Development and Evaluation of a Presurgical Preparation Program

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Three presurgical preparation programs were developed and evaluated in an Australian hospital utilizing an additive component design. The component basic to all three preparation programs was modeling. This technique was compared with the additional components of teaching child coping skills and parent coping skills via videotape. Subjects were 28 children between the ages of 4 and 13 years who were scheduled for elective surgery. Anxiety of both the children and parents was assessed by self-report and behavior observation. Results indicated that there was no further anxiety reduction by the addition of child and parent coping skills. Results are discussed in terms of the viability of teaching coping skills via videotape particularly to parents. Methodological difficulties associated with research in this area are examined.

KEY WORDS: preparation for pediatric surgery; prehospital preparation; modeling; coping skills; relaxation.

There have been numerous overviews reported in the literature on the preparation of children for hospitalization (Azarnoff, 1976; Eckhardt & Prugh, 1978; Elkins & Roberts, 1983; Goslin, 1978; Melamed, Robbins, & Graves, 1982; Peterson & Brownlee-Duffeck, 1984; Siegel, 1976, 1983; Wright, Schaefert, &

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Solomons, 1979). A major emphasis has been placed on preparation tech-
niques which have included puppet therapy (Cassell, 1965), play therapy
(Chan, 1976, 1980; Doak & Wallace, 1975; Knudsen, 1975), orientation tours
(Azarnoff, Bourque, Green, & Rakow, 1975; Brown, 1971; DeLouis, 1979;
Sauer, 1968), books (Chabon & Chabon, 1979; Fassler, 1978) modeling
(Faust & Melamed, 1984; Melamed, 1977, 1982; Melamed, Dearborn, & Her-
mezcz, 1983; Melamed, Meyer, Gee, & Soule, 1976; Melamed & Siegel, 1975,
1980; Peterson, Schultheis, Ridley-Johnson, Miller, & Tracy, 1984), joint
parent–child preparation (Visintainer & Wolfer, 1975; Wolfer & Visintainer,
1975, 1979) and teaching children coping skills (Peterson & Shigetomi, 1981,
1982).

The present study involved the development and evaluation of a presurgical
preparation program based upon those methods that have empirical evidence to
support their efficacy.

The use of modeling as a technique in the reduction of anxiety in children
facing hospitalization and surgery has been thoroughly investigated by Melamed,
Siegel, and others (Faust & Melamed, 1984; Melamed, 1977, 1982; Melamed et
al., 1983, 1976; Melamed & Siegel, 1975, 1980; Peterson et al., 1984, Siegel,
1975). This research clearly demonstrated the effectiveness of a filmed model in
reducing children's anxiety regarding surgery. In addition, the effectiveness of
modeling procedures for adults has now received widespread and detailed atten-
tion as well (Perry & Furukawa, 1980; Rachman, 1972; Rimm & Masters, 1979;

Peterson and Shigetomi (1981) reported that teaching children coping skills
such as relaxation (Russell & Sipich, 1974), distracting mental imagery (Lazarus
&Abramovitz, 1962) and comforting self-talk (Meichenbaum & Goodman,
1971) produced small but consistent results favoring coping skill preparation.
The successful use of coping skills has been reported in reducing anxiety in child
dental patients (Nocella & Kaplan, 1982; Siegel & Peterson, 1980, 1981) and in
the successful treatment of severe nighttime fears (Graziano, Mooney, Huber, &
Ignasiak, 1979). There is also support for the use of coping skills with adults
(Barrios & Shigetomi, 1979).

Peterson and Ridley-Johnson (1983) raised the question as to whether it is
possible to effectively teach child coping techniques via a prepackaged film or
videotape. The present research attempted to answer this question. An additional
objective of the study was to determine whether there was a significant benefit in
teaching parents as well as the child coping skills.

It was hypothesized that the modeling plus child and parent coping skills
treatment would be more effective than modeling plus child coping skills treat-
ment. In addition, it was expected that the modeling-only treatment would be the
least effective in reducing anxiety.
METHOD

Subjects

Forty-two children between the ages of 4 and 13 years, who were scheduled for elective surgery at the Flinders Medical Centre, Department of Pediatrics were the pool from which the subjects were drawn. Lists of pediatric elective surgery patients were obtained from Ear, Nose, and Throat (ENT); Eye; and Plastic Surgery Consulting Clinics. Parents of these children were contacted to elicit their participation. Fourteen of these children were excluded due to the following: Five families refused to participate, four families canceled surgery, two children were intellectually handicapped, one set of parents spoke limited English, one family was not contactable due to change of address, and one family eventually was unable to attend because of a conflicting commitment. Thus, 28 children were the subjects in the study.

Each child was randomly allocated to one of three groups. The group to which the child and his parents were allocated corresponded with the Preparation Package which they were given. The random allocation of subjects occurred within the age groups; 4–5, 6–7, 8–9, 10–11, and 12–13 years, in order to counterbalance the groups for age of children. The characteristics of the subjects in the three groups are summarized in Table I.

A male psychology graduate student served as the experimenter, whose role was to arrange for the family’s attendance at the preparation session. The experimenter met the family on arrival, showed them the videotape, and administered the questionnaires. The observers were a registered nurse and two play thera-

| Table I. Subject Characteristics of the Three Groups (N = 28) |
|-----------------|-----------------|-----------------|
|                | Group 1 (n = 9) | Group 2 (n = 9) | Group 3 (n = 10) |
| Sex            |                 |                 |                 |
| Male           | 5               | 6               | 5               |
| Female         | 4               | 3               | 5               |
| Age            |                 |                 |                 |
| M              | 6.71            | 6.86            | 7.49            |
| SD             | 1.82            | 1.99            | 2.83            |
| Type of surgery|                 |                 |                 |
| ENT            | 7               | 8               | 8               |
| Plastic        | 1               | 1               | 2               |
| Eye            | 1               | 0               | 0               |
| Previous hospitalization | Yes | 6 | 5 | 9 |
| No             | 3               | 4               | 1               |
pists. The nurse acted as the principal observer and the play therapists acted as secondary observers. A psychology tutor and a graduate psychology student served as interviewers for the 2-week follow-up procedures. The observers and the interviewers were not allowed to view the videotapes, and were unaware of the purpose of the study, experimental hypotheses, and allocation of subjects to groups.

Materials

Three films recorded on videotape were made at the Flinders Medical Centre. The first videotape contained various filmed segments from within the hospital, whereas the second and third videotapes contained the additional materials on coping skills filmed at the Illustration and Media Television Studio, Flinders Medical Centre.

Package 1: Information Presented by Modeling (IM)

Videotape 1 was a peer-modeling film that followed an 8-year-old Australian girl named Julia through a standard hospital admission for elective surgery, from packing her clothes to arriving at the hospital, through various medical procedures, to discharge from hospital. These procedures included being given a premedication injection, being taken to the operating theater, awakening in the recovery room, and being returned to her bed. Hospital procedures were explained by appropriate medical personnel and specific scenes were narrated by the child who acted as a coping model, displaying initial anxiety and eventually overcoming the anxiety and coping with each stressful event (Meichenbaum, 1971; Melamed & Siegel, 1975). The second component of Package 1 consisted of an Activity Worksheet.

Package 2: IM and Child Coping Skills (CCS)

Videotape 2 consisted of two parts. In the first part, Julia was shown learning and practicing the following coping skills: (a) Child relaxation exercises—a modified version of a child relaxation script (Koeppen, 1974). (b) Happy Thoughts—Julia’s mother asked her to recall three happy times and recorded Julia’s responses in the Preparation for Hospital Booklet. Subsequently, Julia’s mother asked her to describe one of the happy times scenes in detail and accordingly noted Julia’s comments. At the completion of this task, Julia was shown practicing her happy thoughts. Subjects were instructed via the videotape that once children have talked about their Happy Thoughts in detail, they need to
sit and think about each of the scenes once per day. The child was also advised via the Preparation for Hospital Booklet that whenever he felt anxious or worried in hospital he could use Happy Thoughts to help him feel calmer. (c) Cognitive Self-talk—Julia's mother assisted her with learning two messages that Peterson (1978) found to be the most reassuring of a number of messages that she pre-tested on children. The messages were: “I will feel better in a little while” and “Everything is going to be all right.”

The second half of Videotape 2 consisted of an edited version of Videotape 1, with the addition of Julia modeling the coping skills at times known to be extremely stressful for children. These times were when she was receiving her premedication injection, on the way to the operating theater, and when entering the holding bay area and anesthesia room. The second component of Package 2 consisted of a 15-minute child relaxation audiotape which was required to be practiced by the child once per day for a period of 7 days. The audiotape included in the package was a standard C60 or C90 cassette. The third component of Package 2 consisted of the Preparation for Hospital Booklet–Version 2. It was used to reinforce the three child coping skills illustrated in the videotape as well as serve as recording sheets for the various skills to be practiced. Families were requested to complete the recording sheets at the conclusion of the practice of each coping skill.

Package 3: IM and CCS and Parent Coping Skills (PCS)

Videotape 3 was identical to Videotape 2, with the addition of a number of scenes related to parent coping skills. Videotape 3 consisted of two parts. In the first part, parent coping skills were introduced immediately following the respective child coping skills. (a) Relaxation Training—Julia's mother was shown practicing the relaxation audiotape. Parents were provided with a special tape to relax by and were instructed to practice this each day. Parents were also told that at any time they felt worried about their child's hospitalization, they could use relaxation to help themselves feel calmer. (b) Happy Thoughts—In the same way as children thought about happy events, parents were told they too could think about happy events whenever they felt tense and this would help them to feel calmer. Parents were instructed to practice thinking about Happy Thoughts once per day in a similar way to their child. (c) Cognitive Self-talk—Julia's mother was shown reading the Preparation for Hospital Booklet and was told that parents could use similar messages as their child to relax themselves. Julia's mother and father learned the following messages: “Everything is going to be all right” and “Julia will be better in a little while.” They repeated these messages whenever they felt worried and this helped them feel calmer. All three of the above skills were modeled by the parents while Julia was in surgery.
The second component of Package 3 consisted of two standard C60 or C90 audio cassette tapes, one containing child relaxation instructions and the second containing 16 minutes of adult relaxation instructions (Wolpe & Lazarus, 1966). The third component of Package 3 consisted of the Preparation for Hospital Booklet—Version 3 which contained information and practice record sheets for both the parent and child coping skills.

**Dependent Variables**

**Measurement of Anxiety**

The most influential process by which to assess anxiety has been the three-systems approach advocated by Lang (1968, 1971, 1978). However, critical reviews of the three-systems approach (Hugdahl, 1981; Kozak & Miller, 1982) have highlighted a number of difficulties. Kozak and Miller (1982) pointed out a lack of evidence on the reliability of the measurement instruments, thus making low correlations between different response systems difficult to interpret. A review of the literature on physiological anxiety measures revealed that none of the measures were sufficiently reliable to be used as an index of anxiety (Arena, Blanchard, Andrasik, Cotch, & Myers, 1983). Therefore, the assessment of anxiety of the children and parents in the present study was limited to self-report and behavioral observation measures.

**Child Anxiety Measures**

The “What I think and Feel Scale” (Reynolds & Richmond, 1978) was used to assess the long-term effects of the child’s hospitalization. The Children’s Hospital Fears Rating Scale (Melamed & Siegel, 1975) was used to assess situational anxiety by self-report. Situational anxiety was also assessed by the Observer Rating Scale of Anxiety—Children (Melamed & Siegel, 1975). In Melamed and Siegel’s original study (1975), observers were required to make discriminations as to whether 29 behaviors were either present or absent over three intervals of 9-minute duration. The scale was modified to meet the requirements of the present study. There were two intervals of 2 minutes each in which the observers marked with a tick only the presence of any behavior noted on the checklist.

In addition to the assessment of the child’s anxiety, an Acquisition Measure was administered. This measure assessed the amount of information retained from the videotape as suggested by Melamed (1982). The measure consists of 10 questions in which the child indicated which of two statements corresponded with the presented content of the videotape viewed.
Finally, the child's posthospital adjustment was assessed by parental self-report utilizing the Posthospital Behavior Questionnaire (Vernon, Schulman, & Foley, 1966).

**Parent Anxiety Measures**

The State-Trait Anxiety inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) was used to obtain objective self-report measures of both state and trait anxiety of the parent who accompanied the child through the hospital experience.

Parental situational anxiety was also assessed by the Observer Rating Scale of Anxiety-Adult. The scale consists of selected items from the Goldfried and Goldfried (1977) 15-item revision of Paul's (1966) Timed Behavioral Checklist.

A Parent Questionnaire was devised for the present study by combining relevant items from two parent questionnaires utilized in previous research by Siegel (1975) and Peterson (1978). The derived questionnaire was designed to assess two principal areas: child predisposition to hospitalization and parental anxiety regarding the child's impending hospitalization. The parent was required to rate each statement on a global five-point scale.

A Parent Diary, based on the work of Wolfer and Visintainer (1975, 1979; Visintainer & Wolfer, 1975), was developed for the present study. Parents were required to rate their anxiety on a 5-point scale with 1 representing no anxiety and 5 representing maximum anxiety at the following four points: (a) child's admission to hospital, (b) immediately before surgery, (c) during surgery, and (d) when the child returned from the operating theater. Thus, parents were asked to rate their level of anxiety when the child was in distress. The diary was a third measure of the parent's level of situational anxiety.

**Coping Skills Recording Form**

There were three recording forms developed. These forms were used to record the practice of the Relaxation Training, the Happy Thoughts, and the Self-talk exercises. An Activity Worksheet was included in Package 1 to control for the parent–child interaction required in the other two packages.

**Procedure**

Each week the experimenter contacted the surgeons responsible for the various types of pediatric elective surgery to obtain the names of potential subjects. The parents of the children were contacted by telephone approximately 14
days prior to the scheduled surgery, requested their child's participation in the study as well as their own, and arranged a time to screen the videotape, "Julia Goes to Hospital." All except three children viewed the videotape 7 days prior to their scheduled surgery. Two children from Group 1 viewed the videotape 4 days prior to surgery and 1 child from Group 2 viewed the videotape 5 days prior to surgery.

Five families who did not have a telephone were contacted via a home visit by the experimenter. On arrival at the hospital, the child and the parent who would accompany the child on the morning of surgery were met by the experimenter and shown into the video viewing room. All except two children were accompanied by their mothers. One child in Group 1 and one child in Group 3 were accompanied by their fathers. This video room was equipped with a two-way viewing screen for the observers to unobtrusively carry out their behavioral ratings. Prior to viewing the videotape, parents were required to sign a consent form indicating their willingness to be involved in the study.

The parent was then interviewed by the experimenter utilizing the Prevideo Parent Questionnaire. The parent was requested to complete the entire STAI. During the time involving the interview and completing the STAI, the parent's anxiety was assessed by observers with the Observer Rating Scale of Anxiety—Adult. While the parent completed the STAI, the experimenter administered the "What I Think and Feel" scale to the child. The experimenter then administered the Children's Hospital Fears Rating Scale to the child via a five-point scaled thermometer. During the time of completing these measures, the child's anxiety was being assessed by observers behind the two-way screen, utilizing the Observer Rating Scale of Anxiety—Child. On completion of their ratings, the observers were dismissed prior to the screening of the videotape. The child and parent were then shown one of the three versions of the videotape, "Julia goes to Hospital."

At the completion of the videotape, the postvideo period, children were administered an Acquisition Measure by the experimenter. Following the completion of this measure, the experimenter left to recall the observers to the observation room. The experimenter then interviewed the parent on their child's behavior over the past 4 weeks with the Vernon Scale. The parent was then asked to complete the state section of the STAI. During this time the observers repeated the rating of the parent's anxiety on the Observer Rating Scale of Anxiety—Adult. The experimenter then readministered the Children's Hospital Fears Rating Scale at which time the observers repeated the rating of the child's anxiety with the Observer Rating Scale of Anxiety—Child. On completion of these ratings, the observers again left prior to the parent and child receiving the homework materials appropriate to their group allocation.

On the morning of surgery, the third assessment period, the experimenter collected the homework materials that the family had been using in the previous
week. At this time the experimenter administered the Children’s Hospital Fears Rating Scale for the third time while the observer again rated the child’s behavior on the Observer Rating Scale for Anxiety—Child. Following this, the parent was asked to complete the State section of the STAI and the observer rated the parent’s anxiety for the third time on the Observer Rating Scale of Anxiety—Adult.

The Parent Diary was then given to the parent. This form was collected after the child’s surgery, either by the experimenter or a nurse. At this time, the parent was advised that a member of the Pediatric Department would telephone in 2 weeks to arrange a convenient time for a follow-up interview, the fourth and final assessment period. The interviewer followed a standard procedure as outlined on a Follow-up Procedure sheet. At the follow-up interview, the parent was asked to complete a revised version of the Prevideo Parent Questionnaire, the Vemon Scale, and the State and Trait sections of the STAI. The child completed the “What I Think and Feel Scale” and the Children’s Hospital Fears Rating Scale. Observer ratings of child and parent anxiety were not conducted in this assessment period.

RESULTS

Children’s Anxiety

The dependent variables considered under this heading were Children’s Hospital Fears Rating Scale (CHFRS), Observer Rating Scale of Anxiety—Children (ORSA-C), and the “What I Think and Feel” Scale (WITF). A single general analysis of variance (ANOVA) model was used for the analysis of these dependent variables. This model comprised three factors: (a) Group—Package 1, 2, or 3; (b) Age—less than 7 years and older; (c) Time—a repeated measure factor. The levels of the repeated factor (Time) varied according to the particular dependent variable.

Children’s Hospital Fears Rating Scale. The CHFRS was administered on four occasions (prefilm, postfilm, preop, follow-up) which constitute the four levels of the Time factor for this variable. There was no significant difference between the three treatment groups at the four assessment periods, $F(6, 54) = 1.30, p > .05$. There was also no significant difference between the two age groups at the four assessment periods, $F(3, 54) = 0.68, p > .05$.

Observer Rating Scale of Anxiety—Children. The ORSA-C was administered on three occasions (prefilm, postfilm, preop). There was no significant difference between the three groups at the three assessment periods, $F(4, 44) = 0.44, p > .05$. There was also no significant difference between the two age groups at the three assessment periods, $F(2, 44) = 0.96, p > .05$. However,
there was a significant effect within subjects over time, $F(2, 44) = 10.49, p < .001$. The means corresponding to the three administration occasions noted above were 7.61, 5.39, and 5.96, respectively. The mean ORSA-C scores across time (prefilm, postfilm, preop) for each group are illustrated in Figure 1.

The "What I Think and Feel" Scale. The WITF was administered twice (prefilm and follow-up). There was no significant difference between the three groups at the two assessment periods, $F(2, 19) = 1.03, p > .05$. There was also no significant difference between the two age groups at the two assessment periods, $F(1, 19) = 0.84, p > .05$. However, children in the younger age group (less than 7 years) reported significantly higher levels of anxiety than children in the older age group (7 years and older) when the Time factor was disregarded.

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![Figure 1](image.png)

Fig. 1. Frequency of mean observer-rated anxiety responses on the ORSA-C for each group across the three measurement periods (prefilm, postfilm, preop).
$F(1, 19) = 6.60, p < .05$. The mean anxiety level for the younger children was 14.04 compared with a mean of 8.40 for the older children. There was also a significant effect within subjects over time, $F(1, 19) = 6.49, p < .05$, with higher levels of anxiety being reported at prefilm ($M = 13.16$) than at follow-up ($M = 10.40$).

Additional Child Measures

Two further dependent variables pertained to the child. Posthospital adjustment was assessed using the Vernon Scale and the amount of information retained from the video tape was assessed using the Acquisition Measure. The same general ANOVA model used for the analysis of Child's Anxiety was applied to the analysis of the Vernon Scale. Acquisition data were obtained on only one occasion, and therefore the ANOVA model for this variable did not contain a repeated factor.

Vernon Scale. The Vernon Scale was administered twice (postfilm and follow-up). There was no significant difference between the three groups at these two assessments, $F(2, 19) = 2.14, p > .05$. There was, however, a significant difference between the two age groups at the two assessments, $F(1, 19) = 4.48, p < .05$. At postfilm, the relevant means for this effect were 6.13 and 4.50, for the younger and older age groups, respectively; the corresponding means at follow-up were 4.60 and 5.10.

Acquisition Measure. The Acquisition Measure was taken only once (postfilm). There was no significant difference between the three groups, $F(2, 22) = 0.63, p > .05$, or between the two age classifications, $F(1, 22) = 1.85, p > .05$.

Parental Anxiety

The following dependent variables were analyzed. The State-Trait Anxiety Inventory was used to obtain measures of both state anxiety (STAI-S) and trait anxiety (STAI-T). The Observer Rating Scale of Anxiety—Adult (ORSA-A) provided a measure of situational anxiety. A further index of situational anxiety was obtained from the Parent Diary (PD). The Parent Questionnaire yielded measures of child predisposition to hospitalization (PQCP), and parental anxiety regarding the child's impending hospitalization (PQMA). The general ANOVA model used for the analysis of these dependent variables consisted of the Group and Time factors as defined for the Children's Anxiety analyses.

State-Trait Anxiety Inventory. STAI-S was measured on four occasions (prefilm, postfilm, morning of surgery, follow-up), whereas trait anxiety (STAI-T) was measured only twice (prefilm and follow-up). For STAI-S, there was no
significant difference between the three groups at the four assessment periods, \( F(6, 63) = 0.88, p > .05 \). However, there was a significant effect within subjects over time, \( F(3, 63) = 2.84, p < .05 \). The means corresponding to the four administration occasions noted above were 34.88, 30.92, 34.88, and 31.58, respectively. The mean scores on the STAI-S for the three groups at the four assessment periods (prefilm, postfilm, preop, follow-up) are illustrated in Figure 2. A similar pattern emerged for STAI-T. The between-groups effect at the two assessment periods was not significant, \( F(2, 21) = 0.42, p > .05 \); there was a significant effect within subjects over time, \( F(1, 21) = 8.42, p < .01 \), with higher levels of trait anxiety being reported at prefilm (\( M = 38.88 \)) than at follow-up (\( M = 36.00 \)).

*Observer Rating Scale of Anxiety-Adult.* The ORSA-A was administered on
three occasions (prefilm, postfilm, and preop). There was no significant difference between the three groups at these three assessment periods, \( F(4, 48) = 1.41, p > .05 \). However, there was a significant effect within subjects over time, \( F(2, 48) = 7.07, p < .01 \). The means corresponding to the three administration occasions noted above were 5.74, 4.56, and 4.74, respectively. The mean scores on the ORSA-A for each group over the three assessment periods (prefilm, postfilm, preop) are illustrated in Figure 3.

*Parent Diary.* The items of the PD provided a self-assessment of parental anxiety at five points during the child's hospitalization. Four of these items (on admission, before surgery, during surgery, on return from the operating theater) were treated as a repeated measure. There was no significant difference between the three groups for these four items, \( F(6, 69) = 0.92, p > .05 \). There was, however, a significant difference between the four items within subjects, \( F(3, 69) = 8.86, p < .001 \). The means corresponding to the four items mentioned above were 2.38, 3.19, 3.12, and 2.12, respectively. The respective parental mean anxiety ratings corresponding to each of the four assessment times for each group is illustrated in Figure 4. All five items of the PD were summed to provide a

![Figure 3: Frequency of mean observer rated anxiety response on the ORSA-A for each group across the three measurement periods (prefilm, postfilm, preop).](image)
DISCUSSION

The results from this study produce some interesting and perplexing considerations. The finding that there was no significant difference between the three groups suggested that anxiety reduction of any significance was not achieved by the addition of child and parent coping skills. This finding is in contrast to research by Peterson and Shigetomi (1981) which found a small but consistent result favoring children who had received coping skills preparation.

In the present study parents' responses on the state scale of the State-Trait Anxiety Inventory (STAI) showed a significant effect due to time across all three groups. There was a consistent reduction of state anxiety levels from prefilm to

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Fig. 4. Parental mean anxiety scores reported by parents for each group at four measurement times: 1 = on child's admission to hospital, 2 = immediately before surgery, 3 = during surgery, 4 = when child returned from operating theatre.

Further situational anxiety score. A one-way ANOVA found no significant difference between the three groups, $F(2, 24) = 0.25, p > .05$.

Parent Questionnaire. Measures of PQCP and PQMA were obtained on two occasions (prefilm and follow-up). No significant difference between the three groups for these two occasions was found either for PQCP, $F(2, 22) = 0.54, p > .05$, or for PQMA, $F(2, 22) = 0.33, p > .05$. 
Postfilm assessment across all three groups. Group 1 (Information presented by modeling (IM)) and Group 2 (IM and Child Coping Skills (CCS)) showed an increase in anxiety level from postfilm to preoperative assessment, returning to a level of anxiety that did not differ significantly from the prefilm assessment. However, parents in Group 3 (IM and CCS and Parent Coping Skills (PCS)) showed a decrease in anxiety from postfilm to preoperative assessment. This was in line with the stated hypotheses, although it was not a significant decrease.

The present study addresses the question raised by Peterson and Ridley-Johnson (1983) as to whether a prepackaged film or videotape could successfully combine the teaching of coping skills with modeling. The present study integrates the teaching of child and parent coping skills with modeling into the one videotape package. In addition, the study acts upon the suggestion of Peterson and Shigetomi (1981) to equalize presentation times of the different videotape packages. Even though the three videotapes were of different content, they were of equal running time. There are several other distinct advantages in using videotape packages in research. First, the videotape enables each subject to be presented with standard stimuli. Second, videotape is more cost-effective than manufacturing a movie film.

The present study also incorporates the use of practice booklets to reinforce the learning of the coping skills portrayed in the videotape. Relaxation and audiotapes were provided for home practice. Children were taught relaxation via a modified standard child relaxation script (Koeppen, 1974). Reports from parents indicated that the tape may not be suitable for children outside the 6- to 11-year old age range. Luiselli, Steinman, Marholin, and Steinman (1981) noted that well-controlled experimental analysis of relaxation training with learning-disabled and behavior problem children are almost nonexistent. Similar difficulties exist in the application of child relaxation training to clinical problems (Rickard & Elkins, 1983; Walker, 1979). Thus, future research is needed to evaluate developmentally appropriate relaxation tapes for children.

A limitation of the present research was the inclusion of both children who had been previously hospitalized and those who had not. Melamed and Siegel (1980) reported that showing a peer modeling film to children who had been previously hospitalized had no anxiety-reducing effects. Subsequent research by Faust and Melamed (1984) and Melamed et al. (1983) indicated that in fact showing a peer modeling film to experienced children may have a sensitizing effect. Future researchers need to carefully control the population of subjects in order to compare children with or without previous hospital experience.

An interesting question for future research would be to determine whether teaching children coping is an effective anxiety reduction procedure for children who had been previously hospitalized. It may be that this procedure is more effective than modeling alone for children who have already been exposed to the hospital environment.

In the present study children who had been previously hospitalized were
predominantly in Group 3 (9 of the 10 children). It is interesting to note that parents in Group 3 (IM and CCS and PCS) showed a decrease in anxiety from postfilm to preoperative assessment. It may be that parents who are already familiar with hospital procedures and the reactions of their child may also benefit from being provided with coping skills rather than only being exposed to a modeling film. The present study provides tentative support for this proposal. It suggests that future researchers should determine whether teaching coping skills to parents of previously hospitalized children is an effective anxiety reduction procedure.

An alternative explanation for the results of the present study lies in the methodological difficulties associated with research in this area. The measurement of anxiety, both in the adult and child areas, requires careful review.

The behavior observation rating instruments also need careful revision. There is a definite need for researchers to collaborate on devising and testing appropriate behavior observation scales, rather than researchers developing their own scale and then discarding it because of its lack of reliability and validity. For example, Peterson and Shigetomi (1981) developed a checklist of 16 maladaptive behaviors that were typical of anxious hospitalized children; however, because the scale did not distinguish between any of the groups in their study it was discarded. This scale was independently developed, despite the availability of Melamed and Siegel's (1975) Observer Rating Scale for Anxiety. The assessment of anxiety in the hospital setting also involves practical difficulties. An example is the preoperative assessment, which must be completed in a short time, often with the subject restricted in movement, such as sitting in bed. It would be useful to develop a standard task in which the child could be involved during all assessment periods. In this way, the behavioral samples taken at different assessment periods would be more comparable. In the present study the unstandardized circumstances of the assessment periods may have had a biasing effect.

The self-report measures of anxiety also need careful review. The Children's Hospital Fears Rating Scale needs reliability and validity data to support its continued use. Future researchers may be well advised to utilize other self-report state anxiety instruments in addition to the CHFRS.

An associated difficulty is that the children being assessed are often very young, such as 3–4 years of age. Research is needed to develop appropriate assessment instruments for children in this age range. It may be necessary to develop two forms of the same instrument with the first form for younger children and the second for older children. In this way, language consistent with the child's cognitive development could be utilized. With respect to the self-report assessment of adult anxiety, future researchers need to give careful consideration to the two alternative frameworks within which to measure anxiety, namely, Spielberger's (1966, 1972) State-Trait approach versus Endler's (1975, 1980) interactional model of anxiety.
Previous research by Lang (1968, 1971, 1978) emphasized the importance of assessing anxiety as a multidimensional construct, consisting of behavioral, self-report, and physiological measures. Research by Arena et al. (1983) stressed the importance of assessing the reliability of physiological measures before utilizing them as dependent variables. Melamed (1982) used heart rate changes as an index of anxiety despite findings by Fowles (1980, 1982, 1983) and Holden and Barlow (1986) which called into question the reliability of heart rate as an index of anxiety. In reviewing the three most frequently used physiological measures of anxiety, namely, electrodermal response (EDR), electromyograph (EMG), and heart rate, unequivocal support for the reliability of these measures could not be found (Fowles, 1980, 1982, 1983; Holden & Barlow, 1986; Lader & Noble, 1975; Stern & Janes, 1973).

It is therefore important that future researchers carefully assess the reliability and validity of any physiological measures of anxiety before utilizing it as a dependent variable in research.

It is acknowledged that recommendations for modification of assessment instruments are widespread and cover a number of special areas of psychology, including test construction and physiological psychology. While new instruments may eventually evolve principally from these areas, researchers involved directly in the hospital preparation area need to be aware of the limitations inherent in the present instruments being utilized and also to conduct research aimed at improving the measurement methodology.

REFERENCES


Presurgical Preparation


