

Parental attitudes toward behavior management techniques used in pediatric dentistry

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Abstract

Previous studies evaluating parents' attitudes toward behavior management techniques used in pediatric dentistry suggest that parental attitudes are generally negative. The purpose of this study was to reexamine this issue by comparing the effect of prior explanation on parental acceptance of eight behavior management techniques. Videotaped segments were made of children's dental appointments containing examples of eight behavior management techniques. One group of 40 parents viewed a videotape which provided an explanation for each technique before it was shown. Another group of 40 parents viewed a videotape which provided no explanation of the techniques. The parents then were asked to rate the acceptability of each technique using a visual analogue scale. Results indicated that the informed parents were significantly more accepting of behavior management techniques than the uninformed parents but both groups were generally positive about the techniques studied. Further, parents reporting greater stress were less accepting of the techniques studied.

Introduction

While most children are relaxed and relatively cooperative in the dental treatment environment, (Wright 1975; Fields et al. 1981) some demonstrate behaviors that disrupt the practitioner and make the safe delivery of acceptable treatment very difficult (Weinstein et al. 1981). Ideally, behavior management techniques can be used which enable treatment to be completed and guide the child to develop more appropriate behavior.

A number of factors are changing the use of behavior management techniques. General anesthesia is not available universally because of its cost and the lack of coverage by third party payers (Davis 1988).

Conscious sedation appears to be decreasing among American Board of Pediatric Dentistry Diplomates, dropping from 86% in 1971 to 77% in 1988 (Davis 1988). The reasons for this change include increasing state regulation, rising costs of liability insurance, increasing fees for sedation, expensive equipment now necessary

to monitor the sedated child, difficulty in complying with the "sedation guidelines," and increased propensity to manage patients with conventional means (Loos and Morawa 1984; Davis 1988).

Informed consent issues are having an increasing impact on behavior management of children. The courts maintain that treatment by health care professionals without prior consent is battery and the health professional who touches a patient without consent may be liable (Brown 1976). Participants at the consensus conference and workshop on behavior management sponsored by the American Academy of Pediatric Dentistry in 1988 agreed that informed consent must be obtained from parents before specific behavior management techniques may be performed (American Academy of Pediatric Dentistry 1988).

Finally, some techniques, accepted by the majority of pediatric dentists (American Academy of Pediatric Dentistry 1988), are considered controversial and objectionable by some dentists and parents (Murphy et al. 1984; Weinstein and Nathan 1988). Data regarding parental attitudes toward common behavior management techniques, however, are not extensive. Studies by Murphy et al. (1984) and Fields et al. (1984), examined the attitudes of parents toward common behavior management techniques and how these attitudes were affected by different treatment situations. These data revealed that pharmacological techniques, hand-over-mouth, and restraint were rated as unacceptable by the majority of parents. Voice control and mouth prop were marginally accepted, while positive reinforcement and tell-show-do were overwhelmingly accepted. This hierarchy of acceptance was demonstrated by several methods, but the type of treatment rendered altered the parents' approval of the management techniques. The following limitations in the methodologies in the studies by Murphy et al. (1984) and Fields et al. (1984) prompted the present investigation.

1. Although descriptions of the various techniques

were given to the parents, the rationale for their use was not provided.

2. A group setting was used for data collection and could have led to rating bias because inadvertent verbal and nonverbal cues were readily observable.
3. All 10 behavior management techniques were shown on the videotape, then the parents were asked to rate them. Parents with limited knowledge of dentistry and/or behavior management techniques may have had difficulty recalling the specific techniques.
4. Although the various techniques were ranked and rated, this was accomplished in the context of the other techniques and not on an independent basis, which may have biased the results.
5. These data were collected from an upper middle class group of parents, some with children who had never been to a dentist.

The purpose of the current study was to address the limitations of previous studies, when possible, while specifically determining the effect of prior explanation — including rationale — on parental attitudes toward eight behavior management techniques.

Methods and Materials

Sample

The sample consisted of 80 adults who were selected randomly from an available group of parents accompanying children to Columbus Children's Hospital evening dental clinic. Subjects were assigned randomly to either the experimental or control group. Criteria for participation were: parenthood, literacy, willingness to participate, ability to view videotape, and age of 18 years.

Parent Information Form

Participants were asked to complete a form that inquired about demographic, dental, and stress information prior to viewing videotapes. This form also served as a screening instrument for determining parent literacy. The following demographic data were obtained: age, gender, ethnic background, marital status, number and ages of children, and personal educational level. Columbus Children's Hospital pay group data were obtained to determine the parents' socioeconomic level. Participants also were asked about their frequency of personal dental visits, previous negative dental experiences, the age at which they believe a child should first visit a dentist, and the reason for their child's current dental visit.

The methods used to discipline their children also were solicited. Finally, parents were asked to indicate their level of stress at the time of the study on a visual analogue scale (Clark and Spear 1964).

Behavior Management Technique Questionnaire

Parents were asked to determine the acceptability of each management technique using a visual analogue scale that was 100 mm long (horizontal line). The left anchor point of the scale corresponded to a completely acceptable behavior management technique while the right anchor point represented a completely unacceptable behavior management technique. The parents were instructed to mark their opinion of each behavior management technique on the line with a vertical mark that crossed the horizontal reference line.

Videotapes of the Behavior Management Techniques

Two videotapes were made depicting the eight behavior management techniques listed below. The order of the management technique segments was randomized and placed in identical sequence on both videotapes. The resulting sequence of presentation was:

1. Tell-show-do
2. Nitrous oxide and oxygen sedation
3. Passive restraint (Papoose Board® — Olympic Medical Group, Seattle, WA)
4. Voice control
5. Hand-over-mouth (HOM)
6. Oral premedication with monitors
7. Active restraint (physical restraint by dental personnel)
8. General anesthesia.

The eight technique segments were 20–60 sec long and were vignettes of actual treatment appointments at Columbus Children's Hospital Dental Clinic. Consent for videotaping and use of the videotapes for research was obtained from the parents of each child shown in the tape. All of the patients were 2–5 years old and demonstrated some form of inappropriate behavior that was successfully modified by the behavior management technique. The principal investigator performed the dentistry in all the vignettes and the dental assistant did not use any verbal behavior management. Five faculty members of The Ohio State University Department of Pediatric Dentistry reviewed the tapes to assess the validity of the illustrated behavior management technique. Taping sessions were repeated until acceptable examples of all techniques were recorded.

Two master videotapes were made. Both tapes contained identical introductory comments by the principal investigator describing the purpose and nature of the research project. The experimental videotape included a description of each technique and the indications for its use. The principal investigator narrated all of the explanations using a backdrop to simulate a dental office. The experimental videotape was 10 min long. The control videotape contained the identical sequence

of behavior management techniques, but without explanations, and was 8.5 min long.

A video cassette recorder was used to play the videotapes.

Experimental Procedure

The principal investigator read standardized instructions for completing the patient information form to each participant. After completing the form, each parent viewed the videotape privately and rated the acceptability of the management techniques using the visual analogue scale. The name of each management technique was displayed on the monitor for 5 sec, followed by footage of the technique. Then, the name of each management technique was displayed again for 10 sec, and the parents were asked to rate the technique.

Data Analysis

Analysis of data included tabulation of frequency distributions for sociodemographic information obtained from the parent information forms.

The mean visual analogue score was calculated for each behavior management technique in both the experimental and control groups by measuring the distance from the left anchor point of the visual analogue scale to the mark made by the parents. This was measured to the nearest millimeter. A MANOVA was used to determine if there were significant differences between means of each management technique within each group. A post-hoc, least squares difference test was used to identify significant differences among individual means of each management technique (alpha level = 0.01). Mean ratings for each group were compared for differences across each behavior management technique using independent *t*-tests (alpha level = 0.001).

Three subject age groups (18–26 years, 27–33 years, and 34 years and over) were used to determine the effect of parental age on assessment of behavior management techniques. A one-way analysis of variance followed by a Sheffe test was used to compare mean visual analogue scores for each behavior management technique between age groups (alpha level = 0.01).

Descriptive statistics were calculated for the stress level for each group. The mean stress levels of both groups were compared using an independent *t*-test (alpha level = 0.01). The relationship of stress to the visual analogue scores of the management techniques

was evaluated using a Pearson's correlation coefficient (alpha level = 0.01).

Results

The combined experimental and control groups had the following characteristics. The parents ranged in age from 18–56 years with a mean age of 29.9 (\pm 8.4) years. Twenty-one (26.3%) were males and 59 (73.8%) were females. Thirty-four (42.5%) of the parents were black and 46 (57.7%) were white. Parents represented a low to middle income group with only 10 (12.5%) earning in excess of \$20,000 annually. Sixty-one (76.3%) were married, 14 (17.5%) were divorced, and 5 (6.3%) were single. Thirty-nine (48.8%) never finished high school and only three (3.8%) had college degrees. Table 1 illustrates these characteristics for each group.

The group mean visual analogue scores (VAS) for each behavior management technique, in addition to within — and between — group significant differences, are shown in Table 2. The entire group means encompass a range lower than that of the control group means, but all of the behavior management techniques had mean VAS less than 50, indicating that the experimental sample judged all techniques as acceptable. None of the management techniques ever were judged by parents to be unacceptable ($>$ 50) in the experimental group, while four of the techniques had unacceptable ratings in the control group. Ten control group parents gave unacceptable ratings for general anesthesia, five parents for passive restraint, five parents for oral premedication, and two parents for HOM.

The MANOVA indicated that there were significant differences ($P \leq 0.001$) among the different behavior management techniques within each group. The least squares difference test localized these differences as noted in Table 2. There were many similarly rated techniques in the experimental group, while the control group spanned a larger range of values and demon-

Table 1. Distributions of sociodemographic variables for each experimental group

Variable	Group	
	Experimental	Control
Mean Age (Mean/S.D.)	29.85 \pm 8.97	30.0 \pm 7.99
Gender (Male/Female)	8/32	13/27
Race (White/Non-white)	22/18	24/16
Income Categories		
Welfare	16	15
< \$13,000	5	6
\$14–20,000	14	14
> \$20,000	5	5
Marital Status (M/D/S)	30/8/2	31/6/3
Education Level (< HS/HS/> HS)	20/17/3	26/8/6

strated a greater number of significant differences among techniques. The independent *t*-test indicated significant differences between groups for each behavior management technique at the $P \leq 0.001$ level.

Table 3 shows the mean VAS for the three age groups. There were no significant differences for each behavior management technique between the different age groups.

The mean stress levels for the experimental and control groups were 31.8 (± 19.7) and 31.5 (± 21.0), respectively. These levels were not significantly different. The Pearson correlations between stress level and VAS ranged between .43 and .49 and were significant ($P \leq 0.001$) for each behavior management technique. Parents indicating greater stress rated individual behavior management techniques as less acceptable in each group.

Discussion

Parents in the experimental group who viewed the videotape with description of and rationale for the behavior management techniques rated each of the management techniques as more acceptable than the parents in the control group who received no explanation of the techniques. The fact that more explanation can shape or modify opinion when presented positively is not unexpected, but it is critical to recognize its importance. The between-group differences in the mean scores for each technique approaches a uniform factor of 4, regardless of the general approval level of the techniques. In other words, there was an across the board shift toward more approval of a technique with more explanation regardless of the general approval level. These results suggest that a more informed parent is a more accepting parent, which is consistent with previous reports on informed consent (Hagan et al. 1984; Nash 1988) and predicted by Fields (1988).

Previous studies have not attempted to manipulate parental approval level as a dependent variable except by relating it to a hypothetical treatment circumstance (Fields et al. 1984). The changes that occurred in the Fields study were not across the board as in the present study, and certainly were specific to technique and treatment situation. This appears to signify the power of explanation in the present study.

Table 2. Mean visual analogue score (in mm) for each behavior management technique by experimental group

Behavior Management Technique	Experimental Group (Explanation) <i>N</i> = 40		Control Group (No Explanation) <i>N</i> = 40	
	MEAN	(S.E.)	MEAN	(S.E.)
Tell-show-do	3.7	(.63)	14.7	(1.13)
Nitrous oxide	5.0	(.81)	15.2	(1.06)
Voice control	5.3	(.73)	19.0	(1.31)
Active restraint	6.4	(1.00)	24.0	(2.02)
Hand-over-mouth	7.0	(1.34)	31.0	(2.32)
Papoose Board	8.3	(1.49)	34.1	(2.89)
Oral premedication	9.9	(1.75)	37.3	(2.69)
General anesthesia	12.3	(2.02)	44.1	(3.19)

0 = Totally acceptable, 100 = Totally unacceptable.

I = No significant difference ($P \leq 0.01$).

* Significant differences between groups for each behavior management technique ($P \leq 0.001$).

The most striking difference between this study and that of Murphy et al. (1984) is the range encompassed by the mean ratings in both the experimental and control groups. Both groups in the present study had mean ratings for all techniques that were clearly positive. Interestingly, the control group in the present study was provided with less information regarding the techniques than by the descriptions of Murphy et al.

The more positive ratings in the present study may have occurred for a variety of reasons. The parents in the Murphy et al. study were asked to consider the behavior management techniques for use on their own child, where the present study asked the parents to rate the techniques, per se. Parents may have situational

Table 3. Mean visual analogue scores (in mm) for parents grouped by age

Technique	18-26 years	27-33 years	34 + years
Tell-show-do	9.9	9.0	8.5
Nitrous oxide	10.5	10.6	8.8
Voice control	12.6	13.0	11.0
Active restraint	17.5	16.0	11.8
Hand-over-mouth	22.0	18.5	16.5
Papoose Board	24.1	22.2	17.5
Oral premedication	26.3	24.0	20.1
General anesthesia	32.3	29.2	24.4

N = 80.

0 = Totally acceptable, 100 = Totally unacceptable.

There were no significant differences between age groups for any management technique.

standards for behavior management.

Socioeconomic status and level of education of the parents participating in these studies may have affected the results. The socioeconomic status of parents participating in this study was low to lower-middle class. Additionally, almost half of the parents in this study (48.8%) never finished high school. Parents in the Murphy et al. study were characterized as middle to upper-middle class. Lower SES individuals may be more accepting of professional medical opinion and less likely to express dissatisfaction with a procedure. (Haug and Lavin 1981; Sharp et al. 1983).

Several other variables may account for the overall positive approval demonstrated in the present study. These include the setting from which the speaker provided the explanations and the speaker's gender. Differences in data collection also may explain our more positive results than those of Murphy et al. Their data was collected in group settings and negative, nonverbal cues may have biased the group. It is unlikely, however, that such contamination would have uniformly affected the ratings.

An interesting finding in this study was that as the parents' current stress level increased, acceptability of the various techniques decreased. This finding is supported by the literature that indicates visual analogue scales are influenced by the raters' frame of mind (Clark and Spear 1964).

Also of interest is the fact that the experimental and control groups both yielded similar hierarchies of approval in terms of mean scores. This consistent hierarchy is very similar to the one found by Murphy et al. with the exception of the position of Papoose Board, which was the least approved technique in the Murphy et al. and Fields et al. studies, regardless of the treatment situation. Therefore, with the exception of the Papoose Board, the hierarchy for approval of behavior management techniques is largely consistent regardless of explanation. This stability was predicted by Fields (1988) because of the multiple methods previously used to confirm it.

Limitations in the present study included a population skewed toward low and lower middle incomes. Future studies should attempt to determine parental attitudes across all socioeconomic levels and possibly across professional disciplines. Importantly, the principal investigator who appeared on the tapes also recruited parents to participate in this study. That initial contact may have uniformly biased both groups to give more positive ratings.

The following conclusions can be drawn from this study:

1. Parents viewing videotapes with explanations were significantly more accepting of behavior

management techniques than those viewing videotapes without explanations.

2. Mean visual analogue scores for both groups indicated generally positive attitudes toward the behavior management techniques studied.
3. Parents reporting greater stress were less accepting of the behavior management techniques studied.

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