Communication strategies used during pediatric dental treatment: a pilot study

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Abstract

Purpose: Effective verbal communication is essential for successful dental treatment. The purpose of this study was to qualitatively and quantitatively examine communication techniques used by pediatric postdoctoral students during treatment. The operation of a communication model comprised of three linguistic approaches—permissive, empathic and personal—together with other strategies common to all three, was examined.

Methods: The study group consisted of 24 children (14 boys and 10 girls), 3 to 12 years of age. All four dentists were 2nd year residents in pediatric dentistry. Conversations were taped and analyzed linguistically and statistically. The frequency of use of each approach was tabulated and correlated to the children’s reported anxiety, cooperation during treatment, success of treatment, and mood at the end of treatment.

Results: All dentists used the three approaches; the permissive approach, which supplied procedural information, was the most frequently used approach. The empathic approach was the least frequently used. Correlation tests showed that the empathic approach was most significantly related to the success of the treatment. Components of the permissive approach that contributed to the success of treatment were sensory information and supplying reasons.

Conclusions: Although generalization is limited because of the small sample, improving verbal conversational skills, emphasizing certain strategies, and improving linguistic abilities will contribute to better communication between child and pediatric dentist and to better cooperation and success in treatment. (Pediatr Dent 23:337-342, 2001)

The use of language, ie, verbal communication, plays a major role in the interaction between the pediatric dentist and the child patient. Dental procedures can elicit fear and anxiety, especially the more invasive ones. Young children are more prone to dental fear, as they lack the coping experience and ability to postpone rewards. The anxious child perceives the dentist as a threat rather than a health care provider and this fear is carried into adulthood.1,2 Therefore, the role of the pediatric dentist is to educate the child, and to teach cooperation and motivation towards adopting proper oral health habits.

To achieve these goals, dentists use several linguistic strategies, with the aim of reducing fear and enhancing confidence and cooperation. The frequency of certain linguistic techniques used during treatment and their effectiveness in achieving patient cooperation have been examined.3,4 All agree as to the importance of verbal communication in making the child’s exposure to dentistry more pleasant and acceptable. Wurster et al.3 have shown that a child’s behavior depends on the communication pattern of the dentist. Weinstein et al.4 demonstrated that inappropriate child behavior results from the use of ineffective approaches of the dentist, whereas the use of direction and reinforcement reduces the probability of unfavorable behavior. They also showed the beneficial effects of empathic reactions compared to coercion and pleading. Melamed et al.5 tested the effect of reinforcement and concluded that it has a major influence on the child’s behavior during dental treatment. The combination of positive and negative reinforcement results in better child cooperation.

Dentists use a variety of linguistic strategies during treatment, each of which has a specific effect on the child’s behavior and cooperation. The combined use of several approaches and strategies should help the child overcome his or her fear and cooperate better. Most previous studies did not follow the interaction between dentist and patient throughout the session and did not record actual frequency of use and direct affect of the various communication approaches.

The verbal encounter in the dental office is part of what has been termed “institutional talk.”6 This includes communication between physician and patient and is part of a wider sphere called “conversational analysis.”7 Three basic models describe the characteristics of talk between physician and patient: activity-passivity, in which the physician totally controls the situation (usually in emergencies); guidance-cooperation, in which the patient allows the physician to direct, on the assumption that the physician has the knowledge and expertise required to help, (therefore the patient complies with instructions); mutual participation, in which both patient and physician make decisions together. Options are offered and the patient actively participates in the choosing process. Roter and Hall8 suggest an additional model, consumerism, where the patient is the consumer making requests to the physician.

Guidance-cooperation best describes the conversation between dentist and child.9 In reality, this model requires the
patient to understand and have a high degree of compliance, which is not always present when treating children, especially anxious ones. Therefore, it was necessary to modify and adapt this model to the office of the pediatric dentist. It has been suggested that a “child-centered approach” be used, ie, it is the dentist’s responsibility to alleviate the child’s fears and to gain trust and cooperation. Then the guidance-cooperation model can be used. To reduce the child’s fears, a theoretical model is proposed, which includes three verbal approaches: permissive, empathic and personal. Other verbal strategies common to all three can also be used. Each approach is to be used optimally as required by the situation.

Communication model
The proposed model contains three linguistic approaches: permissive, empathic, and personal.

Permissive approach
The patient is provided with relevant information regarding treatment to reduce uncertainty. Patients report that they would like to have more information regarding their medical condition, and expect the physician to supply it on their own initiative. Four types of information have been described:

1. Need for dental treatment (reasons for treatment);
2. Dental procedures the child will experience, in detail (procedural information);
3. What the child will feel during treatment (sensory information);
4. Information regarding various coping strategies available to the child during treatment.

The widely accepted “tell, show, do” method, combines elements of procedural and sensory information with demonstration and is effective in acquiring patient cooperation. The use of alternative, non-threatening vocabulary while providing the information is also part of the permissive approach.

Empathic approach
Empathy is the ability to put oneself in another’s place, including the ability to feel and experience the situation that person faces. An empathic reaction conveys three main messages to a child: “I care how you feel,” “I am trying to understand how you feel,” and “It is all right to feel as you do.” This approach focuses on the child’s feelings, as well as the physician’s attentiveness. Timing is an important element of empathy. The empathic response should come in time of need, at difficult moments.

Personal approach
This approach is useful in establishing a rapport with the child. The child is made to feel that, as an individual, he or she has been acknowledged. Asking open personal questions brings about a trusting relationship. The feeling that a personal relationship exists between the child and the dentist strengthens the child’s ability to withstand traumatic experiences. A dentist who shows genuine interest and uses open conversation and humor during sessions creates a feeling of a safe environment.

Common strategies
The following verbal strategies can be used with any of the three approaches.

Table 1. Percentage frequency of use of three linguistic approaches and common strategies

<table>
<thead>
<tr>
<th>Linguistic approach</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissive</td>
<td>26 ± 14</td>
</tr>
<tr>
<td>Procedural information</td>
<td>18 ± 10</td>
</tr>
<tr>
<td>Sensory information</td>
<td>3 ± 3</td>
</tr>
<tr>
<td>Demonstration</td>
<td>4 ± 2</td>
</tr>
<tr>
<td>Giving reasons</td>
<td>2 ± 4</td>
</tr>
<tr>
<td>Empathic</td>
<td>4 ± 5</td>
</tr>
<tr>
<td>Personal</td>
<td>12 ± 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Common strategies</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforcement</td>
<td>50 ± 75</td>
</tr>
<tr>
<td>Instruction</td>
<td>28 ± 23</td>
</tr>
<tr>
<td>Persuasion</td>
<td>3 ± 4</td>
</tr>
<tr>
<td>Control</td>
<td>3 ± 3</td>
</tr>
<tr>
<td>Distraction</td>
<td>4 ± 13</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>1 ± 2</td>
</tr>
<tr>
<td>Physical touch</td>
<td>0 ± 1</td>
</tr>
</tbody>
</table>

Reinforcement. Verbal or material positive reinforcement increases the probability of repeating a desired behavior. Consistent positive reinforcement encourages the persistence of the desired behavior. Linguistically, it implies frequent use of adverbs and adjectives.

Giving a feeling of control. Control means the belief of a person in their ability to modify the amount of threat to themselves by their actions and reactions. Control reduces anxiety and affords higher tolerance levels.

Use of directives. Instructions and requests are commonly used in the dental office. It implies authority and the ability to make the patient comply.

Persuasion. Language is used to change attitudes and make others change their behavior, which can be achieved by appeal to rapport, appeal to consequences, and appeal to values.

Aversive techniques. Voice control combines non-verbal with the verbal message. A sudden change in voice tone and severe facial expression together with an explicit directive can be helpful in preventing a child’s behavior from deteriorating. Aversive techniques, such as a hand over mouth (HOM), are no longer acceptable by both parents and dentists.

Assertiveness. To be assertive means to express one’s views and insist on one’s rights.

Non-verbal communication. An important aspect of communicating with the child depends on one’s tone of voice, body position, gesture or facial expression, as well as a gentle touch. Communication strategies and their effect on child behavior in the dental office have been examined. Empathic reactions were more effective in achieving the child’s cooperation. Dentists often react to non-cooperative behavior, using less appropriate methods, such as coercion or pleading. The
chosen strategies were more related to personal style than to a definite management approach.

The purpose of this study was to examine qualitatively and quantitatively communication techniques used by pediatric dentists during treatment. A communication model was used to assess the relation of the linguistic strategies to the child’s anxiety, cooperation and mood at the end of treatment.

**Methods**

The study group consisted of 24 children (14 boys and 10 girls), ranging in age from 3 to 12 years who presented for treatment at the children’s clinic at Tel Aviv University. Informed consent was obtained from all parents. The children were divided into two age groups: 3 to 5.5 years and 5.5 to 12 years. Invasive procedures involved extraction or restorations (75%) and non-invasive procedures included examinations, plaque removal and fluoridation. Dentists (3 women and 1 man) were second year residents in pediatric dentistry.

**Procedure**

Collection of data was conducted by taping the conversations between the child and dentist from the time the child entered the room until the session was over. The taped conversation was transcribed and analyzed linguistically and statistically. The unit of analysis was the sentence. The sentences were divided into three approaches and the strategies common to all three, according to the criteria previously described. The frequency of use of each approach was computed for the child and the dentist.

Pearson’s correlation and Student’s t-test were carried out to examine the relation of the approaches to anxiety level, cooperation, mood at the end of treatment, and type of treatment.

Before entering the examination room, each participant reported their anxiety level, using an analog anxiety scale. The analog anxiety scale allows even small children to define their degree of fear on a line where one end is not afraid (1), in the middle (2), a little afraid, and very afraid the other end, (3). The child was graded on level of cooperation by an outside observer (PA) at the beginning, middle, and end of treatment using a modified Frankl’s cooperation scale.26

After the session was completed, the dentist evaluated the success of treatment on a scale of 1-5 (1 - successful, 2 – performed with effort, 3 - partially performed, 4 - aborted, 5 - could not even start treatment) and the observer evaluated the child’s mood on a scale of 1-4 (1 - satisfied and calm, 2 - indifferent, 3 - not happy, 4 - objects vehemently). Five of the transcripts were reevaluated by three dentists and the linguistic expert and full agreement was reached. The outside observer (PA) analyzed the other transcripts. As the number of children was small, dividing into the age groups would result in even smaller groups, which did not seem appropriate at this stage.

**Results**

The frequency of use of the three communication approaches by the dentists is shown in Table 1. Results of the permissive approach were subdivided into its components, ie, procedural information, sensory information, use of demonstration and giving reasons. The permissive approach was used in all meetings with an average frequency of 26 times per session, mostly through procedural information (18). Sensory information was used much less frequently (3), and in 17% no such information was offered. Demonstration was used in all but one session, averaging 4 and reasons were given only 2 times on the average. In 42% of the meetings, no reasons were given to the child during treatment.

The empathic approach was rarely used (4%). In 54% it was used only once or twice, and in 25%, no empathic sentence was used at all.

The personal approach was more “popular” and was used in all meetings and, in more than 50%, it was used more than 10 times.

Strategies common to all three approaches are also presented in Table 1. Positive reinforcement was an important part of the communication with the child and was used 50 times on the average, with a wide range of 9 to 380. Instruction was often used; in contrast, persuasion was used 3 times and was not used at all in 33% of sessions. Giving a feeling of control was used sparingly (3) and not at all in 33% of sessions. Distraction was used only on four occasions, and assertiveness was used on five children (average <1). On two occasions only, there was intentional physical touch.

**Behavior scores**

The average score for reported anxiety before treatment for the entire group was 2 (SD 1) on a scale of 1-3; 46% were not afraid at all, 36% a little afraid, and 17% very afraid.

At the start of treatment, cooperation was good, with a score of 5 (SD 1) out of 5. During treatment it deteriorated to 3 (SD 1) with 29% objecting to treatment. At the end, cooperation improved to 4 (SD 1)

**Success of treatment**

The mean score for treatment success, as evaluated by the dentist, was 1 (SD 1). Most of the treatment was accomplished as

![Table 2. Correlation Between Anxiety, Linguistic Approaches and Common Strategies](image-url)
planned; in 21% it was considered difficult, and in 4% it was aborted. At the end of treatment, 54% of the children reported satisfaction (average score 2). Fifty-four percent of the children were relaxed and satisfied, 29% were unhappy, and 17% were indifferent.

Table 2 shows the correlation between the various linguistic approaches and strategies and the child’s anxiety level. A significant positive correlation was found between anxiety and the empathic approach (0.60, P<0.001) and giving sensory information (0.54, P<0.001). As the child’s anxiety level increased, the dentist’s use of the strategies increased.

The common strategies as a whole, as well as giving a feeling of control, persuasion, and instructions, showed the most significant correlation with the child’s anxiety level (Table 2).

The empathic approach also showed a significant correlation (Table 3) with cooperation (0.62, P<0.001), treatment success (0.75, P<0.001), and child’s mood during and at the end of treatment (0.52, P<0.001). The more frequent use of this approach resulted in better cooperation and a more successful treatment outcome. A positive significant correlation was also found between treatment success and giving sensory information and reasons.

When gender differences between the children were examined, using the t-test, the only difference was found in the demonstration strategy. Dentists used more demonstration when treating girls compared to boys (mean 4.20 and 2.29, respectively; t = -3.05, p = 0.006).

Differences were found in the frequency of use of the various strategies during invasive compared to noninvasive treatment. There was more frequent use of the empathic approach during invasive treatment (5.61 vs. 0.83), as well as a higher incidence of giving more procedural information (20.5 vs. 11.5) and more instructions (32.6 vs. 12.8).

Discussion
Since the children were not a representative sample, the results cannot be generalized for the entire population. Nevertheless, many of the results were significant and corroborated previous studies. The children were a non-selective group of all those who showed up at the clinic and agreed to be taped, and those who participated in the study were not a particularly anxious group. Most (92%) cooperated appropriately at the start of treatment, 78% in the middle and 87% at the end. This is a normal response to the unpleasantness of treatment and the effect of the pediatric dentists’ efforts and verbal strategies.

All three linguistic approaches were used during treatment, showing a wide variation in frequency of use. The empathic approach was used the least, although this approach was shown to have the strongest correlation with both cooperation and satisfaction of the patients. This finding is in agreement with Hooper et al who concluded that physicians also seldom used this approach. Dentists and physicians are apparently reluctant to open emotional channels or find the intentional use of empathy more difficult than the use of descriptions, explanations, and instructions.

The permissive approach was used most often as part of the generally recommended “tell, show, do” procedure. Most of the information given to the children was procedural followed to a much lesser degree by sensory (average 2.5), little demonstration, and very little use of giving reasons. In this study, the strategies of providing sensory information and giving reasons were most effective in reducing anxiety and achieving cooperation.

Positive reinforcement was frequently used, yet surprisingly had little impact on the child’s behavior, whereas giving specific instructions was more effective. Use of assertiveness and physical touch were extremely low as part of the current “non-authoritarian” teaching. The same applied to aversive techniques, which are avoided, if possible, because of their unacceptability by both parents and dentists.

The empathic approach showed the most significant correlation with cooperation, treatment success, and the child’s mood. Also significantly correlated, though less strongly, were giving sensory information, instructions, persuasion, control, and assertiveness. The effect on cooperation, success, and a child’s mood is apparently a combined effect of more than one strategy.

The personal approach was not significantly correlated with treatment success, cooperation, or anxiety. This approach was expected to be important in establishing rapport with the child. It is possible that it is effective more at the start of the
session or that its effect is manifested more in long-term relationships.

The procedural information part of the permissive approach was used often, but it was the sensory information and giving reasons that were more significantly correlated with successful treatment. Receiving detailed description regarding the anticipated sensations and feelings were more helpful to the child and enhanced cooperation.

The combination of procedural and sensory information is very effective. Giving reasons to the child why treatment was necessary and why certain instruments were used was also a useful strategy and increased cooperation. Demonstration did not make a difference, and although it was used more often with girls, there were no differences between genders in cooperation or success in treatment.

Giving instructions significantly correlated with cooperation and treatment success. Specific, detailed instructions enabled children to cooperate better in the dental office. Weinstein et al. have shown that “direction” improved cooperation and that persuasion was not very effective. In the present study, persuasion was significantly correlated to treatment success. A possible explanation for this contradiction could be found in cultural and temporal differences. In the former study, results were obtained over 17 years ago. It is possible that children today are less used to and resent authoritarian instructions and might react better to reasons and persuasions. Giving a feeling of control contributed to treatment success. It was shown that during invasive procedures, this feeling of control decreases patient fear. Control is an important coping strategy used by children and adults to overcome pain and anxiety.

An unexpected finding was the weak correlation between treatment success and positive reinforcement, possibly because the too frequent use of this strategy by the participating dentists reduced its effectiveness. The combination of both positive and negative reinforcement results in better cooperation. Positive reinforcement used alone by less experienced dentists was not effective enough.

The limited number of patients, the inexperience of the pediatric dentists and the non-randomized population limit the application of the results. Moreover, sessions were not the same time length, eg, invasive procedures were usually longer. Most of the children cooperated in treatment, so the effect of the verbal strategies on a wider range of behaviors could not be tested in this study. Another aspect worth examining is the effect of the various verbal strategies on children with difficulties in communication, as well as the role of nonverbal communication in this “conversation.”

Conclusions

1. Verbal communication is an important tool in reducing fear achieving cooperation and patient satisfaction.
2. The specific strategies that show the highest correlation with anxiety, cooperation, and success of treatment are the empathic approach, giving sensory information, and use of the strategies common to all approaches, especially instruction, giving a feeling of control, and assertiveness.
3. Using the tools of another discipline allowed better insight into the dental situation.

Acknowledgement

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References

More On The Year One Dental Visit

I am dismayed and appalled that there are people in the Academy who still don’t understand the basic goals to which all dentists, (pediatric dentists and general practitioners), who work with children should be dedicated. To foster an idea that children should be referred to us on an as needed basis for repair work is ridiculous (See letters to the editor, May/June 2001 issue). Efforts to cast organized pediatric medicine in the role of lookouts for children’s dental health have failed dismally except in isolated person to person situations. Dental health is not just about cavities and inflamed gums. It’s about prevention and it’s about the secure feeling of having a dentist who knows you and cares about you. Then should you require treatment, you have a history together.

An analogy might be that we don’t need accountants or attorneys until we file taxes or we’re buying a house or writing a will. We’ll call you when we think we need you. That’s the HMO philosophy, by the way, “we’ll provide your basic care but if you need a really good doctor then we’ll let you see one.”

Of course we should encourage and assist other health professionals in the task of promoting the whole range of health and welfare of children. But WE and I emphasize that WE are the captains of the ship when it comes to a child’s dental health. We are not merely tooth fixers or drillers or pullers. We are not mechanics of the mouth. We are the specialty that has the responsibility of educating children and parents, coaching and cajoling them to be better patients and more concerned parents.

If I had my way, I would love to not only see a child at one year of age, but to have the opportunity to visit with expectant moms and dads to let them know how important early preventive care is and how critical the role of the parent is even during the pregnancy period in determining what kind of dental future their child will have. Moreover by seeing children in our offices at one year of age, we are in a position to not only prevent or treat caries, but to be coaches and provide valuable counsel and assistance to the parents. Who is in the best position to do that? WE ARE.

More to the point, from a behavior management patient doctor relationship aspect, there is nothing more important than establishing rapport with the child at a time when there is no crisis, no pain, no emergency. How much more difficult is it to have a pleasant first visit when the child arrives in pain with worried and overwrought parents. When immediate past president Paul S. Casamassimo speaks of a dental home, he’s right on the button. We are caretakers and caregivers and it’s critical that this care be provided in an atmosphere that has the continuity which establishes trust and confidence between a child and his or her dentist. I want to see a child in the good times not just the bad times.

It’s true that we’re seeing more children with intact, caries-free dentitions, but after over 40 years, it still breaks my heart to see a two year old baby with a swollen face and four maxillary incisors eaten away down to the gingiva and know that if I’d been able to speak with this mother and father 2 years before, we could have prevented this experience. Yes, they could have read a pamphlet about baby bottle caries, but would it have been as effective as watching my face and listening to my voice giving them that same information? Absolutely not!

The first dental visit for a child sets the tone for life. The earlier you can see a child, the better, not merely for the obvious clinical benefits you derive but even more importantly for the psychosocial impact we have on the children and their parents. The year-one philosophy, as difficult as it may be to implement is the way to go. Let’s not abdicate our responsibility.

Marvin H. Berman
Chicago, Illinois