

A COMPARISON OF TWO
HOSPITAL PREADMISSION PREPARATION
PROGRAMMES FOR YOUNG CHILDREN

by

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ABSTRACT

The purpose of this study was to compare a tour-based preadmission preparation programme for young children to a video-tape-based programme. Subjects were 30 English speaking children who were admitted to Surrey Memorial Hospital, a community general hospital in Surrey, B.C. The children were admitted for elective surgery which required an overnight stay. The children and their parents participated in the programmes three days to two weeks prior to the child's scheduled surgery. Half of the children and their parents were taken on a tour of the paediatric ward and laboratory. The other group was shown a video-tape made at the Surrey Memorial Hospital, which depicted the hospitalization of a boy and girl for tonsillectomy and adenoidectomy. Both treatments were followed by a discussion and play period.

The two groups were not found to differ on sex, previous hospitalizations, types of surgical procedure, length of stay, length of anaesthesia, or prehospital personality as measured by a modification of the Post-hospital Behavior Questionnaire (Vernon, Schulman, & Foley, 1966). However, the tour group was found to contain more younger children (under 6 years of age) than the video group.

No significant differences were found between the two groups on the self-report, behavioural, or physiological outcome measures, except for incidence of postoperative vomiting. The video group vomited less than the tour group.

Questions concerning the validity of the Hospital Fears Rating Scale and the modified Posthospital Behavior Questionnaire for this age group are raised in the discussion. Complicating factors, such as small sample

size, lack of a control group, and lack of control over physiological data collection are addressed in this chapter. Confounding factors, such as a preoperative teaching class and the discussion groups, are also addressed. Finally, the impact of Preadmission Programmes and practical considerations in choosing a programme are discussed.

Thesis Supervisor: Dr. O.A. Oldridge

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CHAPTER I

INTRODUCTION

Hospitalization can be a disturbing experience for young children for a number of reasons. Stress producing situations, often not previously encountered by children in their daily lives, are met in the hospital environment. Separation from parents and friends may provoke anxiety at any age (Lockhart, 1980). Fears of the unknown and unfamiliar may become intensified and difficult to cope with in the hospital where almost everything is unfamiliar or unknown. Children between the ages of 3 and 6 are forming concepts of self and body parts, and concern for body mutilation may be exacerbated by illness or injury (Belmont, 1970; Ritchie, 1979). Loss of control over body functions may be most distressing to children who are just beginning to feel mastery over their bodies (Freud, 1952). The interaction of fantasy with little or misinformation may lead to the development of unnecessary and inappropriate fears (Jessner, Blom & Waldfogel, 1952). Children may interpret illness or surgery as a punishment (Nagera, 1978). They respond to the situation as they perceive it, rather than as it may be.

The responses of a child to his illness are usually not determined by its actual severity. More significant are his own fantasies and interpretations of his illness. (Belmont, 1970, p.477)

For these reasons, it is possible that children undergoing even minor surgical procedures may experience psychological distress. Estimates of the numbers of children negatively affected by the experience of hospitalization vary from 10% to 92% (Melamed & Siegel, 1975).

Psychological distress as a result of hospitalization may be manifest in a variety of ways. Behavioural disturbances, such as prolonged crying,

apathy, and withdrawal have been observed in hospitalized children (Gellert, 1958). Regressive behaviour, such as enuresis, thumb sucking, sleep disturbances, and rapid changes in mood are often observed by parents after the child has returned home and may continue to be observed for up to six months (McKee, 1963; Nagera, 1978). Admissions longer than seven days and repeated hospitalizations of children under five years of age have been associated with poor reading and behavioural disturbances lasting into adolescence (Douglas, 1975).

It has been suggested that preoperative anxiety is a significant factor in impeding recovery from surgery (Dumas, 1963; Giller, 1963). Andrew (1970) found that recovery was speeded by preparatory instruction. Therefore, for both medical and psychological reasons, the effect of preparatory instruction on children entering hospital needs investigation.

Vernon and Foley (1965) identified the three main objectives of preparatory programmes: (1) to give factual information, (2) to encourage emotional expression, and (3) to establish a trusting relationship with the hospital staff. Preparatory programmes for children take many forms. Some are designed for potential health care recipients and may take place in kindergartens and schools (Abbott, 1970; West, 1976) or in the hospitals (Pomarico, Marsh, & Doubrava, 1979). Other programmes are designed for children scheduled for elective surgery and occur a few days or weeks before the children are admitted to the hospital (Anthony, 1977; Davis, 1977; Smith, 1971). There are also preoperative programmes scheduled for the afternoon before surgery (Crocker, 1980; Thomson, 1972). Other programmes emphasize the need for continuing play therapy opportunities throughout the child's hospital stay (Azarnoff, 1974; Schrader, 1979). In all cases,

the purpose is similar; to reduce the stress of hospitalization by acquainting the child with the hospital environment and routine, by providing accurate information, and by encouraging the child to express his thoughts and feelings freely in the hope of releasing anxiety and correcting misinformation.

Hospital preadmission programmes for scheduled elective surgery patients have become more common in recent years. In a recent survey of American paediatric hospitals, 42% of those responding prepared all patients, 32% prepared only specific types of admissions (eg. surgical patients), while 26% provided no formal preparation programme at all. (Peterson & Ridley, 1980). In a Canadian survey of paediatric hospitals and general hospitals with over twenty paediatric beds, the provision of preparation programmes ranged from 82% (Alberta) to 13% (Saskatchewan) of the responding hospitals in each province (Post, 1979). These programmes are usually offered on a weekly or semi-monthly basis and are conducted by a paediatric nurse or volunteer. The composition of these programmes varies, but always contains the opportunity for both parents and children to ask questions and for the children to manipulate some hospital equipment such as stethoscopes, tongue depressors, masks, etc. Many organizers advocate a "party atmosphere" (Anthony, 1977; Brown, 1971; Jolly, 1977). Two of the more commonly used approaches for disseminating information and for familiarizing the child with the hospital and its routines at these preadmission programmes are a tour of some of the areas of the hospital and/or a film depicting a child's hospitalization.

The tour-based programme is widely used and is advocated by the Canadian Institute of Child Health (1979) and by the B.C. Affiliate of the

Association for the Care of Children's Health (1980). These tours generally include the Admission area, the Laboratory, the Paediatric Ward. Other areas, such as the X-ray, Emergency, and Operating Rooms, are included in some tours, but because of technical reasons and high usage rate are not always considered suitable. In all cases, the co-operation of the hospital staff is essential (ACCH, B.C. Affiliate, 1980) but may not always be possible to obtain. Staff working in busy areas of the hospital may find tour groups to be a disruption and inconvenience.

Film, slide-tape, or video-tape based programmes may be used on their own or in conjunction with an abbreviated tour of the hospital (Davis, 1977; Smith, 1971; Stainton, 1974). Films depicting a peer-model experiencing admission and hospital procedures have been found effective in decreasing children's anxiety, as measured by behavioural, physiological, and indirect measures (Ferguson, 1979; Melamed, Myer, Gee, & Soul, 1976; Melamed & Siegel, 1975, 1980).

In summary, because of the growing concern over the possible negative effects of hospitalization on children, more and more hospitals are establishing preparation programmes. Two of the more common approaches to pre-admission programmes are the hospital tour and the film or video-tape of a child experiencing hospitalization. The purpose of this study was to compare the effectiveness of these two approaches to preparation programmes.

CHAPTER II

REVIEW OF THE LITERATURE

The questions of whether hospitalization can have an adverse effect on children, what this effect might be, and how this effect might be alleviated are addressed singly and in consort in the literature on hospitalized children.

The Adverse Effects of Hospitalization

The adverse effects of hospitalization have been described in various ways: (1) the anxiety or stress experienced by the child during hospitalization, and (2) the negative changes in behaviour noted after hospitalization.

The concept of anxiety or stress during hospitalization was first examined by Bowlby in the 1940's. He described (1958) the three phases through which a child may pass during hospitalization: (1) a phase of protest, (2) a phase of despair, and (3) a phase of detachment. He described these phases in both psychoanalytic and behavioural terms. A variety of behaviours and responses have been attributed to the anxiety or stress of the hospitalization, including a low level of manageability (Sauer, 1968), and of co-operation (Wolfer & Visintainer, 1975, 1979). Elevations in physiological responses, such as pulse and blood pressure, have also been attributed to the stress of hospitalization (Skipper & Leonard, 1968).

Changes in behaviour following hospitalization were first observed in studies by Prugh, et al. (1953) and Jessner, et al. (1952). Changes in behaviour included: sleep disturbances, regressive behaviours, clinging, crying, enuresis, and others. In longitudinal studies, conduct disorders,

such as lying and stealing, and learning problems were correlated with earlier hospitalizations (Douglas, 1975; Quinton & Rutter, 1976).

Not all research has supported the hypothesis that hospitalization adversely affects children. Vernon and Foley (1965) reviewed the literature to 1964 on hospitalized children. They noted four studies which concluded that hospitalization was an upsetting experience for children, i.e., one that resulted in a negative change in behaviour after the children returned home. They also noted one study with mixed findings and another which did not find evidence to support the hypothesis that hospitalization resulted in negative behavioural changes.

Davenport and Werry (1970) found no evidence to support the hypothesis that hospitalization resulted in negative behavioural changes. In their study, hospitalized subjects' behaviour, as measured by the Post-hospitalization Behavior Questionnaire (Vernon, Schulman & Foley, 1966), changed no more than the non-hospitalized control children's behaviour. Ninety-five of the 145 control subjects were the siblings of the hospitalized children, but the question of whether the hospitalization of a sibling may adversely affect a control child was not addressed. The wide age range (1 to 15 years) and the variation in the hospitalization experience (day-care surgery and in-patient surgery) limit the interpretation of this study.

Estimates of the numbers of children affected adversely by hospitalization vary widely depending on the date of the study and the method of assessment. In one of the best of the early studies reviewed by Vernon and Foley (1965), Prugh, et al. (1953) found that 92 out of their 100 hospitalized control subjects showed some behavioural disturbance two weeks after discharge. Three months later, 66% of the control group and 44% of

the experimental group showed disturbances of behaviour. The control group saw their parents once a week and were confined to their beds for much of the time. The experimental group had daily parental visits, a play programme, and preparation for each procedure. Few children now experience hospitalization in the same way as the children in the control group of this study.

The children in Douglas' more recently published longitudinal study (1975) experienced hospitalization in the 1950's and 10% were allowed no visitors at all. Douglas found that the behaviour of 22% of the pre-schoolers in his study deteriorated after hospitalization. Of those admitted more than once, 38% were found to show behavioural disturbance. These findings were confirmed by Quinton and Rutter (1976), who concluded that multiple admissions and admissions lasting longer than one week were related to later behavioural disturbance. The latter study contained more recently hospitalized children.

The experience of hospitalization has changed in the past twenty years. Attempts have been made to decrease the negative impact of hospitalization through changes in visiting regulations and other policies. Conditions also vary from hospital to hospital today (Post, 1979). It is, therefore, inappropriate to assume that children in each hospital are likely to be affected by the experience in the same way.

Determinants of Anxiety in Hospitalized Children

Why does the hospital experience result in anxious children who later demonstrate negative behaviour? Few modern studies have attempted to answer that question in a systematic way. Vernon and Foley (1965) identified four principal determinants of anxiety with "limited support" in the literature up to that time. These are:

1. unfamiliarity with the hospital setting,
2. separation from parents, siblings, and friends,
3. age of the child, and
4. prehospital personality of the child.

Other determinants have also been found to affect children's reactions to hospitalization. These are:

5. parental attitudes and personality, and
6. loss of control.

1. Unfamiliarity Brown and Semple (1970) found that in an experimental situation, subjects showed less mature motor and language behaviour in an unfamiliar setting than in a familiar one and continued to show differences in behaviour three days later. Another study, involving hospitalized children, has shown that a preadmission tour programme, which familiarizes the children with the hospital environment, positively affects the children's behaviour while in hospital (Sauer, 1968). This lends support to the hypothesis that unfamiliarity is indeed a factor contributing to behavioural disturbance in hospitalized and posthospitalized children.

2. Separation Vernon and Foley (1965) concluded that the second factor, separation from parents and family, was not as important as might seem because it was generally compounded by other factors, such as unfamiliarity, restricted activity, and others. However, Jessner et al. (1952), in a study of 143 hospitalized children, found fear of separation to be the focus of the children's anxiety. Godfrey (1955) found that the time when parents and children separated after visiting hours to be the most stressful time for both parents and children. In a comparison of children who experienced no separation from their mothers (i.e., the mothers roomed-in)

with those who experienced a routine hospitalization, Lehman (1975) found the children whose parents roomed-in to be more aggressive to both their mothers and nurses but to also have fewer postoperative complications.

3. Age The relationship between the age of the hospitalized child and behavioural disturbance appears to be curvilinear (Vernon & Foley, 1965). Children up to 7 months old show little behavioural disturbance when hospitalized. Upset becomes increasingly apparent after this age, with 3 and 4 year olds showing greatest vulnerability, and then decreases in frequency with older children (Prugh, et al., 1953). Sides (1977) found age to be the most significant predictor of posthospitalization behavioural disturbance in an inverse relationship in a sample of children 5 weeks to 15 years of age.

4. Prehospital personality and experiences are considered to be a fourth factor determining children's reactions to hospitalization (Vernon & Foley, 1965), but little work has been done to investigate this factor. Crocker (1980) confirmed that children who had been previously hospitalized tended to be more anxious than their naive counterparts. Melamed and Siegel (1975) noted that state and trait anxiety instruments did not appear to measure the same personality variable but did not investigate whether there was any relationship between the scores on the different measures and behavioural upset during hospitalization. Recent studies, such as Melamed and Siegel's (1975), have not attempted to control for prehospital personality as they have for age and previous hospitalization.

5. Parental Attitude A further factor, which may be considered to have some influence, is parental attitude and anxiety. Sides (1977) concluded

that maternal anxiety was the second best predictor of posthospital behavioural upset after age.

Vernon, Foley and Schulman (1967) found that as the child's perception of threat is increased, so is the positive effect of the mother's presence on the child. However, parents who feel fearful themselves are less likely to visit as long, live in, prepare the child, or become informed themselves than parents who are less anxious (Robinson, 1968) and may not be there when they are most needed. Skipper (1966) found that as a mother's information level increased, her distress decreased and her adaptation increased. This has led other researchers (Mahaffy, 1965; Skipper & Leonard, 1968) to provide a more positive hospital experience for children by attempting to reduce the anxiety of the mothers through giving information and support. Coleman (1976) found no significant difference between children receiving an orientation and play programme only and those whose parents also received an educational programme. His measurement instrument, however, was the Children's Manifest Anxiety Scale (Castaneda, McCandess, & Palermo, 1956), which Melamed and Siegel (1975) found insensitive to changes other instruments detected.

6. Loss of Control Another determinant of anxiety in hospitalized children is based on psychoanalytic theory. Anna Freud (1952) felt that for children, the experience of being nursed and the loss of control over such activities as eating, bladder evacuation, dressing, etc. "means an equal loss in ego control, a pull back toward the earlier and more passive levels of infantile development." (p.71-72) This concurs with the opinions of Gellert (1958) and Lockhart (1980) and coincides with the definition of a "traumatic situation" given by Nagera (1978):

"...a psychological state during which time the ego loses the capacity to keep control over its function, and particularly over the amount of anxiety that overwhelms it, as well as the situation that is provoking it." (p.9).

This theory that hospitalization is a traumatic situation because of the loss of ego control is supported by the observations of regressive behaviour of children after hospitalization (McKee, 1963; Sipowicz & Vernon, 1965).

Methods of Alleviating Anxiety in Hospitalized Children

The Role of Knowledge in Reducing Pain and Anxiety Fantasies and misconceptions about hospitalization are considered to be dangerous by Becker (1972), Fassler (1979), and Steward (1980), especially in children in the 5 to 6 year age range. Belmont (1970), Coppolillo (1980), and Ritchie (1979) view pre-schoolers as being very concerned with their concepts of self and body. Children at this age view their bodies as their concept of self and may be greatly concerned about body mutilation. For this reason, fantasies and misconceptions of the reasons for hospitalization, surgery, and medical procedures are considered most dangerous for children at this age by psychiatrists (Belmont, 1970; Steward, 1980). In their review of the literature, Vernon and Foley (1965) noted that children may view hospitalization as a punishment and decried the lack of studies investigating the relationship between concepts of hospitalization and behavioural upset. Weinick (1958) found that no preparation and "unhealthy attitudes towards hospitalization", as measured by projective tests, resulted in intensification of distress after hospitalization. No preparation and "healthy attitudes" resulted in a significant negative change in attitude and anxiety level, while preparation and "unhealthy attitudes" resulted in a positive change. No

definition of "healthy" and "unhealthy attitudes" was given. Lende (1971) compared unprepared and prepared children's behavioural responses to hospitalization. She found a significant negative correlation between behavioural upset and knowledge about the hospitalization. It appears, then, that having prior knowledge of the procedures which occur during a hospitalization reduces misconceptions and results in increased adjustment to the hospitalization.

Research studies looking at methods used to mitigate the negative effects of hospitalization on children by providing information may be divided into two areas: (1) varying the actual nursing care, and (2) using preparation programmes.

Nursing Care "Stress point nursing" is the descriptive title given by Wolfer and Visintainer (1975) to the care given by a single nurse at specified stressful points throughout the child's hospitalization. The times specified as "stressful" vary from study to study but often include admission, preoperative medication administration and postoperative recovery. Godfrey (1955) attempted to ease the separation of parent and child by this style of nursing with mixed results. The children appeared to react positively, but the parents did not report any positive changes. Mahaffy (1965), Skipper and Leonard (1968), and Wolfer and Visintainer (1975) hypothesized that with the attention of one nurse at stressful times, stress would be reduced in the parents and reflected in a lower anxiety level in the children. The emphasis in this nursing style is on the concerns of the mother as well as those of the child.

Preparation Programmes Preparation programmes for surgical patients can be separated into two types, those which occur several days before the

child's admission and those which occur upon the child's arrival or after admission. Because of the difficulty in obtaining random subjects for this research, the latter time of presentation has received greater research attention. The question of the best time for preparation was asked by Vernon and Foley in 1965 and was still not answered eleven years later when Siegel (1976) reviewed the more recent literature.

Freud (1952) felt that too lengthy a time period between preparation and surgery might create dangerous fantasies, but that too short a time would not allow for the internalization of the material and the preparation of defenses. Melamed, et al., (1976) addressed the question and found that children prepared one week in advance were less anxious at the time of admission than those prepared immediately prior to admission. Older children prepared in advance also demonstrated fewer behaviour problems after discharge. Ferguson (1979) found slightly different results. A visit to the home of the child one week in advance was more effective in reducing the anxiety in children aged 3 and 4 than in older children. Children aged 6 and 7 benefitted more by the preparation immediately prior to admission. This may have been due to the types of preparation rather than the times of preparation, since the advance preparation was a visit by a nurse and the immediate preparation was a video-tape whose subject was the hospitalization of two children. Crocker (1980) found that younger children (aged 4 to 7) did not benefit as much from preparation following admission as did older children (7 to 10). On the whole, preparation in advance appears to be more effective than preparation on the day of admission for younger children.

As well as when to prepare, researchers have asked who should prepare the child. Vernon and Foley, in their review of the literature (1967, note:

"...that the only study which did not provide some positive findings with respect to preparation (Jessner, et al., 1952) was the only study which relied on parents to provide psychological preparation." (p.23)

Parents may have their own misconceptions and fears with which to deal, and if anxious, may not prepare their child (Robinson, 1968). Wolfer and Visintainer (1979) sent home a hospital kit and booklet so that parents might prepare the subjects for hospitalization. They note that home preparation was beneficial to all who used it. It appears, then, that parents may have some difficulty in preparing their child, but can do so effectively with assistance from the hospital.

a) Modelling Programmes Modelling has proved to be a successful technique in demonstrating appropriate methods of behaviour and thereby reducing the avoidance or negative behaviour of the subject toward such varied stimuli as dogs (Bandura, et al., 1967), snakes (Kazdin, 1974), and dental treatments (White, et al., 1974).

Although Bandura and Menlove (1968) found that live models were more effective than filmed models in extinguishing avoidance behaviour, filmed modelling continues to be a popular approach to reducing medical and dental stress, especially as it is assessed by physiological measures (Siegel, 1976; Thelen, Fry, Fehranbach, & Frautschi, 1979).

The more similar the model is to the subject, the greater the effect of treatment appears to be. Kazdin (1974), working with adults, and Kornhaber and Schroeder (1975), working with children, both found that models similar in age and sex to the subject had the greater effect in the cases of both coping and mastery models. Miechenbaum (1971) found coping models to have a significantly greater effect in reducing avoidance behaviour in adults than mastery models. Thelen et al. (1979) concluded, in their review of the literature on therapeutic video-tape and film modelling, that to be of greatest

effect the model should be of peer age or younger and provide a coping, rather than a mastery model. They also described narration as an effective element in film and video modelling, especially if the narration expresses the model's self-verbalizations of thoughts, feelings, and coping techniques during treatment.

Multiple models have been shown to be more effective than one in reducing avoidance behaviour (Bandura & Menlove, 1968). One might add this variable to Thelen et al.'s list.

Film modelling has been used successfully to change the behaviour of young children during dental treatment. White, et al. (1975) found watching a model receive treatment to be more effective than having the children simply watch the dentist manipulate the equipment. Melamed, Weinstein, Hawes, and Katin-Borland (1975) found a significant difference in the behaviour of 5 to 9 year olds after viewing a filmed model. Although the sample was very small (n=15), the groups were matched for age, sex, race, initial fears, and even parental and dentist's anxiety levels. Similar results were obtained by Melamed, Hawes, Heiby, and Glick (1975), again with a small sample (n=16) and a large age spread (5 to 11 years). These results were not confirmed by Klorman, Hilpert, Michael, LaGama, and Sveun (1980), who compared groups viewing a filmed mastery model, a filmed coping model, and a control film. Although the group viewing the coping model obtained lower scores on a Behavior Profile Rating, there was no significant difference found between the three groups. The sample was larger in this study than in the two previously mentioned (n=60). Measurement in this study consisted of behavioural observations only and did not include any physiological response measures. This may have affected the results of the study.

Vernon (1973) and Vernon and Bailey (1974) have used filmed modelling

in preparing children for anaesthesia induction. Their success has been limited for two possible reasons. The first is that the film was of a mock-up, rather than a real induction, and the children acting as models did not react naturally. The other weakness may be the measurement instrument, a seven point scale on which the children were rated by the anaesthetists. Multiple measures may have been more successful in detecting differences.

Studies which compared two treatment methods, rather than comparing modelling to a control, have found modelling to be more effective in changing behaviour of children during dental treatment than a desensitization treatment. Desensitization involved the children watching the dentist handle the instruments and discussing what they say (Johnson & Machen, 1973; White, Akers, Green, & Yates, 1974; Yercheshen, 1977).

It is from the success of filmed modelling that the interest in the film and video-tape preadmission programme arises.

Melamed and Siegel (1975) found that a film depicting a peer coping model shown immediately prior to admission was significantly more effective in reducing anxiety in the children than a control film. Melamed, Myer, Gee, and Soul (1976) considered the time of viewing the film as well as the added effect of preoperative teaching.

Ferguson (1979) created a video-tape using both male and female peer-aged models. The experimental video-tape had a significant effect on the children's behaviour after discharge, as well as on the physiological measures of anxiety throughout the hospitalization. A visit from a nurse one week in advance of the admission had a greater positive effect on younger children (3 to 4) than it did on older children (aged 6 to 7).

b) Tour Programmes The tour-based programme has received little research

attention. Sauer (1968) compared 50 children who participated in a weekly tour programme, to 50 children who did not. No attempt was made to match the control and experimental groups. Nurses rated the children as easy or difficult to manage. The results were that 14% of the experimental group and 53% of the control group were considered difficult to manage. All children were invited to attend the programme. Reasons why the control children did not attend were not discussed and fundamental differences between the groups may have existed. This study has many limitations, including the lack of data comparing the groups and the unsophisticated measuring instrument (nurses' rating).

Azarnoff, Bourque, Green and Rakow (1975), in a well controlled study, compared a tour programme to a booklet preparation and a control (no preparation). These treatments occurred immediately preceeding the admission. One hundred and twenty eight children between the ages of 4 and 11 were assessed on three measures: Posthospital Behaviour Questionnaire, Human Figure Drawing, and a Non-verbal Semantic Differential. The interpretation of the data is not clear, but they conclude that "tours are more effective than booklets for certain children and parents, and it is usually better than no intervention." (p.57).

Summary

Children may be adversely affected by hospitalization. The anxiety and stress experienced during the hospital stay may be observed in their responses to the hospitalization and in behavioural changes following discharge. Hospitals have attempted to reduce the sequelae of hospitalization by changing regulations and routines and implementing new programmes.

One of these programmes is the preadmission preparation programme. The purposes of this programme are to provide accurate information about the forthcoming hospitalization and the hospital environment and to encourage the child to express his concerns so that they may be alleviated.

There are many types of preparation programmes. Two of the most common types are the video-tape programme and the hospital tour. The video-tape programme is based on symbolic modelling theory and has been shown to be effective in reducing the anxiety of hospitalized children. The hospital tour is a popular type of programme with limited research to support its effectiveness.

Problem Statement and Research Hypotheses

This study attempted to answer the following question:

Is a tour-based preadmission programme for children scheduled to undergo surgery equally effective in reducing the anxiety and psychological distress in children as a video-tape-based programme depicting a peer-model experiencing hospitalization?

Hypotheses:

1. There will be no significant main effect for treatment on the Hospital Fears Rating Scale administered prior to admission, in the evening following admission, and two weeks following discharge.
2. There will be no significant interaction between the treatment and rating time on the Hospital Fears Rating Scale.
3. There will be no significant main effect for treatment on the Posthospital Behaviour Questionnaire.
4. There will be no significant interaction between the treatment groups and time on the Posthospital Behavior Questionnaire.

5. There will be no significant differences in temperature between treatment groups on admission.

6. There will be no significant differences in pulse rate between treatment groups on admission.

7. There will be no significant differences in systolic blood pressure between treatment groups on admission.

8. There will be no significant differences in systolic blood pressure between treatment groups after surgery.

9. There will be no significant differences in respiration rate between treatment groups after surgery.

10. There will be no significant differences in pulse rate between treatment groups after surgery.

11. There will be no significant differences in the incidence of vomiting between treatment groups after surgery.

12. There will be no significant differences in the time after surgery until first voiding between treatment groups.

CHAPTER III

METHODOLOGY

In this chapter the subjects, instrumentation, procedures, and data analysis are described.

Subjects (see Figure I)

The subjects of the study were 30 English speaking children between the ages of 4 years, 0 months and 9 years, 11 months who were admitted for elective surgery to Surrey Memorial Hospital, Surrey, B.C. They were expected to be hospitalized for 3 days, including the days of admission and discharge. They were considered by the admitting physician to be in good mental and physical health at the time of their admission.

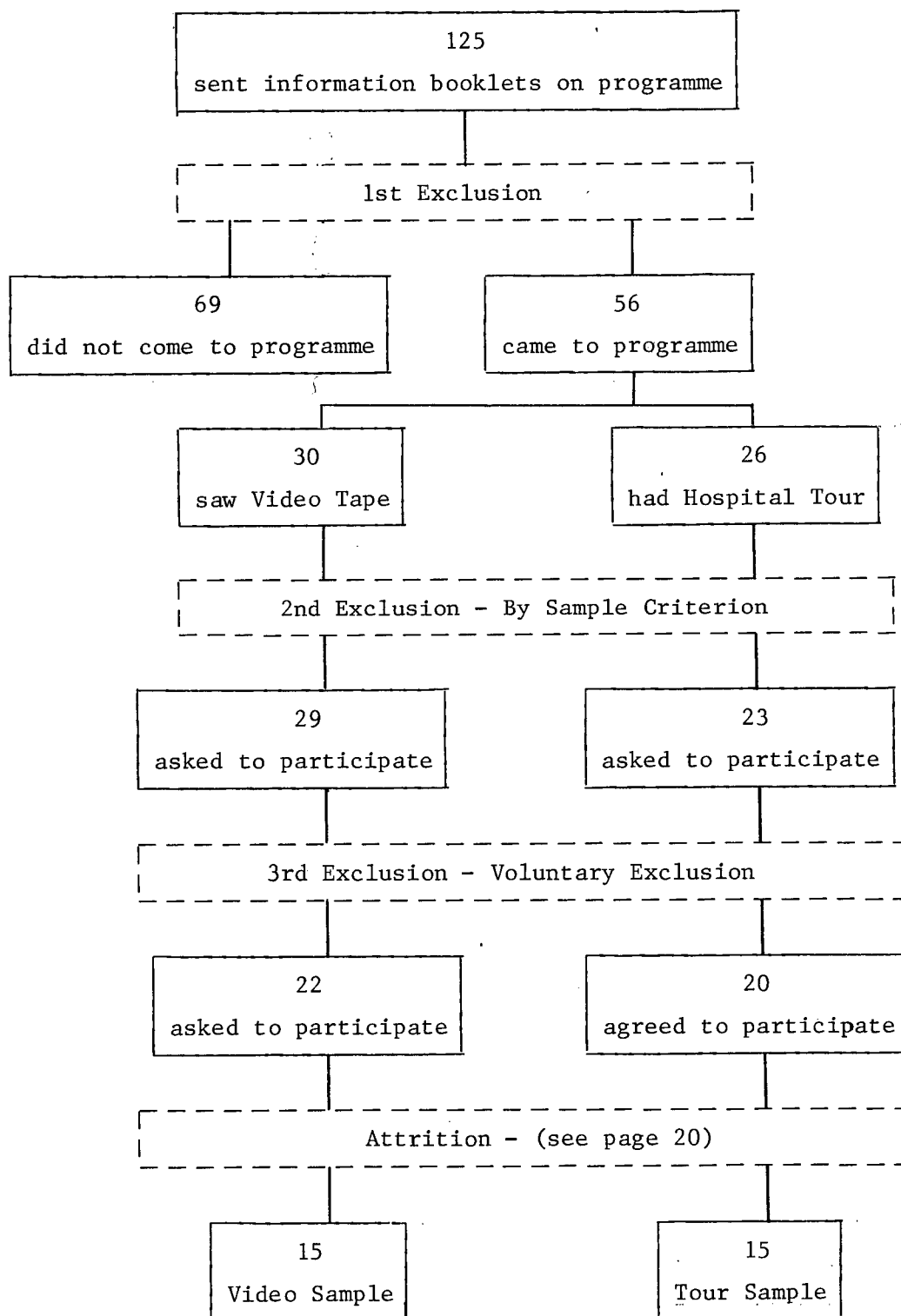
Surrey Memorial Hospital is a community general hospital with a 35 bed paediatric ward. During the sampling period of March 15, 1981, to September 16, 1981, 125 parents were invited to bring their children to the preadmission preparation programme. Of those invited, 56, or 45% brought their child to one of the two treatment programmes.

Based on the criteria listed above, 52 parents were asked to participate in the study; 42 of these, or 81% of the parents agreed. Twelve subjects were lost to the study after permission was given, for the following reasons:

- 2 - surgery cancelled due to child's illness
- 3 - surgery cancelled due to Doctor's cancellation
- 3 - subject admitted without notice to researcher
- 1 - surgery cancelled due to child eating or drinking after midnight
on the day preceeding surgery
- 3 - parents withdrew permission prior to data collection.

FIGURE I

Sample Selection Flow Chart



Variables and Instrumentation

Control Measures Many factors have been considered to affect children's reactions to hospitalization. In order to determine whether any of these factors may have influenced the scores on the outcome measures, the following variables were assessed for each child:

1. age in months,
2. age group (children 60 months and younger were classified as young, children over 60 months were classified as older),
3. sex,
4. previous hospitalization,
5. prehospitalization personality (as measured by the Posthospital Behavior Questionnaire, Form A),
6. surgical procedures,
7. length of anaesthesia,
8. length of stay in hospital, and
9. complications during surgery.

Prehospital personality was assessed using a modification of the Posthospital Behavior Questionnaire. This scale is described in greater detail below. All other data was obtained from the subjects' medical charts.

Outcome Measures In order to measure the effects of the treatments, a multidimensional approach was used. The children's responses to the hospitalization were indicated through self-report, behavioural, and physiological measures.

a) Self-report Measure The Hospital Fears Rating Scale is considered to be a self report measure of situational anxiety. It is comprised of

eight items from the Medical Fears subscale, factor analyzed from the Fear Survey for Children (Scherer and Nakamura, 1966). Added to these, are eight items considered to have face validity for assessing hospital fears and nine non-related filler items (see Appendix A). Each child rated his degree of fear for each item on a fear thermometer that ranged from one (not afraid at all) to five (very afraid). The sum of the ratings on the sixteen medical fear items became the child's score for this measure.

No reliability studies have been published on this measure. However, it has been used in previous studies by Melamed and Siegel (1975), Melamed et al. (1976), and Penticuff (1976). Ferguson (1979) found a positive correlation between scores on this scale and on physiological measures.

b) Behavioural Measure The Posthospital Behavior Questionnaire was developed from six studies by Vernon, Schulman and Foley (1966) to measure changes in children's behaviour after hospitalization. The questionnaire consists of 27 behavioural items found in two or more of these earlier studies to occur in children following hospitalization (See Appendix A).

Examples of items are:

1. Does your child make a fuss about going to bed at night?
15. Is it difficult to get your child to talk to you?

The questionnaire was modified by the investigator so that two forms existed. Form A asked the mother to rate her child's behaviour for each item for the six months preceeding hospitalization, and Form B asked the mother to rate her child's behaviour during the two weeks following hospitalization. The questionnaire was further modified by the investigator so that the response alternatives were more specific; i.e., instead of (1) much less than before, (2) less than before, (3) same as before, (4) more than before, and (5) much more than before, the alternatives now

read: (1) not at all, (2) once in two weeks, (3) once a week, (4) two or three times a week, and (5) every day. This should have increased the reliability of the instrument. It served as a measure with which to compare the pre-hospital personality of each group. The score was the sum of the ratings associated with each alternative for all items on this questionnaire.

A study by Cassell (1965) is cited by Vernon, Schulman, and Foley (1966) regarding the reliability of the questionnaire. The correlation between total scores 3 and 30 days after discharge in 37 children undergoing cardiac catheterization was $\underline{r} = .65$. Support for the validity of the instrument comes from a study by Vernon, Schulman, and Foley (1966) in which the scores on the questionnaire were compared to those from a psychiatric interview with the mothers of 20 children who had been hospitalized for tonsillectomies ($\underline{r} = .47$). Further support of the construct validity of the questionnaire is evidenced in studies which indicate its ability to predict changes (Ferguson, 1979; Sides, 1977; Vernon, 1973; Wolfer & Visintainer, 1975, 1979).

Vernon et al. (1966) factor analyzed the questionnaire and discovered six orthogonal factors: (I) general anxiety and regression, (II) separation anxiety, (III) anxiety about sleep, (IV) eating disturbances, (V) aggression toward authority, and (VI) apathy, withdrawal.

c) Physiological Measures Data on physiological indicators of anxiety were collected by routine measures from the subjects' medical charts.

Fluctuations in temperature, systolic blood pressure and pulse rate are considered by several researchers to be valid indicators of stress and anxiety in children (Silver et al., 1955; Stuart & Stevenson, 1954). Unlike adults, children's vital signs do not show a normal variability;

and changes in these measures may be interpreted as indications of apprehension, fear, or anxiety (Mahaffy, 1965).

The incidence of vomiting postoperatively has been shown to be affected by nursing care (Dumas & Leonard, 1963). Crocker (1980) found a positive correlation between preoperative preparation and postoperative vomiting, but Skipper and Leonard (1966), Mahaffy (1965), and Wolfer and Visintainer (1975) have all found significant decreases in postoperative vomiting to be associated with preparation for hospitalization. Taylor (1978) considered differences in this variable to be due to age.

The patient's ability to void postoperatively has been shown to be related to emotions (Hollender, 1958) and time after surgery until first voiding has been used as a dependent variable in many studies of children's reactions to hospitalization (Mahaffy, 1956; Skipper & Leonard, 1968; Wolfer & Visintainer, 1975, 1979). In this study, time to first voiding was measured from when the anaesthetic was stopped.

Temperature, pulse, blood pressure, postoperative vomiting, and time to first voiding are routinely noted by hospital staff. The physiological measures taken in this study did not increase the stress felt by the subjects more than is experienced in routine hospitalization.

Procedures

When a child was booked for elective surgery at Surrey Memorial Hospital, his parents were sent preadmission forms and a booklet describing the preadmission preparation programme. Approximately two weeks before the child's scheduled surgery, and if the parents had not already made an appointment for a programme, parents were telephoned and invited to bring their children by the Paediatric Nurse Clinician who operated the programme.

a) Treatments Two treatment programmes were used in this study; a tour which had been in operation at Surrey Memorial Hospital for two years, and a video-tape which was produced at Surrey Memorial Hospital.

In the tour treatment, the children and their parents were met by the Paediatric Nurse Clinician and a Volunteer in the Admission area of the Lobby. The children were each given a wristband, similar to that worn by patients. Then they were taken to the Lab where they had a chance to feel the tourniquets and alcohol and each child was given a "happy face" band-aid. Next, the children and their parents toured the Paediatric Ward, visiting the Playroom, Lounge, Craftroom, Snack Kitchen, Bathroom, and Nurses' Station, as well as a room where they were shown how a bed, side rails, and call light operated. From there, the children were taken to the OR Transfer Room where they saw the stretchers used for taking them to the OR, the OR beds, and sometimes a nurse in OR clothes and mask. Then the children saw the Kitchen before going to a Meeting Room where they had a chance to discuss what they saw and play with some of the common hospital equipment, such as stethoscopes, blood pressure cuffs, and syringes.

Throughout the tour, information on the Hospital was given to the parents. While the children played and had a snack, the Head Nurse from Paediatrics or the Paediatric Nurse Clinician met with the parents to give out brochures, discuss hospitalization and preparation of children, and answer any questions.

In the video-tape treatment, the children and their parents were met in the lobby and taken directly to the Meeting Room by the Paediatric Nurse Clinician. There, they saw a video tape which followed a six-year-old girl and a five-year-old boy throughout their hospitalization for

tonsillectomy and adenoidectomy. The children were seen coming into the hospital, being admitted and given a wristband, having their blood tests, and being admitted to the ward. The little girl was shown learning about her room and bed and being examined by the nurse. Different rooms on the paediatric ward were shown and the children narrated an explanation of each area, including the nurses' station. The children were shown eating their suppers and told where the suppers came from. Preoperation medication, being moved on the OR stretchers, and anaesthesia induction were also briefly shown, as well as waking from anaesthesia in the recovery room and on the ward and going home. Throughout the video-tape, the children narrated the events and discussed their reactions to hospital procedures. They also gave advice on how to handle some of the more unpleasant procedures, such as "needles". All areas seen by the children on the tour are also shown on the tape, but with the addition of areas such as the operating and recovery rooms where it would be impossible to take a tour group. The tape showed actual procedures, not mock-ups.

This twenty-five minute video-tape was shown to the children and their parents in the meeting room. After viewing the tape, the children had an opportunity to discuss the tape and play with the hospital equipment, while the parents met with the Head Nurse or Paediatric Nurse Clinician.

In each treatment programme, equal opportunities for discussion and play were provided. The difference in the programmes was in substituting the video-tape for the tour.

b) Treatment Selection (see Figure I) The tour and video programmes alternated every two weeks. Thus a child's participation in a particular programme

was determined solely by his date of admission. At the conclusion of the preadmission programme, the Paediatric Nurse Clinician invited the parents and their children between the ages of 4 and 9 to participate in the study. The reason for the study and the nature of the involvement was explained, and a signed consent form was obtained at that time (see Appendix B).

c) Data Collection Those parents and children participating in the study were met by the investigator at the time of the child's admission for surgery at the Admission Desk. The Posthospital Behavior Questionnaire, Form A was filled out by the parent while the investigator administered the Hospital Fears Rating Scale to the child. The children were then admitted to the Hospital in the regular manner.

In the evening of the first day of admission, the investigator re-administered the Hospital Fears Rating Scale.

Approximately two weeks after the child's discharge from the Hospital, the investigator visited the parents and children in their homes. The parents completed the Posthospital Behavior Questionnaire, Form B, while the investigator again administered the Hospital Fears Rating Scale to the child.

The following data were obtained from the subjects' hospital charts:

1. date of birth,
2. previous hospitalization,
3. surgical procedure,
4. length of stay,
5. length of anaesthesia,
6. complications,
7. temperature, pulse, and systolic blood pressure (in children 6 years of age and older) on admission,

8. pulse, respiration, and systolic blood pressure (in children 6 years of age and older) one hour after surgery,
9. time after surgery until first voiding, and
10. incidence of postoperative vomiting.

Data Analysis

Descriptive statistics for the total sample and the two treatment groups on all variables were generated using the Statistical Package for the Social Sciences, Version 8.00 (SPSS:8) (Kita, 1980). A one-way analysis of variance was used to determine whether the two groups differed significantly on any of the continuous variables. A corrected chi square was used to determine significance on the dichotomous variables.

The two scales, The Hospital Fears Rating Scale and the Posthospital Behavior Questionnaire, were analysed to determine a reliability co-efficient for each administration. The Laboratory of Educational Research Test Analysis Package (LERTAP) (Nelson, 1974) was used for this purpose.

An analysis of covariance with repeated measures was performed on the data from the two scales. Age was used as a covariate to further examine the scores on these scales. The Biomedical Computer Programmes, P Series, 1977 (BMDP-77) (Dixon & Brown, 1977) was used for this purpose.

The confidence level was established at $p = .05$.

CHAPTER IV

RESULTS

The sample is described on the control measures. The outcome measures were used to test the hypotheses.

Description of the Sample

The sample and the two treatment groups were described on the following individual difference variables:

1. age in months,
2. age group (children 60 months and younger were classified as young, children over 60 months were classified as older),
3. sex,
4. previous hospitalization, and
5. scores on the Posthospital Behavior Questionnaire, Form A (modified to describe behaviour prior to hospitalization).

Table I shows the means and standard deviations of each treatment group for age in months. Table II shows the results of the analysis of variance of this variable. The groups were not found to differ significantly in age ($F(1,28) = .23$, $p = .63$) or in behaviour prior to hospitalization ($F(1,28) = 1.01$, $p = .32$). See Hypothesis 4 for description of analysis of the Posthospital Behavior Questionnaire, Form A.

TABLE I

Means and Standard Deviations of Treatment Groups for Age.

	Mean	S.D.
Video	71.67	11.89
Tour	69.00	17.84

TABLE II

Analysis of variance for age

Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between groups	53.33	1	53.33	.23	.63
Within groups	6433.33	28	229.76		

The groups were compared on age grouping as well as age in months because during the administration of the Hospital Fears Rating Scale, it was observed that younger children responded in a different way to the task than older children (see Chapter V) and because it was observed that there was a discrepancy in the variance of the ages between the two groups.

Table III shows the results of the chi square analysis made on the individual difference variables. No difference was found between the treatment groups on sex ($\chi^2(1) = .57$, $p = .45$) or previous hospitalization ($\chi^2(1) = .0$, $p = 1.00$). There was found, however, to be more children 5 years of age and younger in Treatment 2 than in Treatment 1 ($\chi^2(1) = 3.75$, $p = .05$).

TABLE III

Chi square analyses of the treatment groups for age, sex, and previous hospitalization

Variable	Video (n=15)	Tour (n=15)	χ^2	Sig.
Age				
≤ 60 months	2	8	3.75	.05
> 60 months	13	7		
Sex				
Male	11	8	.57	.45
Female	4	7		
Previous Hospitalization				
Yes	6	5	.0	1.00
No	9	10		

NOTE. The reported χ^2 is corrected with $df = 1$.

Other variables, considered to affect children's reactions to hospitalization, were also described and differences between the two groups were tested for significance. These variables were:

1. the surgical procedure undergone,
2. length of anaesthesia,
3. length of stay in hospital, and
4. frequency of complications following surgery.

Table IV shows the means and standard deviations for the length of anaesthesia. Table V shows the results of the analysis of variance of this variable. The groups were not found to differ significantly on length of anaesthesia ($F(1,28) = .28$, $p = .60$).

TABLE IV

Means and standard deviations of treatment groups for length of anaesthesia

Group	Mean	<u>SD</u>
Video (n=15)	46.13	15.40
Tour (n=15)	43.67	9.44

TABLE V

Analysis of variance for length of anaesthesia

Source of Variance	Sum of Squares	<u>df</u>	Mean Square	<u>F</u>	Sig.
Between groups	45.63	1	45.63	.28	.60
Within groups	4569.07	28	163.18		

The other variables were analysed using the chi square. No significant differences were found between the two groups on type of surgical

procedure ($\chi^2(1) = .29$, $p = .59$), length of stay in hospital ($\chi^2(1) = 1.48$, $p = .22$), or frequency of complications ($\chi^2(1) = .0$, $p = 1.0$) (see Table VI). Surgical procedures were grouped into two categories according to the similarities in degree of physical trauma associated with the procedure.

TABLE VI

Chi square analysis of treatment groups for surgical procedure, length of stay, and complications

Variable	Video (n=15)	Tour (n=15)	χ^2	Sig.
Surgical Procedure				
Tonsillectomy and/or Adenoidectomy and Myringotomy and Tubes	14	12	.29	.59
Hernia and hydrocele or Orchidopexy	1	3		
Length of Stay				
3 days	15	12	1.48	.22
4 days	0	3		
Complications				
Yes	1	1	.0	1.00
No	14	14		

NOTE. The reported χ^2 is corrected with $df = 1$.

Hypotheses

The Hospital Fears Rating Scale was used as the outcome measure of the children's report of their anxiety level at three different times.

An internal consistency coefficient was calculated for each administration of this measure. The Hoyt estimate of reliability for the pre-admission administration was .76, for the postadmission administration was .84, and for the postdischarge administration was .82. The results of this analysis and the means and standard deviations are reported in

Table VII.

TABLE VII

Means, standard deviations and reliability coefficients for three administrations of the Hospital Fears Rating Scale.

Administration	Mean	<u>SD</u>	<u>R</u> ^a	<u>SEM</u>
On Admission	37.37	10.95	.76	5.07
Video	34.47	12.77		
Tour	40.27	8.19		
Evening after Admission	33.53	12.41	.84	4.77
Video	30.87	11.90		
Tour	36.20	12.73		
2 weeks after Discharge	37.10	12.54	.82	5.21
Video	34.20	15.31		
Tour	40.00	8.56		

^a Hoyt Estimate of Reliability

Because the treatment groups were found to be different in the age grouping of the children, an analysis of covariance with repeated measures was performed to control the possible effects of age on the scores of the Hospital Fears Rating Scale. Age was found to have a significant effect on this measure ($F = 7.41$, $p = .01$). However, no significant main effect for treatment was found between the two groups. ($F = 1.93$, $p = .18$), and the differences between the groups on this measure remained constant throughout the administrations ($F = 0.01$, $p = .99$). The difference between the administrations for both groups combined was $F = 2.92$, ($p = .06$). (See Table VIII and Figure II.) Because these analyses showed no significant differences, no further analysis was conducted.

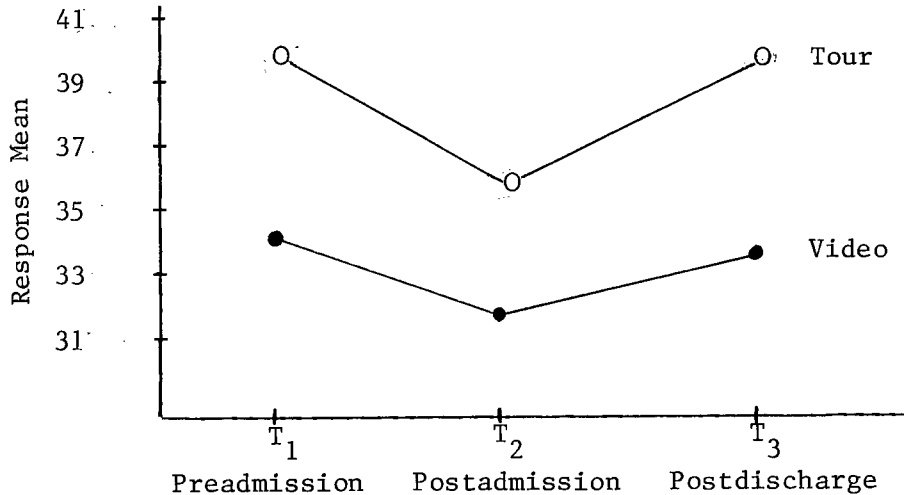
TABLE VIII

Analysis of covariance with repeated measures for Hospital Fears Rating Scale

Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Persons					
Treatment	512.52	1	512.52	1.93	.18
Individual	7179.68	27	265.91		
Within Persons					
Between Administrations	274.87	2	137.43	2.92	0.06
Treatment x Time	1.09	2	0.54	0.01	0.99
Time x Within Treatment	2631.38	56	46.99		
Covariate	1970.14	1	1970.14	7.41	0.01

Figure II

Changes in Hospital Fears scores at three administrations



Hypothesis 1 stated: There will be no significant main effect for treatment on the Hospital Fears Rating Scale administered prior to admission, in the evening following admission, and two weeks following discharge. Because no significant main effect was found on this variable when age was controlled for ($F = 1.93$, $p = .18$), Hypothesis 1 was not rejected.

Hypothesis 2 stated: There will be no significant interaction between the treatment and rating time on the Hospital Fears Rating Scale. Because the differences between treatment groups on the Hospital Fears Rating Scale remained constant over time ($F = 0.01$, $p = .99$), Hypothesis 2 was not rejected.

The Posthospital Behavior Questionnaire, Forms A and B, was used to measure change in the children's behaviour after hospitalization. An internal consistency coefficient was calculated for each administration of this scale. The Hoyt estimate of reliability for form A was .68, and for form B was .79. Table IX shows the means, standard deviations and reliabilities for the two forms.

TABLE IX

Means, standard deviations, and reliabilities for the Posthospital Behavior Questionnaire

Form	Mean	<u>SD</u>	<u>R</u> ^a	<u>SEM</u>
Form A				
Sample (n=30)	43.47	8.70	.68	4.79
Video (n=15)	41.87	7.57		
Tour (n=15)	45.07	9.71		
Form B				
Sample (n=30)	44.13	10.70	.79	4.84
Video (n=15)	41.33	5.70		
Tour (n=15)	46.93	13.70		

^a R = Hoyt Estimate of Reliability

An analysis of covariance with repeated measures revealed no significant differences between either group on their prehospital and posthospital behaviour ($F(1, 1, 27) = 1.74$, $p = .20$), although age did have a significant

effect on this variable ($F(1, 1, 27) = 10.77, p = .003$). This analysis is summarized in Table X. Because no significant differences were found between groups, no further analysis was done.

TABLE X

Analysis of Covariance with repeated measures for the Posthospital Behaviour Questionnaire adjusted for age.

Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Between Persons					
Treatment	191.67	1	191.67	1.74	0.20
Individual (within treatment)	2981.40	27	110.42		
Within Persons					
Pre/Post	6.67	1	6.67	.18	.67
Treatment x Time	21.60	1	21.60	.58	.45
Time x Individual	1034.73	28			
Covariate	1188.80	1	1188.80	10.77	0.003

Hypothesis 3 stated: There will be no significant main effect for treatment on the Posthospital Behaviour Questionnaire. Because no significant main effect was found on this variable when age was controlled for ($F(1, 1, 27) = 1.74, p = .20$), Hypothesis 3 was not rejected.

Hypothesis 4 stated: There will be no significant interaction between the treatment groups and time on the Posthospital Behavior Questionnaire. Because the differences between treatment groups on this measure remained constant over time ($F(1, 1, 28) = .58, p = .45$), Hypothesis 4 was not rejected.

Hypothesis 5 stated: There will be no significant differences in temperature between treatment groups on admission. No significant difference was found between the groups in temperature at admission,

$F(1, 28) = .15$, $p = .70$ (see Tables XI and XII). Hypothesis 5 was not rejected.

Hypothesis 6 stated: There will be no significant differences in pulse rate between treatment groups on admission. No significant difference was found between the groups on pulse rate at admission,

$F(1, 26) = .002$, $p = .97$ (see Tables XI and XII). Hypothesis 6 was not rejected.

Hypothesis 7 stated: There will be no significant differences in systolic blood pressure between treatment groups on admission. No significant difference was found between the groups on this measure, $F(1, 9) = .009$, $p = .92$ (see Tables XI and XII). Hypothesis 7 was not rejected.

Hypothesis 8 stated: There will be no significant differences in systolic blood pressure between treatment groups after surgery. No significant difference was found on this measure after surgery, $F(1, 10) = .71$, $p = .42$ (see Tables XI and XII). Hypothesis 8 was not rejected.

Hypothesis 9 stated: There will be no significant differences in respiration rate between treatment groups after surgery. No significant difference was found between the groups on respiration rate one hour after surgery, $F(1, 28) = .98$, $p = .33$ (see Tables XI and XII). Hypothesis 9 was not rejected.

Hypothesis 10 stated: There will be no significant differences in pulse rate between treatment groups after surgery. No significant difference was found between the groups on pulse rate one hour after surgery, $F(1, 28) = .45$, $p = .41$ (see Tables XI and XII). Hypothesis 10

was not rejected.

Hypothesis 11 stated: There will be no significant differences in the incidence of postoperative vomiting between treatment groups after surgery. Children in Treatment 1 did not vomit at all. There was a significant difference found in the incidence of vomiting between the two groups, $\chi^2(1) = 3.84$, $p = .05$ (see Table XIII). Hypothesis 11 was rejected.

Hypothesis 12 stated: There will be no significant differences in the time after surgery until first voiding between treatment groups. No significant difference was found between groups on minutes after anaesthesia until first voiding, $F(1, 27) = 1.32$, $p = .26$ (see Tables XI and XII). Hypothesis 12 was not rejected.

Summary of Results

The treatment groups were not found to differ on any of the control variables except age group. Although age was found to have a significant effect on the Posthospital Behavior Questionnaire and Hospital Fears Rating Scale, when age was controlled for no significant differences were found between the two treatment groups on these variables. Of the physiological variables, only incidence of vomiting was found to differ significantly between the treatment groups.

TABLE XI

Numbers of missing cases, means, and standard deviations for the physiological measures

Variable	Number of Missing Cases	Mean	<u>SD</u>
Pulse at Admission			
Video (n=15)	1	95.86	11.11
Tour (n=15)	1	96.00	6.23
Temperature at Admission			
Video (n=15)	0	36.85	.50
Tour (n=15)	0	36.79	.32
Systolic Blood Pressure at Admission			
Video (n=15)	10	100.00	11.75
Tour (n=15)	9	99.33	11.08
Systolic Blood Pressure after Surgery			
Video (n=15)	8	111.43	11.82
Tour (n=15)	10	117.60	13.45
Respiration Rate after Surgery			
Video (n=15)	0	19.33	1.95
Tour (n=15)	0	20.13	2.45
Pulse After Surgery			
Video (n=15)	0	106.00	13.33
Tour (n=15)	0	109.53	15.46
Time to First Voiding in Minutes			
Video (n=15)	1	572.00	284.00
Tour (n=15)	0	475.13	155.32

TABLE XII

Analysis of variance for treatment groups on physiological measures

Source	Sum of Squares	df	Mean Square	F	Sig.
Pulse at admission					
Between groups	.14	1	.14	.002	.97
Within groups	2107.71	26	81.07		
Temperature at admission					
Between groups	.03	1	.03	.15	.70
Within groups	4.94	28	.18		
Systolic Blood Pressure at admission					
Between groups	1.21	1	1.21	.009	.93
Within groups	1165.33	9	129.48		
Systolic Blood Pressure after surgery					
Between groups	111.09	1	111.09	.71	.42
Within groups	1560.91	10	156.09		
Respiration Rate after Surgery					
Between groups	4.80	1	4.80	.98	.33
Within groups	137.07	28	4.90		
Pulse after Surgery					
Between groups	93.63	1	93.63	.45	.41
Within groups	5338.73	28	208.35		
Minutes after surgery to first voiding					
Between groups	67946.96	1	67946.96	1.32	.26
Within groups	1386261.73	27	51343.03		

TABLE XIII

Chi square analysis of incidence for postoperative vomiting

Category	Video (n=15)	Tour (n=15)	χ^2	Sig.
Yes	0	5	3.84	.05
No	15	10		

NOTE. Reported chi square is corrected with df = 1.

CHAPTER V

DISCUSSION

In this chapter, the results of the study are discussed. Difficulties encountered in conducting a research project in a community general hospital are enumerated. Factors which may have confounded the results of the study are discussed, as are the concerns which arose during the data collection period in regard to the instrumentation. In conclusion, the findings in the study are re-evaluated and recommendations for further research are made.

Results of the Study

The two treatment groups did not differ significantly on the individual characteristic variables age, sex, previous hospitalization, or prehospital behaviour but were found to differ on age group, with more younger children in the Tour treatment. The treatment groups were not found to differ on the hospital experience variables; surgical procedure, length of anaesthesia, length of stay, and complications.

No significant differences were found on any outcome measures except for incidence of vomiting. Tour group subjects vomited more than video group subjects. This variable was not analysed by type of surgery, although the video group contained 2 more subjects who had tonsillectomies, a procedure more likely to be associated with vomiting than hernia repairs.

When age was controlled as a covariate, no significant differences were found between the groups on the Posthospital Behavior Questionnaire or the Hospital Fears Rating Scale. Therefore, it was concluded that there was no significant difference between the video-tape and hospital

four treatment programmes.

No differences were found between the ratings of behaviour prior to hospitalization and two weeks after discharge. The conclusion that both treatments were equally effective in eliminating posthospital behaviour sequelae is discussed under Instrumentation.

Difficulties Encountered in Attempting to Conduct Research in a General Hospital

1. Data collection took twice as long as was originally anticipated. By looking at the numbers of children attending the programme in the previous years, the data collection period was estimated at three months. It was also anticipated that a more restricted age range (4-7 years) and only two surgical procedures (tonsillectomy and adenoidectomy) could be selected, thereby controlling for age and surgical procedure factors. However, it soon became apparent that to limit the sample in these ways would result in a data collection period too long to be practically possible. Therefore, older children and other surgical procedures were allowed in the sample. This meant that more control measures had to be incorporated into the study, to consider the characteristics of the groups on these variables. Although projections can be made from previous years, trends in admissions may change, and the projections may not be accurate for a short period of time.

2. Not all the physiological data that was needed could be obtained from the medical charts. It was anticipated that data would be collected for the evening following surgery and preceding discharge. However, it was not possible to locate consistent data for each subject from the medical charts. Phrases such as "normal vital signs" may be valid indicators

to the hospital staff but are not useful to a researcher. It was anticipated that blood pressure would not be taken on subjects under 6 years of age. Table XIV lists the numbers of subjects under 6 and the numbers of missing data for the blood pressure variables. It can be seen that at least one child under 6 had his blood pressure taken, but other subjects 6 years and over were missed. The amount of missing data and the differences between the two groups on age make this data uninterpretable.

TABLE XIV

Frequency of anticipated missing data and the frequency of missing data for the Blood Pressure (BP) Variables

	Video (n=15)	Tour (n=15)
Anticipated Missing Data		
No. of subjects < 6 years	7	10
Actual Missing Data		
for BP at Admission	10	9
for BP after Surgery	8	10

3. It should be noted that one of the objectives for this research project was to be as unobtrusive as possible. It was considered important not to make what might be considered stressful demands on the subjects, such as collecting data on physiological responses not normally recorded by routine hospital procedures. This objective was achieved, and the experience of the subjects in this hospitalization may be considered similar to that of other children hospitalized for the same reasons. This concern and objective must be weighed against the complications resulting from missing data.

4. No classical control group was used in this study. It has been

shown that parental attitude to hospitalization and anxiety level may affect a child's response to hospitalization (Azarnoff, et al., 1975; Sides, 1977). It was, therefore, concluded that parents and children who did not choose to attend a preadmission programme might differ from those who did choose to participate and could not be considered as a control group.

It was considered undesirable by the hospital to withhold a service (the preadmission programme) from parents who wanted it, and therefore no placebo attention group was created. It is unfortunate that a control group was not possible, because it cannot be ascertained whether either programme is effective, only that they do not differ significantly from each other in their effectiveness.

As reported in Chapter II, negative effects of hospitalization and the effects of preparation programmes have differed through time and place. Hospitals, their rules, and routines have changed dramatically in the past twenty years. It has been noted that hospitals still differ markedly, one from another (Post, 1979). For these reasons, a control group to demonstrate the need for and level of effectiveness of preparation programmes within a given hospital should be considered essential to research of this type.

Confounding Factors

The Preadmission Preparation Programmes did not consist only of the tour or video-tape treatments. As was described in Chapter III, children were encouraged to play with hospital equipment, such as syringes, blood pressure cuffs, tongue depressors, masks, etc. Parents were invited to discuss their concerns with the Head Nurse or Paediatric Nurse Clinician

and received copies of the Paediatric Ward's information booklets. To what extent the common properties of each treatment programme confounded the effects of treatment could not be ascertained.

As well as the Preadmission Preparation Programme, the subjects in the study also participated in a Preoperative Teaching programme. The latter programme was scheduled for 4:30 p.m. on the day of the child's admission and consisted of slides and a discussion to prepare the child for his/her surgical procedure the following day. The preoperative teaching programme focussed on the preoperative medication, the preparation for surgery, anaesthetic, and recovery room procedures. Although some of this material was covered in the video-tape, it was not discussed in the same detail. It could not be determined by this study what effect the preoperative programme may have had on the subjects and to what extent the results of this study were confounded by the subjects' exposure to this programme. Melamed, et al., (1976) found that their preadmission video presentation had an effect above the effect achieved by preoperative teaching, but this conclusion could not be drawn from this study.

A further limiting factor of the study was the small sample size. Because of the small numbers of children entering the hospital for elective surgical procedures requiring an overnight stay, it took over six months to obtain a sample of 30 children. The small sample size infers that larger differences are necessary to show a significant difference between groups than if a larger sample size was used.

Instrumentation

The Posthospital Behavior Questionnaire was modified in two ways. First, the response categories were changed from subjective categories to specific frequencies. Second, it was modified to measure behaviour prior

to admission and after discharge, rather than asking for the parent's perception of change.

It was found that the subject's behaviour did not change during the two weeks following surgery. Two competing conclusions may be drawn:

1. that both treatment programmes are effective in eliminating post-hospital behaviour sequelae, or
2. that the instrument is not sensitive enough to record changes in behaviour.

The internal consistency coefficients calculated for this scale were .68 for Form A (measuring prehospitalization behaviour) and .79 for Form B (measuring posthospital behaviour). These are only slightly higher than the reliability of .65 quoted by Vernon, et al., (1966) for the original questionnaire.

The original scale was designed to measure behaviour in children 1 month to 16 years of age (Vernon, et al., 1966). The age range in this study was much smaller, as it was in most other recent studies (Ferguson, 1979; Melamed and Siegel, 1980; Wolfer and Visintainer, 1979). Item Analysis of the scale revealed two items which all parents answered as "not at all" and several more with very low or negative correlations with the scale (see Appendix B. Questions which arose during this study were:

1. Are the items significant in differentiating among subjects who are closer in age than in the original sample? and
2. Is the instrument as modified sensitive to change over a short period of time (2 weeks)?

A reliability and validity study of this scale is necessary before any conclusions can be drawn regarding the results from this measure. Such a study is strongly recommended before the scale is used again.

The Hospital Fears Rating Scale has been used in three studies with samples ranging in age from 4 to 12 years (Melamed and Siegel, 1980) and in one study with an age range from 3 to 7 years (Ferguson, 1979). It was observed in this study that 5 of the subjects, aged between 48 and 61 months, responded to the scale in sequence; either:

a) 1, 2, 3, 4, 5, 1, 2, 3, 4, ...; or

b) 1, 2, 3, 4, 5, 4, 3, 2, 1, 1,

It was also noted that another 4 subjects, aged between 64 and 85 months used only the 1 and 5 response categories. Because of these response patterns, two questions are raised:

1. whether the younger subjects understood the concept of the temperature analogy scale, and
2. whether different age groups differ in their response styles, making total score comparisons across age groups inappropriate.

Scherrer and Nakamura (1968) note:

"Most studies show a general decline in the number of fears in normal children and a change in the type of fears from immediate tangible fears to anticipatory, less tangible fears with increasing age." (p.173)
[emphasis, this author]

The Fear Survey Schedule* was developed for use with children aged 9 through 12. The validity of this scale for use with children aged 3 through 8 is questionable.

Internal consistency coefficients for each administration of the Hospital Fears Scale in this study were .84, .76, and .82. Because of the response patterns observed in some of the subjects, however, further reliability and validity studies of this scale are recommended.

* The Fear Survey Schedule is the scale from which the Hospital Fears Rating Scale is derived.

The analysis of covariance with repeated measures indicated that although age had a significant effect on this variable, differences between the groups were not significant.

The analysis also revealed an insignificant difference between the times of administration ($p = .06$) (see Figure II). It appears that the scores at the postadmission administration were lower than at the other two administrations. There are two possible explanations for this difference:

1. that the children, after realizing that their hospital experience was proceeding exactly as they were told it would, were able to relax after their admission, or
2. that the lower scores are an artifact of the test-retest situation, in that the time between first and second administrations was approximately 4 hours and between second and third administrations was approximately 2 weeks.

Without test-retest reliability data, it is impossible to determine the reason for this fluctuation in scores.

Practical Considerations

In choosing a method to prepare children for hospitalization and surgery, the first concern should be with the effectiveness of the programme. Other, more practical, considerations must also be weighed. The following is a comparison of the video and tour treatment programmes on these issues:

Costs

1. A video programme is more expensive to produce initially.
2. Staff time in operating both programmes is equal.

Convenience

1. Only one or two staff members and one room are required for the video programme.
2. Children move through the hospital on a tour and some areas must be available and the staff aware, if not actively participating, in the tour programme.

Maintenance

1. A consistent standard for the quality of the programme is guaranteed with the video programme.
2. The quality of the tour programme may change with each programme or with each tour leader. Important elements may be missed.

Interaction

1. The tour demands greater interaction between the participants and the tour leader. Staff in other areas of the hospital may become actively involved if they so choose. A skillful tour leader is critical.
2. A skillful discussion leader is necessary to transform the more passive activity of watching the tape to a more active play/discussion involvement.

These issues must be carefully examined by anyone initiating a preparation programme. No attempt was made in this study to draw any conclusions as to which programme is more practical. This decision must be made for each individual hospital.

The Impact of the Programmes

Although no attempt was made in this study to evaluate the need for and effectiveness of Preadmission Preparation Programmes in the Surrey Memorial Hospital, a related issue should be discussed, that is: the

inefficiency of such programmes to serve their total audience. It has been observed that Preadmission Programmes are attended by less than half of their potential audience (Cox, 1976; Peterson & Ridley, 1980). This is true of the Surrey Memorial Hospital where 125 children were sent brochures for the programme in a 6 month period and 79 were contacted by phone, but only 56 attended a preadmission programme. Reasons why these children do not attend, vary from the parents lack of interest or concern to an inability to attend at that particular time. Efforts should now be turned toward programmes which can reach these children. Possibilities include school programmes, public education, and programmes immediately prior to admission. The advantages of the video-programme may be in these areas. Ferguson (1979) and Melamed and Siegel (1975) found a video programme administered immediately preceeding admission to be effective in reducing anxiety in children hospitalized for surgery. Further research may explore the use of video in other methods of preparation.

Summary

This study was designed to compare the effectiveness of a tour-based preadmission preparation programme to a video-tape-based programme. No significant differences were found between the two programmes on self-report, behavioural, or physiological measures except incidence of vomiting.

The study was limited by several factors including small sample size, lack of control group, and lack of control over collection of physiological data. Concerns about the reliability and validity of the Hospital Fears Rating Scale and the Posthospital Behaviour Questionnaire were raised.

These features created weaknesses in the study and the one tenable conclusion is that the Video-tape and Hospital Tour treatments appear to

have equal effects on children hospitalized for elective surgery. No conclusions can be drawn as to the strength of the effects because of the lack of control group.

Recommendations for Further Research

1. Reliability and validity studies of the Hospital Fears Rating Scale and the Posthospital Behaviour Questionnaire for extended age ranges.
2. The development and evaluation of programmes which might reach more of the population of interest.

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APPENDIX A

Items from the
Hospital Fears Rating Scale
and
Posthospital Behavior Questionnaire

Scored Items from the
Hospital Fears Rating Scale

Items from the Fear Survey for Children

1. sharp objects
2. having to go to the hospital
3. getting a shot from the nurse or doctor
4. going to the dentist
5. going to the doctor
6. getting a haircut
7. deep water or the ocean
8. getting car sick

Items with face validity

1. germs or getting very sick
2. the sight of blood
3. being alone without your parents
4. having an operation
5. people wearing masks
6. not being able to breath
7. getting a cut or hurt
8. going to bed in the dark

Items from the
Posthospital Behavior Questionnaire

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 about and doing nothing?
4. Does your child need a pacifier?
5. Does your child seem to be afraid of leaving the house with you?
6. Is your child uninterested in what goes on around him/her?
7. Does your child wet the bed at night?
8. Does your child bite his/her fingernails?
9. Does your child get upset when you leave him/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, etc.)?
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 seem to get upset when someone mentions doctors or hospitals?
17. Does your child follow you everywhere around the house?
18. Does your child spend time trying to get or hold your attention?
19. Is your child afraid of the dark?
20. Does your child have bad dreams at night or wake up and cry?

21. Is your child irregular in his/her bowel movements?
22. Does your child have trouble getting to sleep at night?
23. Does your child seem to be shy or afraid around strangers?
24. Does your child have a poor appetite?
25. Does your child tend to disobey you?
26. Does your child break toys or other objects?
27. Does your child suck his/her fingers or thumbs?

APPENDIX B

Parent Consent Form

PARENT CONSENT FORM

Dear Parent;

We are attempting to determine which of two preadmission orientation procedures is the most effective way to prepare children for their hospitalization experience. We would very much appreciate the participation of you and your child in this study. This would entail you and your child responding to questionnaires at the hospital prior to your child's admission and in your home two weeks after his/her discharge. Some data from your child's hospital chart will also be obtained.

All information will be kept confidential.

You will have the right to withdraw from this study at any time and withdrawal will not prejudice further medical care or treatment of your child.

The hospital has approved this study and is interested in the findings.

We would appreciate your consent for participation.

Sincerely,

Jeanine M. Harper,
Graduate Student, U.B.C.

O.A. Oldridge, D.Ed.
Professor, Educational Psychology,
U.B.C.

I give my consent for myself and my child to participate in this study of the Preadmission Orientation Programmes at Surrey Memorial Hospital.

Name

Date