psychiatrist about the children's behavior changes. Behavior identified by the parents were those discussed. The comparison of questionniare and interview ratings of behavior changes showed a coefficient of 0.47 with $P < .05$ by a two-tailed test. Vernon performed factor analysis on data from 387 questionnaires which revealed six orthogonal factors of anxiety-regression, separation-anxiety, sleep anxiety, eating disturbance, aggression toward authority and apathy-withdrawal.

In order to maximize the return of usable responses, home visits were made by the investigator in this study to answer any questions and insure that all items on the questionnaire were completed. The home visit was made during the third week post-discharge in an effort to avoid confusing the child's response to the discomfort of the surgery with behavioral responses resulting from the hospitalization. Although recall is sometimes questioned, parental report of behavior changes does seem to correlate with response measures

taken in the hospital (Melamed & Siegel 1975, Ferguson, 1978; Visintainer & Wolfer, 1975, 1979). In addition, changes too insignificant to recall are not likely to yield data of clinical significance.

Self-Report

Because of the correlation between a child's self-rating of fear and observed fear behaviors shown in previous studies, a self-report question was included both during the hospital and post-hospital interview. In an effort to replicate the stick figures used by Johnson, Kirchoff and Enress, pom-pom figures were constructed which were neither male nor female and which seemed less likely to influence selection than use of pictures representing known objects such as flowers or animals. (The drawing of these figures appears in Appendix C.)

Each of the four figures represented a particular response. In questioning the child, the investigator explained that the "little people" represented children having an "operation" for the first time and each one felt differently about having this operation. One figure was "not afraid", one was "a little bit afraid", the third was "quite a bit afraid", and the last one was "scared". Intonation and inflection were used to interpret and clarify modifiers such as 'a little' or 'quite a bit' which would not be understood by younger children.

At the time of discharge visit the question was repeated

in relation to how the child now felt about hospitalization and operations with the figures representing the same responses. Each child's responses prior to surgery and post-hospital were compared and evaluated to determine change in categories from one degree of fear to another. Change scores for Group I and Group II were compared by ages and overall change scores for the total group tabulated and evaluated.

Physiologic Measures

More sophisticated methods of evaluating physiologic responses to stressors include palmar sweat tests, electromyographic tests, cortisol levels and various monitoring devices. In an effort to use non-invasive techniques that would interfere as little as possible with the usual routine care, the standard measures of monitoring patients' well-being and recovery were selected. Temperature, pulse, respiratory and blood pressure rates, as well as intake and output are routine indicators used most often for surgical patients. Any of these physiologic indicators may be altered by physical stressors or perceived threat of danger with resultant anxiety and fear (Marcinek, 1977; Stephenson, 1977).

Because of the wide variability of individual responses and the questionable relationship between physiological and behavioral indicators to actual distress, blood pressure and pulse measures are not claimed to be an exact measure of distress levels in this study but are used as descriptive data.

Surgery as a type of controlled stressor triggers responses resulting in a number of interrelated physiologic mechanisms including hypermetabolism, increased blood shunting to heart, brain and musculo-skeletal system, increased intravascular volume and increased insensible fluid loss. Hypermetabolism and increased intravascular volume produces an increased systolic blood pressure, increased heart rate and increased cardiac output, while decreasing diastolic blood pressure. Cardiac acceleration and increased pulse rate is also a typical response to anxiety and fear, although a decrease in pulse rate can occur (Marcinek, 1977).

Blood pressure and pulse rates were assessed for all patients on admission, upon return to the unit following surgery, and at the time of the home visit in order to determine possible alterations or trends which might be significant within or between groups. Changes in values at these times were examined as well as looking for correlations between the behavioral and self-report items.

It was originally intended to use intake and output as a measure of the child's degree of upset. Fluid intake after tonsillectomy can reflect the child's degree of understanding and willingness to swallow in spite of a sore throat, and time and amount of voiding have been used in previous studies as an indirect measure of stress, related to ability to relax the bladder sphincter muscle. Since physiological response to stressors include blood shunting,

intravascular volume shifts and vasoconstriction, decreased renal flow results. Urinary output which is generally reduced post-surgically related to the patients' decreased intake may be further reduced if the patient is more anxious.

However, it was not feasible to use intake and output measures in this study due to the difficulty in obtaining accurate times and amounts of fluid intake and voiding. In many cases the child was discharged prior to voiding and uses of ice chips and popsicles resulted in estimates rather than accurate measures of fluid intake.

Extraneous Variables

In an effort to insure that the dependent variable measures were not related to extraneous factors, the questionnaire included the following items for comparison and matching of the two groups. Age was carefully tallied by groups and preschool and school-age childrens' responses were compared separately to avoid diluting the anticipated stronger upset reactions on the part of the younger children. Sex and number of siblings were included for possible matching since some studies indicated that boys and girls may respond differently and family placement may alter a child's relationships and experiences.

In order to have as much similarity in groups as possible the type of ENT surgical procedure was tabulated and compared for Group I and Group II. Family residence, racial background, education and financial status of the family unit

were included to determine similarity or differences between groups.

Two questions were included related to reasons for non-attendance at the preoperative teaching program and the main source of information regarding the hospitalization. These were intended as an indirect measure of motivation and interest on the part of the parent. These questions were worded to avoid suggesting parents were remiss if they failed to attend the training program and a multiple choice format was used to expedite scoring.

Procedure

Prior to beginning the research project, permission was obtained from Salem Hospital Administration and the ENT physicians agreed to having their patients participate in the study. Staff on the Pediatric Unit were consulted and the purpose and procedure of the study explained.

The investigator checked the surgery schedule every afternoon or called the Pediatric Unit each evening to determine if children of suitable age and surgical condition were to be admitted. An evening or early morning visit was then made to contact the parent at the hospital prior to surgery, usually during evening visiting hours or in the morning after the child was admitted. Some parents were introduced to the researcher following the structured group teaching and an initial questionnaire was filled out then if time permitted, or the parent was contacted later at the

time of the child's admission. All initial interviews were completed prior to surgery. (Initial questionnaire is located in Appendix D.)

A brief letter of explanation was given to the parent by the researcher who introduced herself and offered to return and discuss the project or answer any questions. After giving the parent a period of privacy to read the explanatory note (Appendix E), the researcher returned and ascertained willingness to sign a Consent Form (Appendix F). After the consent was obtained, the demographic questionnaire was completed in order to compare subjects for equivalency of the two groups. The parents were informed that they would be called the third week post-discharge to arrange a brief home visit. During home visit the child's blood pressure and pulse would be taken and another brief questionnaire completed (Vernon's Post-Hospital Behavioral Questionnaire). Each child was interviewed in the hospital prior to the surgical procedure using the pom-pom figures to measure the child's self-report of fear.

Measures taken by the nursing staff were obtained from the charts for admission and post surgical blood pressure values and pulse rates, since the investigator was not present at these times. Blood pressure measures were taken by using the appropriate child-size cuff which was the same size cuff used by the researcher on home visits. Pulse rates were taken for fiteen seconds unless there was an

irregularity in which case the count was extended for a full minute. There were no wide discrepancies noted between measures taken by the staff in hospital and those blood pressure values and pulse rates taken by the investigator on home visits.

When the home visit was made, the Behavioral Inventory was completed first so that the child could observe the mother and nurse interacting. Blood pressure values and pulse rates were then taken. In most cases there was no objection to having the blood pressure cuff applied or the stethoscope in place, and children frequently commented spontaneously about having seen the investigator in the hospital.

If there seemed to be some reluctance to trust the investigator with the stethoscope and blood pressure cuff the question regarding feelings of fear was elicited with the aid of the pom-pom figures prior to taking vital signs. The "little people" provided a point of contact to which children responded positively and aided in getting the child to talk about what might have frightened them during their hospital experience. All subjects, or 100% of the sample population, were located and visited in the home for follow-up interviews and these visits provided validation of the demographic data obtained in the initial questionnaire, which is located in Appendix D.

CHAPTER III

RESULTS AND DISCUSSION

The purpose of this study was to evaluate the effectiveness of a structured preoperative teaching program in altering observed behavioral and reported fear responses in children undergoing elective ENT surgical procedures. Blood pressure and pulse rates were also collected as descriptive data to determine if there would be differences between the children in the teaching program and children of the same age and surgical procedures who did not attend the program.

This chapter will present an analysis of the data testing the three hypotheses which guided the study. Following a comparison of the characteristics of the two groups, results and discussion of each hypothesis is presented. Problems are identified, questions raised, and additional findings related to a subgroup of children not included in the study are presented.

Sample

Characteristics of Group I, children in the teaching program, and Group II those children not attending the structured group teaching, were examined and compared. Demographic information was used to insure that there were no significant differences between groups at the time data collection was begun.

Age was considered a critical factor since previous

studies indicate that age directly affects the degree and type of response to hospitalization and surgery. Group I included 25 subjects ages 3-9 with a mean age of 6.02 years while Group II included 24 subjects ages 3-9, with a mean age of 5.96 years. The overall distribution of children by age as shown in Table 1 was very similar for both Group I and Group II. By controlling for age and comparing children of like ages it was anticipated that negative hospital responses would not be due to age and developmental differences between groups. There were seven four-year-olds in Group I preschoolers which produced a mean age of 3.85 in comparison to a mean age of 4.09 for Group II preschoolers. However, there were no statistically significant differences found between Group I and Group II by age.

Children having a combination procedure might experience more discomfort and possibly manifest more negative responses to hospitalization than a child having a single surgical procedure such as adenoidectomy alone. Most children had either tonsillectomy and adenoidectomy (T & A) alone or in combination with placement of polyethylene ear tubes (P.E.Tubes). Together these accounted for almost 87% of the total. A comparison of the surgical procedures as shown in Table 2 indicates no significant differences between Group I and Group II.

Table 1

Distribution by Age and Groups for Children Having Elective Ear-Nose-Throat Surgery.

	Group I (Pre Op Teaching)		Group II (control)	
	N	Mean Age	N	Mean Age
Preschool				
3 yrs.	4		3	
4 yrs.	7		4	
5 yrs.	2		4	
Total	13	3.85		4.09
Schoolage				
6 yrs.	2		3	
7 yrs.	3		3	
8 yrs.	3		4	
9 yrs.	4		3	
Total	12	7.75	13	7.54
Group Total	25	6.02	24	5.96

$X^2 = .0213$ df 1 N.S.

Table 2

Type of Surgical Procedure Performed by

Groups for Pediatric Patients Having Elective Surgery

	Group I (preop)	Group II (control)	
Surgical Procedure	N	N	Total
Adenoidectomy	2	0	2
Tonsillectomy & Adenoid-ectomy	8	6	14
Tonsillectomy & Polyethylene ear tubes	0	1	1
Adenoidectomy & Polyethylene ear tubes	3	1	4
Tonsillectomy, Adenoid-ectomy & Polyethylene ear tubes	12	16	28
Total	25	24	49

$X^2=4.836$ df 4 N.S.

Socioeconomic status and educational levels were compared for the two groups and Group I and Group II were found not to differ significantly on these two variables.

There were slightly more families in Group I whose income was in the $20,000-$30,000 range and more families in Group II in the income range below $10,000 yearly. These comparisons are shown in Table 3 and Table 4. In the total group sixty percent of the fathers and forty-two percent of the mothers had college or advanced degrees. Because some mothers were single heads of a household, educational status was compared for mothers in the two groups. Eighty percent of the total sample were living with both parents, in some cases one of whom was a step-parent. One child was living with grandparents and none of the final sample were in foster home care. After determining that the two groups were fairly well matched by demographic data, testing of the hypotheses was begun.

Effects of Preoperative Preparation Upon Post Hospital Behavior

The first hypothesis stated that children attending the structured teaching program known as the "Pre Op Party" would demonstrate fewer behavioral changes as measured by Vernon's Post Hospital Behavioral Inventory, than children of the same age with similar surgical procedures who did not attend the program.

In scoring responses to Vernon's Inventory each of the

Table 3

Yearly Family Income of Children

by Group I and Group II

Yearly Family Income	N	N	Total
Less Than $4999/yr.	0	1	1
$5000-$9999/yr.	2	5	7
$10,000-$19,999/yr.	9	11	20
$20,000-$29,999/yr.	10	3	13
More Than $30,000/yr.	4	4	8
Total	25	24	49

X^2=.237 df 4 N.S.

Table 4

Educational Status of Mothers of Children Having Elective Surgery by Groups

	Group I (preOp teach)	Group II (control)	
Educational Level	N	N	Total
Completed highschool	11	17	28
Completed college	10	6	16
Advanced degree	4	1	5
Total	25	24	49

$X^2=4.067$ df 2 N.S.

28 items commonly cited as negative behaviors occuring after hospitalization were given a score from one to five. The score was based upon whether the behavior was occurring "much less than", "less than", "same as", "more than", or "much more than" before the hospital experience. Numerical scores ranged from one to five respectively with a score of three indicating no change. The scores for the 28 items were summed to give an overall change score with a score of 84 indicating no change in behavior. Scores above 84 indicated negative behavioral change and scores less than 84 indicated positive behavioral change.

In the two groups of children there was an even distribution of about one third in each category of positive, negative and no change as shown in Table 5. Overall behavioral change scores were not significantly different between Group I and Group II. Behavioral change scores were also examined by age and though a somewhat higher percentage of preschool children exhibited negative change there was no significant difference by this variable, which is displayed in Table 6.

Individual items were examined to see if there might be any item on which children tended to react more negatively or positively. There was one item on which children in both groups and each age category scored less than 3.0

Table 5

Overall Behavioral Change Scores by

Group Preparation on Vernon's Inventory

	Group I (Preop teach)	Group II (control)
	N	N
Positive Change	8 (32%)	9 (37.5%)
No Change	8 (32%)	7 (29.2%)
Negative Change	9 (36%)	8 (33.3%)
Total	25 (100%)	24 (100%)

X^2=.164 df 2 N.S.

Table 6

Overall Behavioral Change Scores

On Vernon's Inventory By Age

	Preschool	School Age
	N	N
Positive Change	8 (33.3%)	9 (36.0%)
No Change	6 (25.0%)	9 (36.0%)
Negative Change	10 (41.7%)	7 (28.0%)
Total	24	25

X^2=1.168 df 2 N.S.

indicating positive change. This was item 25 relating to improved appetite. Combinations of positive and negative responses had the overall effect of averaging most scores so that there was little change from the mean of 3.0, or no change. (Individual items are shown in Appendix G). Because of the very small differences between groups on any item, futher statistical computations seemed unlikely to prove productive in demonstrating change between groups. Therefore factor analysis was not computed.

Vernon performed factor analysis arriving at six broad categories under which he grouped the individual behavioral items. These factors were anxiety-regression, separation-anxiety, sleep anxiety, eating disturbance, aggression toward authority and apathy-withdrawal. There are some conceptual problems related to the appropriateness of certain items in the categories to which they were assigned.

The four specific items which appear not to fit well from a conceptual framework are items 3, 6, 7, and 27. Item 6 relating to a child's disinterest in the environment is placed under anxiety and regression and would seem to fit somewhat better under apathy and withdrawal. Item 3 which describes a child sitting around doing nothing is placed under eating disturbances and would also seem to fall more naturally under apathy and withdrawal. Item 7 related to bedwetting is placed under apathy and with-

drawal and might be more appropriate under anxiety and regression and item 27 related to breaking toys and other objects is in the category of apathy and withdrawal rather than aggression toward authority.

Additional questions may be raised in the use of Vernon's Inventory to assess the impact of a surgical procedure such as tonsillectomy which has both physiologic and psychologic effects. For example, it is interesting to note that the only item in the study which was an improved behavior for children in all ages and in both groups was item 25 in regard to improved appetite. This may reflect a general physical improvement resulting from the surgery rather than a change in psychologic status. While it may not be possible to separate physical and psychological effects in evaluating behavioral responses it is important to be aware that Vernon's tool includes measures related to both components.

In this study, measures of behavioral changes did not produce any evidence statistically to support the first hypothesis that behavioral changes in children attending the preoperative teaching program would be more positive than behavioral changes in children not attending the program.

Effects of Preoperative Preparation Upon Self-Report of Fear

Another measure of children's responses to hospitalization

which has been used in previous studies is the child's self-report of fear. In this study children were asked to identify their feelings of fear related to hospitalization and the anticipated surgical procedure before surgery and at the time of the home visit. The purpose of the self-report questionnaire was to test the second hypothsis that children attending a structured teaching program would manifest less self-reported fear related to the hospital experience than those children who did not attend such a program.

Four pom-pom figures, shown in Appendix G, were used to represent the four response alternatives of "not afraid", "a little afraid", "quite afraid", and "scared", with responses scored from one to four for increasing fear. Change scores (shown in Table 7) were computed by subtracting the home visit response from the hospital response with decreasing fear equal to a positive value, no change equal to zero and increasing fear scored as a negative value. The actual changes occurring from one category to another may be misleading in that the mean scores do not show positive and negative shifts in a precise manner for the subgroups by age. While there were no significant differences between groups there were some interesting changes by age.

Preschool children in Group I had more anticipatory

Table 7

Overall Change Scores in Self-Report of Fear In Two Groups of Children by Age.

	Change Scores		
	N	Sum	Mean Change
Group I (Preop teaching)			
Preschool	13	1.0	.0914
School Age	12	5.0	.3846
Total	25	6.0	.222
Group II (controls)			
Preschool	11	-1.0	-.09
Schoolage	13	5.0	.3846
Total	24	4.0	.166%
Entire Population	49	10	.1961

t=.143 N.S.

1=not afraid, 2-a little afraid, 3=quite afraid, 4-scared

Positive value indicates decreased fear and negative value indicates increased fear. Homevisit scores were subtracted from pre surgery inhospital score.

fear with four out of twelve indicating some degree of fear prior to surgery. Only one out of eleven preschoolers in Group II indicated some fear pre-surgery which is consistent with previous findings that preparation may increase anxiety initially. Schoolage children in both groups indicated some degree of fear pre-surgery and their change scores were affected more positively as shown in Table 8. It should be pointed out that many children indicated no fear initially which produced a ceiling effect with no possibility for improved scores, and, in fact, half of the children did fall in a no-change category.

Although self-report change scores were not significcant by group this change was statistically significant by age. The positive change scores, significant at $P < .05$ indicated an overall decrease of fear for the total group with 16% negative change, 49% no change and 35% positive change. Positive change resulted from decreased self-report of fear in schoolage children. Whether this was due to preparation, developmental level or an interaction between the two was not clear. Further statistical analysis was not carried out to evaluate this interaction since the main purpose of the study was to examine differences between Group I and Group II. However further exploration might have been useful in evaluating the effectiveness of preparation methods used in the teaching program.

While a majority of all children did not express fear

Table 8

Fear Self-Report Change Scores by Age for All Children

	Increased Fear			No Change	Decreased Fear		
	-3	-2	-1	0	+1	+2	+3
Preschool (N)	1(33%)	3(100%)	1(50%)	15(62.5%)	1(9.1%)	0	3(75.0%)
Schoolage (N)	2(66.7%)	0	1(50%)	9(37.5%)	10(90.9%)	2(100%)	1(25%)

X^2=15.18 df 6 Signif. P < .05

1=not afraid, 2=a little fraid, 3=quite afraid, 4=scared

Home visit score after surgery subtracted from in-hospital score.

following the hospital experience, the second hypothesis was not supported in that there were no statistically significant differences on self-report of fear between Group I, the preoperative teaching group and Group II, the children not attending the teaching program. Nor was there correlation between behavioral responses on Vernon's Inventory and children's self report of fear which is displayed in Table 9. Self report of fear prior to surgery and at the time of home visit were also examined and found not to correlate with behavioral scores.

Effects of Preoperative Preparation Upon Vital Signs

Descriptive data were collected on vital sign measures of children in this study at the time of admission, immediately after return from the recovery room and at the time of the home visit. Blood pressure values and heart rates were compared between and within groups of children in Group I and Group II to test the last hypothesis. This hypothesis stated that children in the preoperative teaching program would demonstrate fewer physiological changes in blood pressure values and heart rates pre and postoperatively.

There was a small but not clinically significant increase in blood pressure readings and pulse rates immediately after return to the unit from the recovery room. There was also a very slight overall mean decrease in blood pressure value but not pulse rates at the time of post-hospital home visit.

Table 9

Overall Change Scores for Self-Report of Fear

In Relation to Behavioral Scores

In Pediatric Patients With Elective Surgery.

		Increased Fear			No Change	Decreased Fear		
		-3	-2	-1	0	+1	+2	+3
Improved Behavior (less than 84)	N	1	1	0	10	4	0	1
No change In Behavior (Equal to 84)	N	0	0	1	7	5	1	1
Negative Behavior (More than 84)	N	2	2	1	7	2	1	2
Total		3	3	2	24	11	2	4

$X = 8.405$ df 12 N.S.

1=not afraid
2=a little afraid
3=quite afraid
4=scared

These comparisons are shown in Tables 10-15.

Vital sign measurements taken by staff at the time of admission and when the child returned from the recovery room were compared to blood pressure values and pulse rates obtained by the investigator upon the home visit. Increased pulse rates on the home visit were noted in several cases to be related to the child's activity level. For example, one child had returned from an afternoon of rollerskating.

No significant differences were found, by age, group or time on any of the measures for blood pressure values or pulse rates. Neither were there any statistically significant findings demonstrating difference of responses to hospitalization on behavioral or self-report scores between the two groups of children, those attending the structured group teaching and those children who did not attend. There were a majority of children on self-report of fear who did have a neutral or positive response to the hospital experience, but positive responses occurred mostly in children of schoolage, and were the same for Group I and Group II.

Theoretical and Methodological Problems Identified

In examining the results of this study, problems were identified relating to the sample, the measurements taken and the method of preparation. The most obvious problems arose from lack of a pretest and the process of self-selection.

Table 10

Admission Blood Pressure Value for Pediatric Patients

Having Elective ENT Surgery By Age and Group Preparation

	Group I (Preop Teaching)		Group II (Control)	
	N	X	N	X
Preschool	13		11	
Systolic B/P		92		94
Diastolic B/P		56		59
Schoolage	12		13	
Systolic B/P		101		98
Diastolic B/P		64		60

F=N.S. df 1/47

Table 11

Post Recovery Blood Pressure Value for Pediatric Patients

Having Elective ENT Surgery By Age and Group Preparation

	Group I (Preop teach)		Group II (Control)	
	N	X	N	X
Preschool	13		11	
Systolic B/P		99		100
Diastolic B/P		56		62
Schoolage	12		13	
Systolic B/P		103		103
Diastolic B/P		63		60

F=N.S. df 1/47

Table 12

Home Visit Blood Pressure Values for Pediatric Patients

Having Elective ENT Surgery By Age and Group Preparation

	Group I (Preop teach)		Group II (Control)	
	N	X	N	X
Preschool	13		11	
Systolic B/P		89		91
Diastolic B/P		55		58
Schoolage	12		13	
Systolic B/P		99		98
Diastolic B/P		62		59

F=N.S. df 1/47

Table 13

Admission Pulse Rates for Two Groups of Children

Having Elective ENT Surgery

	Group I (Preop teach)		Group II (Control)	
	N	X	N	X
Preschool	13	102	11	99
Schoolage	11	95	12	93

F=N.S. df 1/47

Table 14

Post Recovery Pulse Rates

for

Two Groups of Children Having Elective ENT Surgery

	Group I (Preop teach)		Group II (Control)	
	N	X	N	X
Preschool	13	116	11	113
Schoolage	12	100	13	101

F=N.S. df 1/47

Table 15

Home Visit Pulse Rates

for

Two Groups of Children Having Elective ENT Surgery

	Group I (Preop teach)		Group II (Control)	
	N	X	N	X
Preschool	13	108	11	106
Schoolage	12	98	13	95

F=N.S. df 1/47

It appeared that children of both groups were well-matched by demographic data as well as similar in outcome measurements of responses. However the possibility exists that the groups were in fact dissimilar prior to the teaching program, with the parents and children in Group I more anxious prior to attending the teaching program but equal in response measurements by the time of interview which occurred after class attendance. Since there was no pre-test given, this was not documented but it could be speculated that more anxious parents would feel a greater compulsion to attend the hospital teaching program while those who were more comfortable about the anticipated surgery would feel additional preparation to be unnecessary.

Another problem within the control group was in obtaining parents and children who were truly unprepared. Several parents in the control group had children with previous similar operation and these parents seemed to feel at ease with the anticipated surgical procedure for the second child. An additional factor was that the physicians had slide tapes available for viewing and these tapes, while not specifically of Salem Hospital did provide factual information related to the surgery. Many of the parents in the control group had taken advantage of these tapes. One mother in the control group was a public health nurse who had planned to attend the teaching program with

her child but was unable to do so. She provided her child with a variety of preparation for surgery including explanation and written materials.

There was no provision for separating children by room assignment thus information could be freely exchanged between parents and children of both groups after admission to the pediatric unit. In some cases parents and children who attended the structured group teaching program were overheard relating helpful information from the class to the child and parent assigned to the same room who had not attended the preoperative teaching program.

Twenty families earned more than $20,000 yearly, only seven families earned less than $10,000 yearly and twenty-one of the mothers had college education or advanced degrees. Financial security and additional education may aid in decreasing anxiety and provide more alternatives for coping, which may be reflected in the child's response. In addition to higher income and educational levels, the parents in both Group I and Group II were consistently present prior to surgery and upon the child's return from recovery room to pediatric unit. This may underscore the value of parental attendance regardless of the type of preoperative preparation.

In an effort to decrease the likelihood that response outcomes were related to variation in the surgical or hospital experience, the children having selected ear-nose-

throat surgical procedures who stayed one night were selected as the sample group. Since previous studies show that these two factors, short stay and minor condition result in minimal disturbances, the possible magnitude of negative responses was probably diminished and change scores reflecting only minimal disturbance are not as likely to be clinically significant.

Children were not excluded from this study unless they had been hospitalized within the past year. Children with previous hospital or illness experience had a variety of responses depending upon each child's interpretation of the event. For instance in Group I, three children with previous experience responded in diverse ways. One four-year-old who had an adenoidectomy at two years of age showed positive change in self-report scores but received six negative change ratings by her mother on the Behavioral Inventory. This little girl had siblings who had been followed at the Speech and Hearing Center for recurring ear problems and rated herself as scared prior to surgery though not afraid afterwards. The second girl age six, was previously treated in-hospital for an episode of dehydration with numerous intravenous infusions. She rated herself as "scared" prior to surgery and "not afraid" afterwards. Behavioral ratings by the mother indicated no change. The third child, a seven-year-old boy with previous tonsillectomy and adenoid-

ectomy did not volunteer feelings of fear either before or after the current hospitalization and his mother noted an improved behavior.

The control group included a five-year-old who had had myringotomies 1½ years previously and an eight-year-old whose older brother had a similar surgical procedure at an earlier date. Both of these children stated they were "not afraid" on self-report of fear and had some improved behaviors on the Post Hospital Inventory.

In addition to problems related to the sample population, response measurements did not correlate well with one another. The measures were selected to reflect subjective feelings of fear, outward behavioral changes and physiologic arousal to the hospital experience. The self-report of fear, based upon a similar technique used by Johnson, Kirchoff and Endress (1975) did produce findings indicating decreased fear primarily in schoolage children. But the self-report of fear did not correlate with observed behavioral ratings by mothers nor did the blood pressure readings and pulse rates substantiate the other two measures.

Non-invasive measures not involving elaborate techniques or extensive time committments were chosen in an effort to insure an adequate number of private patients would be obtained for a sufficient sample size. Blood pressure values and pulse rates were sleected as

a physiologic measure since these are easily obtained and widely used in assessing the patient's general response to a surgical procedure. However, due to the wide variability in individuals on these measures they could not be considered valid indicators of actual patient distress.

An additional weakness in choosing response measurements was the lack of a measure to determine parental concern or satisfaction with care. This measure would have provided a broader perspective of teaching effectiveness than focusing upon children's responses alone. Since parent-child anxiety levels have been shown to correlate in some studies (Ferguson, 1979), a parental measure would provide additional data with which to measure children's responses to the hospital experience.

Teaching methodology in the program which this study examined involved primarily verbal and informational techniques with some manipulative play and a brief tour. Two studies have supported the premise that younger children have more difficulty interpreting and internalizing explanations unless some kind of role modeling or rehearsal techniques are incorporated into hospital preparation (Ferguson, 1979; Melamed & Siegel, 1975). It may be misleading to rely upon a single instructional session to prepare children for the hospital experience since additional stressors may arise throughout hospital-

ization for which the child is unprepared (Wolfer & Visintainer, 1975, 1979). Other writers indicate the importance of providing opportunities for discussion and clarification following the events occurring in the hospital (Plank, 1972).

A child may seem well-prepared when the assumption proves incorrect. One six-year-old girl who attended the "Pre-Op" party had indicated "not afraid" prior to surgery and was enjoying herself in the hospital, according to the mother, until the preoperative injection was given. At the time of home visit, she rated herself as "scared" in relation to hospitalization and her operation and apparently needed a chance to talk about and clarify perceptions of her experiences.

Several parents commented that staying overnight in the hospital was particularly upsetting to their preschool children and at least two stated a preference for outpatient surgery for conditions that could be handled on this basis. Data on a small group of children treated as outpatients provided an opportunity to examine children's responses when not hospitalized overnight. Five children, ages 3-9 who did not stay overnight were excluded from Group I. Four children were treated as outpatients because of lack of space in the pediatric unit and one child, admitted to the unit and treated in the usual fashion, was discharged on the day of surgery. Though

too small a sample to be considered reliable, this group had positive change scores on both the behavioral questionnaire and self-report of fear.

These five children's scores for Vernon's Inventory when totalled averaged less than 84, indicating positive behavioral change and self-report of fear was decreased with a positive overall change score of five. Two children showed no change in either measure. The two preschoolers, ages 3 and 4, had the greatest improvement in self-report of fear as well as positive change in behaviors. In addition to not staying overnight, the four children treated as outpatients, which included the preschoolers, went directly from surgery back to the outpatient unit, without going to recovery room. Therefore, these children were not separated from their parents for the recovery period.

Although the three hypotheses tested in this study were not supported, some questions in relation to future study and clinical practice were identified and examined.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The purpose of this study was to examine responses of two groups of children ages 3-9 to hospitalization and surgery. One group consisting of 25 children, attended a structured teaching program prior to admission and the second group, numbering 24 children of similar age and surgical procedure did not attend the teaching program. The two groups were self-selected and no pretest was administered.

Outcome measures included behavioral changes following hospitalization measured by use of Vernon's Post Hospital Behavior Inventory, the child's self-report of fear prior to and following the surgical experience, and pulse rates and blood pressure values taken at three times for comparison of possible differences between and within groups. There were no significant differences found between Group I, the children attending the teaching program, and Group II, the control group. There was, however, a significant relationship for age and decreased self-report of fear in schoolage children.

Problems were identified in relation to the sample and control measures as well as lack of correlation between outcome measurements. Some questions arose related to the need for alternative or additional preparation incorpor-

ating role modeling and rehearsal techniques into hospital preparation of preschoolers.

Five children who did not stay overnight demonstrated positive, though not statistically significant, outcomes on both the behavioral ratings by mothers and decreased fear on self-report. This group included four children treated as outpatients who went immediately from surgery back to the outpatient department where they were reunited with the parent bypassing recovery room. One child who was cared for in the usual manner but discharged on the day of surgery exhibited no change in behavioral or self-report scores. The greatest improvement in scores was demonstrated by the two youngest children, three and four years old, who were treated on an outpatient basis.

Suggestions for Future Research

In future studies a pretest is essential, particularly in a self-selected sample, to establish if the two groups of parents and children are equal prior to treatment. Since no pretest was administered prior to the initial interview, initial anxiety levels of Group I and Group II were not documented prior to admission. The possibility exists that subjects attending the teaching program may have been the more anxious group prior to attending the class but the same as the control group after preparation.

Separate room assignments might have helped in preventing contamination of the control group. Also exclusion of children and parents with any prior hospital experience rather than limiting exclusions to those with recent hospital experience might have provided a more valid control group.

Children with ENT surgical procedures staying overnight were selected as a convenient sample. However children with short stay and minor procedures tend to exhibit less disturbances as a result of hospitalization. In order to evaluate the effectiveness of preoperative teaching it may be necessary to select more high-risk patients who stay in the hospital for a longer period of time, and who are more likely to exhibit disturbances following hospitalization.

Measurements selected focused upon the child's responses to the hospital experience and included self-report of fear, behavioral changes and vital sign measures. Since there was no measure of parental anxiety or satisfaction with care, and since parent-child anxiety levels may correlate, some measure of parental responses should be obtained. The parental measure could then be compared to the child's responses, and used in evaluating effectiveness of preparation.

In addition to obtaining a parental measure, a more

definitive physiologic measure is needed to compare and correlate with self-report and behavioral measures. Twenty-four hour urine cortisol levels determination is a non-invasive technique which might be effectively used to measure the child and parents' physiologic responses to the hospital experience (Barnes & Reinhart, 1978; Knight et al, 1979; Vardaro, 1978). This measure also might serve in identifying possible high-risk patients for whom additional intervention is indicated.

Implications of day surgery, outpatient care and the role of the parents in the pre and post-anesthetic period need to be explored and evaluated in further studies using randomization and larger samples.

Implications for Clinical Practice

Teaching strategies should be closely examined to determine if alternative or additional methods are needed within an established teaching program. Modeling techniques involving presentation by children of positive coping with a potentially stressful situation may be more helpful in achieving mastery than a factual narrative (Ferguson, 1979; Melamed & Siegel, 1975). It may be necessary to provide specific teaching and preparation at more than one time throughout hospitalization since there are many unanticipated experiences which may act as stressors for an individual child and single presentation may provide a false sense of security (Wolfer & Visintainer, 1975,

1979). Opportunities to discuss the hospital experience should be provided and encouraged in order to clarify misconceptions and fears and effective communication will aid in identification of patients and families who are at risk or need further intervention (Plank, 1972; Goslin, 1978).

It may be misleading to call a preoperative program a "Pre-Op Party" since children interpret words quite literally. If it were called a preoperative class the intent of conveying new knowledge might be more accurately portrayed. Some parents also felt they did not have a realistic anticipation of what to expect during the recovery period for what is considered a minor operation. Several indicated their child did not begin to feel better until about the tenth day post-surgery rather than the expected one week. Potential problems also need to be explored in relation to common changes occurring in children's behaviors following hospitalization and guidance provided for other physical care problems such as the frequently acknowledged difficulty in getting a child to take adequate fluids after discharge. This was addressed in the teaching program but many parents had difficulty coping with children who refused to drink fluids due to their sore throat.

For a majority of children included in this study, their hospital experience appeared to have been positive

with many parents indicating their child gained a sense of mastery. However, assumptions regarding nursing practice should be avoided and new and innovative programs carefully examined to weigh their ongoing effectiveness in view of possible change. Programs which are implemented in one area should also be examined in light of what is applicable to another clinical setting and research findings need to be validated in actual practice.

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APPENDIX A

DISCUSSION WITH PARENTS

(taken from Pediatric Pre-Op Party Program)
Prepared by K. Davis, R.N.

Honesty

It is natural to want to protect your child from hurts, but he can tell when you are worried or when he is in unfamiliar territory. If he doesn't understand something, he will fill in the "holes" with his own ideas, and his fantasies are frequently more frightening than the truth. That's why it is so important to explain things as the child experiences them, giving truthful information.

1. Explanations must be at the child's level of understanding. Find out what he/she is thinking or concerned about and speak to this--don't over-explain.

2. Talk about what is at hand and what is for sure. Deal with other things as they come up. Become knowledgeable yourself so you can answer questions, but don't expect to understand everything yourself either. The physician will explain a lot, but you can't gain complete medical knowledge.

3. Be honest and accepting of your own feelings and allow your child to be. The parents' attitude greatly influences the child's attitude. Help your child to express his feelings. Statements as to how you feel or think he might feel are sometimes helpful.

Informed Consent

By law, and because it is important for you to know, your child's physician and the anesthesiologist will discuss with you the hazards of surgery. It may be understandably of concern to you to have him mention things that could go wrong. There is a tendency to hear only the possible problems and not the statistics that show that the risks, although present, are minimal in routine scheduled surgeries. The physician would not be doing the surgery if he did not feel that the benefits were much greater than the risks. He will discuss these things with you so that you can give "Informed Consent" to your child's surgery.

Preparation for Hospitalization and Surgery

Things you can do:

1. Attend this class

2. Talk about the experience at home. Play or "act out" with your child at home.

3. Read books about hospital, surgery with your child. There is a list of books available at Salem Public Library.

4. Try to understand situations your child may be faced with. Don't be afraid to ask physician or nurses questions. You should be able to get a general overview of what will happen, but don't expect a step-by-step explanation.

Unit Routines and Visiting Information

1. We encourage parent participation in care as far as you are comfortable. We want to be available to help, but don't want you to feel pushed to the side. Also, we don't want you to feel guilty if you can't be with your child. The nursing staff and the parents need to work together for the good of the child.

2. Your child may bring his/her own pajamas, toothbrush, comb, etc. We do have these things available without extra cost at the hospital. He/she also may bring a special blanket or toy. Please label everything you are leaving at the hospital. We ask you to take home what is not needed so we don't lose it.

3. Food--your child will be NPO (nothing by mouth) for a period before surgery, and we will be recording what he/she drinks after surgery. We will start on fluids slowly after surgery because the incidence of vomiting from the effects of anesthesia is fairly high. After there is no problem with vomiting, we will be encouraging fluids. Parents are a great help in both limiting and encouraging fluids. Please let us know when and what your child is eating or drinking. If he/she does vomit, we need to know this and see what has been vomited.

4. Visiting Information (Hand out copy to each). This is a copy of the Visitation Information for this hospital.

Please read it through well at home. I will just make a few points here:

a. The patient rooms do not have space for parents to sleep at the child's bedside. We do have a parents lounge where parents may spend the night if they wish. (The majority don't.)

b. Please stay at your child's bedside rather than with other children. We are concerned about limiting spread of infection and respecting the confidentiality of other patients.

c. You may be asked to leave the room by the M.D. or nurse. There is a reason for this, and please do it. Explanations may be given later.

5. When the unit is really busy, the staff tends to deal mostly on the physical aspects of care. We know that you and your child need more than this, and we usually supply it. If we don't, we need your help and understanding to work as a team to meet all your child's needs.

6. When you are present with your child, you need to be calm and comforting to him. You are his security in unfamiliar, sometimes scary, surroundings. But please don't set the hospital staff up as the "bad guys" in an "us against them" situation. Again, we need to work as a team.

<u>What You May Expect From Your Child</u>

Don't expect the worst, Most kids go through this ex-

perience coping very well, better than most adults, especially physically. How you cope determines a lot how your child will do. Possible normal behavior: (again--don't expect it)

-crying when you leave. Most recover quickly and do well. They need to know when you are coming back. We do call parents and ask them to come if there is a real problem, especially if you ask us to.

-anger at bodily intrusion, loss of control

-fear of bodily loss

-ambivalence toward parents, hospital staff

-acting out

What you can do during and after hospitalization to help your child and yourself cope with above behavior:

1. Talk about behavior. Suggest reasons they may be acting this way. Let them know it's OK.

2. Talk about the hospital experience. May want to draw pictures with your child. He/she can look at these later to remember the real things that happened, not build false fantasies about negative happenings.

3. Encourage play-acting out nurse and doctor roles with dolls, props.

4. Give child as much control as possible, even in little things, like pushing elevator buttons, which pajamas to wear, etc. Only let him/her choose when there is really a choice to be made and you can stick with the child's decision.

Handouts

Give the following to each set of parents:

1. Pediatric visiting information
2. Pre-Op Party--parent evaluation (to be returned to the nurse during hospitalization)
3. Tell parents about coloring book child will receive and ask that they bring it with them to the hospital.

APPENDIX B

INSTRUCTION

VERNON'S POST HOSPITAL BEHAVIOR INVENTORY

For each item the parent (or guardian) is asked to compare the child's typical behavior before hospitalization with his behavior during the third week after hospitalization. Five response alternatives are provided:

(a) much less than before. . . scores 1
(b) less than before . . . . . scores 2
(c) same as before . . . . . scores 3
(d) more than before . . . . . scores 4
(e) much more than before. . . scores 5

		a	b	c	d	e
1.	Does your child make a fuss about going to bed at night					
2.	Does your child make a fuss about eating					
3.	Does your child spend time just sitting or lying around doing nothing					
4.	Does your child need a security object such as a blanket or toy					
5.	Does your child seem to be afraid of leaving the house with you					
6.	Is your child uninterested inwhat goes on around him or her					
7.	Does your child wet the bed at night					
8.	Does your child bite his (or her) nails					
9.	Does your child get upset when you leave him (or her) alone for a few minutes					
10.	Does your child need a lot of help doing things					
11.	Is it difficult to get your child interested in doing things (like playing games, with toys, and so on).					

	a	b	c	d	e
12. Does your child seem to avoid or be afraid of new things					
13. Does your child have difficulty making up his/her mind					
14. Does your child have temper tantrums					
15. Is it difficult to get your child to talk to you					
16. Does your child quarrel with his/her brothers or sisters					
17. Does your child seem to get upset when someone mentions doctors or hospitals					
18. Does your child follow you everywhere around the house					
19. Does your child spend time trying to get your attention					
20. Is your child afraid of the dark					
21. Does your child have bad dreams at night or wake up and cry					
22. Is your child irregular in his/her bowel movements					
23. Does your child have trouble getting to sleep at night					
24. Does your child seem to be shy or afraid around strangers					
25. Does your child have a poor appetite					
26. Does your child tend to disobey you					
27. Does your child break toys or other objects					
28. Does your child suck his/her fingers or thumbs					

APPENDIX C

"Not Afraid" "A little afraid" "Quite Afraid" "Scared"

Created by Amy Erovick
Illustrated by Joyce Erovick

APPENDIX D

ADMISSION QUESTIONNAIRE

(completed by Investigator)

1. Child's Age to nearest year: 1 2 3 4 5 6 7 8 9 10

2. Sex: ___M ___F

3. Number of siblings: 0 1 2 3 4 5 6-or more

4. Older siblings: 0 1 2 3 4 5 6-or more

5. Younger siblings: 0 1 2 3 4 5 6-or more

6. Anticipated surgery:

_____Tonsillectomy
_____Adenoidectomy
_____Tonsillectomy & Adenoidectomy
_____Tonsillectomy, plus Myringotomy and Tubes
_____Adenoidectomy, plus Myringotomy and Tubes
_____Tonsillectomy, Adenoidectomy, Myringotomy and Tubes

7. Living with:

_____Both parents
_____Single parent
_____Guardian/Foster parents
_____Other relative

8. Residence:

_____Salem area (Salem phone number)
_____Marion County
_____Polk or Yamhill
_____Other

9. Racial backgroun:

_____Caucasian
_____Chicano
_____Asian
_____Black
_____American Indian
_____Other

10. Father's years of education completed

Grade school 1 2 3 4 5 6 7 8
High school 9 10 11 12
College 13 14 15 16
Advanced Degree . . . . 17 or more

11. Mother's years of education completed

Grade school 1 2 3 4 5 6 7 8
High school 9 10 11 12
College 13 14 15 16
Advanced degree . . . . 17 or more

12. Total yearly income:

_____$5000-$9,999
_____$10,000-$19,999
_____$20,000-$29,999
_____$30,000-or more

13. Physician:

_____C
_____E
_____H
_____S

14. _____Attended Pre-Op Party

_____Did not attend

15. Reasons for non-attendance:

_____Didn't find out in time
_____Unable to make arrangements to attend
_____Already had sufficient information
_____Didn't feel it would be beneficial
_____Other

16. Primary source of information:

_____Doctor's office
_____Hospital personnel
_____Pre-Op Party
_____Previous experience
_____Other

Child's Feelings About Pending Surgery
(completed by Interviewer)

17. Child's feeling about pending surgery. A picture or stick figure will be used and the child will be asked to identify which is most like him/her.

_____Not at all afraid
_____A little afraid
_____Quite a bit afraid
_____Very, very much afraid

Post Discharge Information
(completed by Investigator)

Child's feelings about going to hospital

18. Child's feelings about going to the hospital if he/she had to go tomorrow. The same pictures or stick figures will be used.

_____Not at all afraid
_____A little afraid
_____Quite a bit afraid
_____Very, very much afraid

Physiologic Measures

19. Blood pressure measurements

_____Admission
_____Preoperative
_____Post Recovery Room
_____Discharge Interview

20. Pulse Rate

_____Admission
_____Preoperative
_____Post Recovery Room
_____Discharge Interview

APPENDIX E

UNIVERSITY OF OREGON
HEALTH SCIENCES CENTER

FAMILY-CHILD NURSING MAJOR
SCHOOL OF NURSING

Area Code 503 225-7889

3181 S.W. Sam Jackson Park Road

Portland, Oregon 97201

109

November/December, 1980

Dear Parents:

I would like to request your participation in a study I am doing as a part of my master's thesis in Family-Centered Child Nursing through the University of Oregon Health Sciences Center in Portland. This study will compare physiologic and behavioral responses of children who have participated in the "Pre-Op Party" to those of children who have not attended the program. The purpose is to evaluate the effectiveness of pre-op teaching in altering children's responses to hospitalization.

The nursing care your child receives will not be altered in any way by participation in this study. I will be comparing the routine measurements taken by nursing staff on pediatric Ear-Nose-Throat patients. In addition, I will need to obtain some personal information in order to match patients for comparison purposes. All information obtained in the questionnaire will be handled confidentially and a code number will be used to identify your records rather than a name. The initial interview and consent form should not take more than half an hour of your time.

Three weeks after discharge from the hospital you will be asked to fill out another questionnaire related to behavioral changes which may have occurred following the hospitalization. This should not take more than twenty minutes.

Salem Hospital has agreed to cooperate with me in this study but I and my advisor are responsible for the project and are not acting as agents or employees of the Salem Hospital. I will be happy to answer any questions you have regarding your participation in this study.

[redacted]
Advisor, Wilma E. Peterson, PhD

[redacted]
Joyce Erovick, B.S.N.
(503)581-5575

APPENDIX F

GRADUATE STUDIES DEPARTMENT
SCHOOL OF NURSING

Area Code 503 225-7838

3181 S.W. Sam Jackson Park Road

Portland, Oregon 97201

110

UNIVERSITY OF OREGON

HEALTH SCIENCES CENTER

INFORMED CONSENT

I, _____ herewith agree to allow
(First Name) (Middle Name) (Last Name)
my child _____ to serve as a subject in
(First Name) (Middle Name) (Last Name)
the investigation name "Post-Operative Effects of Structured Group Teaching Upon Pediatric Patients With Elective Surgery" conducted by Joyce Erovick, RN, BSN, under the supervision of Wilma E. Peterson, RN, PhD.

This investigation will attempt to demonstrate differences occurring in stress responses of children who attend or do not attend a preorientation session at Salem Hospital prior to admission. All children will receive routine hospital care. An interview and questionnaire requiring approximately 30 minutes after hospital admission and a post-discharge interview and questionnaire involving about 20 minutes are the only additional time commitment for participants. Although my child may not benefit directly, the purpose of the study is to try to determine if structured teaching can benefit children who are being hospitalized.

The information obtained by the investigator will be kept confidential. Mine or my child's name will not appear on the records and anonymity will be assured by use of code numbers. Joyce Erovick has offered to answer any questions that I might have about participation in this study. I understand I am free to refuse to participate or to withdraw from participation in this study at anytime without effect upon my relationship or treatment of my child at the Salem Hospital Pediatrics Department, by our private physician.

November 10, 1980
(Date)

_____
(Subject's Signature)

[redacted]

_____
(Parent's Signature)

Wilma E. Peterson, RN, PhD
Thesis Advisor
Associate Professor
Project Director
Family-Centered Child Nursing
Graduate Studies Department

_____
(Witness Signature)

APPENDIX G

Mean Scores for Individual Items by Age*
on Vernon's Inventory in Group I and Group II

	Item	Group I	Group II
		$\bar{X}$	$\bar{X}$
1.	Does your child make a full about going to bed at night?	3.0 3.0	3.1 3.0
2.	Does your child make a fuss about eating?	3.0 3.0	2.8 3.1
3.	Does your child spend time just sitting or lying around doing nothing?	2.9 3.1	3.0 3.0
4.	Does your child need a secuirty object such as a blanket or toy?	3.2 3.1	2.9 3.0
5.	Does your child need a security object such as a blanket or toy?	3.0 3.0	3.1 3.1
6.	Is your child uninterested in what goes on around him (or her)?	2.9 3.0	2.8 3.1
7.	Does your child wet the bed at night?	2.9 3.0	3.0 3.0
8.	Does your child bite hi (or her) nails?	3.1 3.0	2.9 3.0
9.	Does your child get upset when you leave him (or her) alone for a few minutes?	3.1 3.0	3.0 3.0
10.	Does your child need a lot of help doing things?	3.0 3.1	3.0 3.0
11.	Is it difficult to get your child interested in doing things (like playing games, with toys, and so on)?	2.9 3.0	2.6 3.2
12.	Does your child seem to avoid or be afraid of new things?	2.9 3.0	2.6 3.2

13.	Does your child have difficulty making up his (or her) mind?	3.0 3.1	3.0 3.0
14.	Does your child have temper tantrums?	3.3 2.9	3.3 3.2
15.	Is it difficult to get your child to talk to you?	3.1 3.0	3.0 3.0
16.	Does your child quarrel with his (or her) brothers or sisters?	3.2 3.0	3.1 3.1
17.	Does your child seem to get upset when someone mentions doctors or hospital?	3.1 3.1	3.3 3.0
18.	Does your child follow you everywhere around the house?	3.1 3.0	3.0 3.0
19.	Does your child spend time trying to get your attention?	3.1 3.0	3.0 3.0
20.	Is your child afraid of the dark?	3.0 3.0	3.1 3.0
21.	Does your child have bad dreams or wake up and cry?	3.0 3.0	2.9 3.0
22.	Is your child irregular in his (or her) bowel movements?	3.1 3.0	3.0 3.0
23.	Does your child have trouble getting to sleep at night?	3.1 3.0	3.1 3.0
24.	Does your child seem to be shy or afraid around strangers?	3.1 3.0	3.1 2.8
25.	Does your child have a poor appetite?	2.7 2.8	2.5 2.7
26.	Does your child tend to disobey you?	3.2 3.1	2.9 3.1
27.	Does your child break toys or other objects?	3.0 3.0	3.0 3.0
28.	Does your child suck his (or her) thumb?	3.0 3.1	3.0 3.1

* first line=preschool responses
second line=schoolage responses

AN ABSTRACT OF THE THESIS OF

JOYCE E. EROVICK

for the Master of Nursing

Date Receiving This Degree: June 1982

Title: Effects of Structured Group Teaching Upon Postoperative Responses in Pediatric Patients With Elective Surgery

Approved: _____
Wilma Peterson, Ph.D. Thesis Advisor

There is growing interest in and an increasing number of programs to decrease the stress of hospitalization encountered by pediatric patients. The purpose of this study was to evaluate the effects of a structured preoperative teaching program upon postoperative responses of children having elective ENT surgical procedures. A similar group of children with the same surgical procedures who did not attend the program served as controls.

Group I consisted of 27 children ages 3-9 who attended the structured teaching program known as the "Pre-Op Party". Group II consisted of 23 children ages 3-9, serving as controls who did not attend the teaching program prior to surgery. All children had elective tonsillectomies, adenoidectomies, or a combination including myringotomies and placement of polyethylene ear tubes. Due to self-selection and lack of pre-testing, the design of this study was pre-experimental with post test only: $X \quad O$

Children's responses were compared using Vernon's Post Hospital Behavior Inventory, a self-report of fear, and blood pressure values and pulse rates taken at three times for comparison with the behavioral and self-report findings. No statistically significant findings were demonstrated between Group I & Group II. However self-report of fear was significantly decreased for schoolage children in both groups.

Suggestions were made for future research and implications drawn for clinical practice.