
The influence of social status and prior explanation on parental attitudes toward behavior management techniques

Carole Havelka, DDS, MS Dennis McTigue, DDS, MS
Stephen Wilson, DDS, MA, PhD John Odom, PhD

Abstract

The purpose of this study was to determine whether parental social status influences preference toward behavior management techniques used during dental treatment of children. One hundred and twenty-two parents from two private practices and one institutional site completed a questionnaire and rated eight commonly used behavior management techniques. These techniques were tell-show-do, nitrous oxide/oxygen, Papoose Board® (Olympic Medical Group, Seattle, WA), voice control, hand-over-mouth (HOM), oral premedication, active restraint, and general anesthesia (GA). Half the parents viewed these eight techniques on a videotape which contained prior explanations for each technique (experimental group). The other half (control group) viewed the same techniques on videotape, but without prior explanations. Parents indicated their degree of acceptability by marking a line on a visual analogue scale (VAS, scored from 1 to 99). A score below 50 was considered acceptable. The parents were divided into "high" and "low" social status groups. Significant differences for HOM and GA were noted between mean scores of the experimental and control groups for both "high" and "low" social status groups; the control groups were less accepting except for GA in the "low" group where the reverse was true ($P < 0.05$). Techniques judged least acceptable were HOM, GA, Papoose Board and oral premedication. Parental acceptance of individual techniques varied greatly, suggesting the importance of informed consent irrespective of social status. (Pediatr Dent 14:376-81, 1992)

Introduction

A primary goal in delivering dental care to a child is to induce behavioral cooperation. Behavior management techniques used in the dental operatory include, but are not limited to, tell-show-do, voice control, hand-over-mouth, oral premedication, Papoose Board® (Olympic Medical Group, Seattle, WA), active restraint, general anesthesia, and nitrous oxide and oxygen.

The selection of these behavior management techniques is no longer made solely by the dentist. In the past, dentists omitted parents from decisions regarding management of their child's behavior. Control has shifted from the health professional alone to more active involvement of the parents as well.¹

Several studies of parental acceptance of behavior management techniques used in pediatric dentistry offer differing views of parental awareness and attitudes. Murphy et al.² and Fields et al.³ examined the attitudes of parents toward common behavior management techniques and how these attitudes were affected by different treatment situations. They had parents view videotapes of different behavior management techniques and rate the techniques on the basis of acceptability. They found that techniques such as physical restraint, hand-over-mouth, sedation, and general anesthesia were rated as unacceptable overall by the parents. Lawrence et al.⁴ asked parents to view explanations of the rationale for each technique and found that informed parents were far more accepting of these techniques. They found that

even the uninformed parents rated all techniques acceptable.

One variable that may have influenced the results in the Murphy et al.² and Lawrence et al.⁴ studies was the social status of the population. Murphy et al.² primarily sampled parents from a middle-high social level, whereas Lawrence et al.⁴ included parents who were primarily from a lower social level.

The purpose of the present study was twofold: first, to determine if parents' social status, as measured by Hollingshead's⁵ criteria, influences their preference of behavior management techniques used during dental treatment; and second, to measure the effect of prior explanation of behavior management techniques on parental acceptability.

Materials and Methods

One hundred and twenty-two parents from private offices of two pediatric dentists in Columbus, Ohio, and from the dental clinic at the Columbus Children's Hospital participated in this study. Parents had at least one child receiving dental treatment at that particular location during data collection, and had to be able to view the videotape alone.⁶

Each parent completed a 22-item questionnaire requesting demographic, dental, and psychological information which was used to determine the social status of the parent's family according to the "Four Factor Index

of Social Status." 5

Forty parents from each of the private offices and 42 parents from the hospital clinic were assigned randomly to either an experimental or control group and viewed one of the two videotapes made by Lawrence et al.⁴ The videotapes depicted the following eight behavior management techniques:

1. Tell-show-do (TSD)
2. Nitrous oxide (N₂O)
3. Papoose Board (PB)
4. Voice control (VC)
5. Hand-over-mouth (HOM)
6. Oral premedication (OM)
7. Active restraint (AR)
8. General anesthesia (GA)

The eight technique segments were 20 to 60 sec in length and were vignettes of actual treatment performed by Lawrence et al.⁴ at Columbus Children's Hospital. Validity of these videotapes was established through the review and approval of five faculty members of the Ohio State University Department of Pediatric Dentistry.

Both videotapes contained identical treatment vignettes and introductory comments by Lawrence who explained the nature of the research project. The segments depicting the eight behavior management techniques were randomized and placed in identical order in both videotapes. The sequence of presentation is 1 to 8 as listed above. The experimental videotape contained explanations prior to each vignette showing a behavior management technique, while the control videotape did not contain these explanations. After viewing each vignette, parents immediately evaluated each behavior management technique by placing a vertical line on a VAS.

Each parent was approached by the researcher and asked to participate in this study. Participating parents were given an information sheet which explained what participation entailed and were taken to a private room to complete the questionnaire. The parent received instructions on how to complete the rating sheets and watched the videotape alone. The first five parents served as a pilot study to ensure that subjects could understand and complete the questionnaire.

The VAS consisted of a horizontal line measuring 100 mm which had the words "completely acceptable" at one end and "completely unacceptable" at the other. Each behavior management technique had its own scale and each scale was placed on a different sheet of paper which identified the name of the technique. The parent evaluated the behavior management technique by placing a vertical line on the scale.

The VAS was devised to be used with a parametric statistic. A numerical value was given to each rating by

measuring from left to right to the nearest millimeter on the scale. The number of millimeters from the left end point to the vertical mark placed by the parent was converted to a numerical value. The most acceptable technique rating possible was 1 and the least acceptable technique rating possible was 99.

Data were analyzed using descriptive statistics, repeated measures ANOVA, correlation coefficient, and nonparametric statistics. To increase the power of the statistical analysis, the five social class categories described by Hollingshead⁵ were combined into a "high" group which included middle-high and high social levels, and a "low" group which included the middle, middle-low, and low social levels.

Results

Twenty parents from each of the private offices and 22 from the clinic viewed the experimental videotape (with explanation) and 20 parents from each site viewed the control videotape (without explanation). Participants included 105 (86.1%) females and 17 (13.9%) males, with a mean age of 35.6 years (range 20–57 years). One hundred (82%) of the study population were Caucasian Americans, while 19 (15.6%) were African Americans.

Table 1 shows the percentage of parents from the "high" and "low" social groups at each site. Site #1 represents the Children's Hospital parents while sites #2 and #3 represent private pediatric dental practices. The "high" group contains 59.8% and the "low" group 40.2% of the subjects.

Table 1. Site distribution of combined social statuses

Site	#/% "High" Social Status	#/% "Low" Social Status
#1	9/21.4	33/78.6
#2	34/85.0	6/15.0
#3	30/75.0	10/25.0
Total	73/59.8	49/40.2

Only 3% of the children who participated in this study were visiting the dentist for the first time. Seventy per cent had been to the dentist more than five times.

Parents most often reported that their child was cooperative during dental visits (84%). None of the parents thought that their children were unable to cooperate. Only 16.5% of the children were reported to have experienced the behavior management techniques of N₂O, PB, OM and GA; 21% of the parents reported that they did not know if any of these techniques had been utilized with their children.

The parental acceptability of the behavior management techniques is seen in tables 2 and 3. In the "low" social group, HOM (in both control and experimental groups) and PB (in the experimental group) had mean ratings greater than 50. OM and GA in the experimental group and PB in the control group had ratings approximating 50. All other behavior management techniques rated by the "low" group had mean scores in the acceptable range (< 50). In the "high" social group, HOM and PB rated mean scores greater than 50 in both experimental and control groups, while GA, as rated by the control group, had a mean rating in the unacceptable range.

Statistically significant differences ($P < 0.05$) were found between scores of experimental and control groups for HOM and GA in both the "low" and "high" groups. Prior explanations significantly increased the mean acceptability ratings of HOM in both the "low" and "high" groups and of GA in the "high" group. Interestingly, prior explanations significantly decreased the acceptability of GA in the "low" group.

Table 4 (page 379) shows statistically significant differences ($P < 0.05$) between the "low" and "high" social status groups for the mean parental ratings of both control and experimental groups. AR was significantly more acceptable in the "high" experimental group than the "low" experimental group, but both groups assigned mean ratings for this technique in the acceptable range. In the control group, a statistically significant difference was demonstrated between the mean scores of the "low" and the "high" groups for TSD, PB, and GA. The "high" social status category judged both PB and GA to be unacceptable with mean ratings of 66.3 and 65.2 respectively, whereas the "low" social status category rated them acceptable with mean ratings of 47.8 and 28.0. Fig 1 (page

379) is a histogram of the four subgroups.

High standard deviations for most ratings indicate a great deal of variation in attitude among the parents and mean scores mask important differences of opinion within groups. Figs 2 and 3 (page 380) demonstrate the distribution of individual acceptability scores for behavior management techniques when this occurred. Fig 2 demonstrates the acceptability scores for the experimental group, and Fig 3, for the control group, for PB, HOM, and GA ("high" social status).

Discussion

The purposes of this study were to determine if social status and prior explanation of techniques influence parents' attitudes toward behavior management techniques. Previous studies have provided conflicting

Table 2. Mean acceptability ratings and standard deviations of the eight behavior management techniques of control and experimental groups for the "low" social status

Technique	Social Status			
	"Low" E	SD ±	"Low" C	SD ±
TSD	12.7	20	25.2	30
Voice control	20.5	26	19.3	24
N ₂ O	36.5	34	29.7	29
Active restraint	38.9	36	41.2	30
Oral medication	49.2	43	33.3	33
GA	48.7*	36	28.0*	31
Papoose	50.1	33	47.8	37
HOM	54.0*	35	78.7*	24

* Indicates a statistically significant difference (post hoc LSD, $P < 0.05$).

"Low" = "Low" social status; E = Experimental group; C = Control group; SD = Standard deviation.

Table 3. Mean acceptability ratings and standard deviations of the eight behavior management techniques of control and experimental groups for the "high" social status

Technique	Social Status			
	"High" E	SD ±	"High" C	SD ±
TSD	4.0	6	11.6	20
Voice Control	14.4	15	23.6	28
N ₂ O	26.4	24	33.3	29
Active restraint	21.9	23	33.9	27
Oral medication	42.1	34	44.1	28
GA	37.9*	34	65.2*	31
Papoose	58.2	35	66.3	32
HOM	56.2*	36	76.3*	31

* Indicates a statistically significant difference (post hoc LSD, $P < 0.05$).

"High" = "High" social status; E = Experimental group; C = Control group; SD = Standard deviation.

Table 4. Mean acceptability ratings of the behavior management techniques that have statistically significant differences between the "low" and the "high" social statuses

Technique	"Low" E	"High" E	"Low" C	"High" C
TSD			25.2*	11.6*
Papoose			47.8*	66.3*
Active restraint	38.9*	21.9*		
GA			28.0*	65.2*

* Indicates a statistically significant difference (post hoc LSC, $P < 0.05$)

"High" = "High" social status; "Low" = "Low" social status; E = Experimental group; C = Control group.

results. Murphy et al.² showed that parents were generally unaccepting of commonly used behavior management techniques whereas Lawrence et al.⁴ found parents to be more accepting of the techniques studied. Murphy's² subject population consisted mainly of middle-high social status parents, while Lawrence's⁴ was mainly a lower social status. The present study included parents from all social status groups.

It is important to note that the ratings on the VAS (scored 1 to 99) were considered acceptable or unacceptable depending on their position relative to 50. This separation was arbitrary and represents a limitation of this study.

In the present study, the only techniques with acceptable mean ratings among all groups were TSD, VC, N2O, and AR. HOM was rated as the least acceptable technique by all social statuses, except for the "high" experimental, but for both "high" and "low" social statuses, parents who received prior explanations rated this technique as more acceptable than those who did not. Among all social status groups, the acceptability of this technique seems to increase with explanation. Our finding emphasizes the need to convey the rationale for the use of specific techniques for each case using a properly designed informed consent procedure.

A statistically significant difference was found between the experimental and control groups and between the two social statuses ("high" and "low") for the use of GA. The "low" social status parents were more accepting of GA although — with prior explanation — their acceptance diminished. The higher acceptance of GA by the lower social status parents may be explained by the fact that this group, with the increased benefits of Medicare and Medicaid, have greater access to health services including GA (Sharp⁷) and the cost of this procedure is not a factor for these parents. Explanation of GA may have decreased acceptability because it clarified the risks involved. Perhaps the "high" social status parents may be less accepting of GA because of their increased knowledge of the risks and costs, and perhaps because they are more challenging of medical

opinion. Murphy et al.² explained the "low" acceptance of GA in their study in the following manner: higher socioeconomic parents may understand the increased risk that is involved in GA, but they may be less familiar with advanced dental disease and its related pain, which would justify use of this technique.

A statistically significant difference was found between the two social statuses

("high" and "low") for the use of PB with the "low" social status group being more accepting. The "low" social group was mainly from the hospital site where they were more likely to have come in contact with this technique. There was a statistically significant difference between the "low" and "high" social status groups for the level of acceptability of TSD and AR (with the "high" status group having more acceptable scores), but both rated PB as acceptable overall. AR involves some type of physical contact between the dentist and the child, yet it remains acceptable to the parent. This may be explained by parental use of similar discipline. The child's hands are held by the assistant in this technique much like the child's hands being held for different reasons outside the dental office (e.g., guiding the child when crossing the street, to reassure a child in an uncertain situation, or to show affection).

The high standard deviations for many of the mean scores indicate a broad distribution of parental attitudes. The mean rating for GA for the "high" experimental group was 37.9, which masks the fact that 33% of the parents in that group rated the technique unacceptable (> 50). The broad range of responses depicted in a

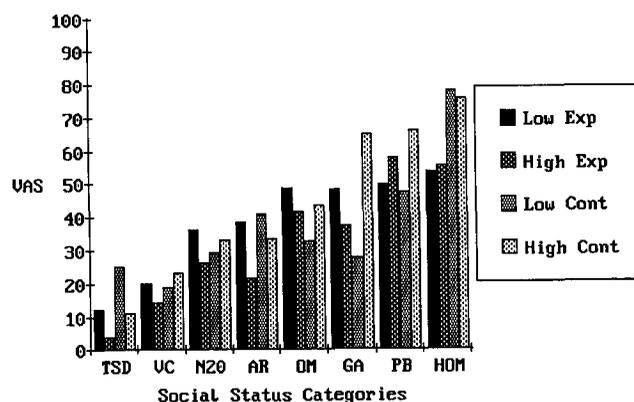


Fig 1. Mean parental acceptability ratings of the eight behavior management techniques.

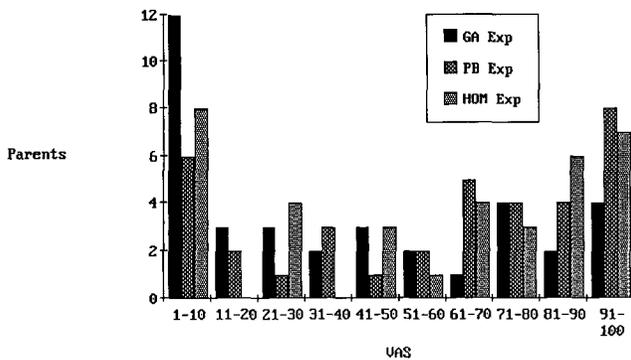


Fig 2. Distribution of individual acceptability scores for behavior management techniques — "high" social status, experimental group.

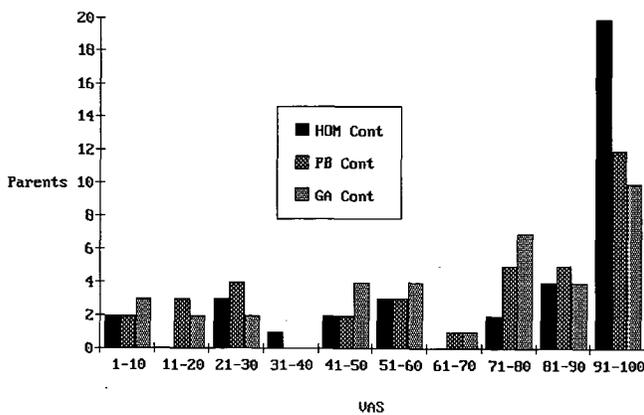


Fig 3. Distribution of individual acceptability scores for behavior management techniques — "high" social status, control group.

bimodal distribution can be seen in Fig 2. The high standard deviations reveal that although a mean score can be in the acceptable or unacceptable range, an important number of responses can be found across the spectrum. This finding suggests that every case should be considered an individual situation for informed consent.

This study amplifies the finding of Murphy et al.² and Lawrence et al.⁴ Important differences in the studies' methods may explain these differences. Lawrence is the dental operator in the videotapes and he personally met and recruited the parents in his study. This interaction may have biased the parents toward more positive ratings. On the other hand, that method may more classically parallel the real clinical situation in which parents interact with practitioner.

The methodology of the current study was also a refinement of the Murphy et al.² study in terms of the format of the videotapes, the selection of the subjects from all social status groups, and their isolation when rating techniques. Data show a trend toward more acceptable responses by parents when given prior ex-

planations, but the results are only statistically significant for GA and HOM. Even with explanations, some parents were unconvinced by videotape explanations and rated some techniques as unacceptable. The results emphasize the importance of obtaining informed consent prior to using behavior management techniques.

A trend of parents from the "high" social status group to be less accepting of techniques than parents from the "low" social status group was observed, but was statistically significant only for AR (experimental), TSD, PB, and GA (control). Social status seems to be only a factor in determining parent's acceptance of behavior management techniques. Generalized and nonspecific approaches to consent or basing consent on assumption about social status seems unwise. Certainly, each family should be treated individually. The need for specific behavior management techniques should be discussed with parents and appropriate informed consent should be obtained before treatment.

Conclusions

1. Statistically significant differences were found between "high" and "low" social status groups only for the following: the "high" group was more accepting than the "low" group for AR (experimental) and TSD (control) but less accepting for PB and GA (control, $P < 0.05$).
2. HOM was the technique rated as least acceptable (except for the "high" experimental) in all groups.
3. Statistically significant differences in acceptability with prior explanations were seen only with GA and HOM: the control groups were significantly less accepting than the experimental groups except for GA in the "low" group where the reverse was true ($P < 0.05$).

Dr. Havelka is adjunct assistant professor, Department of Pediatric Dentistry, College of Dentistry, Ohio State University /Children's Hospital, Columbus OH. Dr. McTigue is professor and assistant dean for academic affairs, College of Dentistry, Ohio State University. Dr. Wilson is assistant professor and director of the postdoctoral pediatric dentistry program, Department of Pediatric Dentistry, College of Dentistry, Ohio State University/Children's Hospital. Dr. Odom is associate professor, Department of Community Dentistry, Ohio State University. Reprint requests should be sent to: Dr. Carole Havelka, 957 Montrose Avenue, Columbus, OH 43209.

1. Hagan P, Hagan JP, Fields HW Jr, Machen JB: The legal status of informed consent for behavior management techniques relative to types of treatment. *Pediatr Dent* 6:204-8, 1984.
2. Murphy MG, Fields HW Jr, Machen JB: Parental acceptance of pediatric dentistry behavior management techniques. *Pediatr Dent* 6:193-98, 1984.
3. Fields HW Jr, Machen JB, Murphy MG: Acceptability of various behavior management techniques relative to types of dental treatment. *Pediatr Dent* 6:199-203, 1984.

-
4. Lawrence SM, McTigue DJ, Wilson S, Odom JG, Waggoner WF, Fields HW Jr: Parental attitudes toward behavior management techniques used in pediatric dentistry. *Pediatr Dent* 13:151-55, 1991.
 5. Hollingshead AB: Four factor index of social status. Working paper, Department of Sociology, Yale University, New Haven, Connecticut, 1975.
 6. Wilson S, Antalis D, McTigue DJ: Group effect on parental rating of acceptability of behavioral management techniques used in pediatric dentistry. *Pediatr Dent* 13:200-203, 1991.
 7. Sharp K, Ross CE, Cockerham WC: Symptoms, beliefs, and the use of physician services among the disadvantaged. *J Health Soc Behav*, 24:255-63, 1983.
-



Moving?

Don't miss a single issue! Return this form to us immediately with address label attached. Clearly print new address *and* phone and fax numbers here:

Name: _____

Address: _____

Phone: (____) _____ Fax: (____) _____