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# Perception of Dental Students in Relation to Non-Pharmacological Behavioral Management Techniques in Pediatric Dentistry

Childish behavior



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ABSTRACT

**Keywords:** Child Psychology; Anxiety to dental treatment;

This article aims to analyze the knowledge of students from a private college in Recôncavo da Bahia, regarding nonpharmacological behavioral management techniques in pediatric dentistry. A descriptive study with a quali quantitative approach was carried out with 55 students from the 9th and 10th semester dentistry course, a higher education institution. Data collection took place through a questionnaire and responses were counted and the scores obtained in the survey were evaluated using criteria established by the Relative Degree of Incidence technique. In the analysis of the data, it was possible to observe that the students obtained positive results regarding the knowledge about the use of behavioral management techniques in general. Regarding non-restrictive techniques, it was possible to notice that in the non-verbal communication technique both classes had low percentages. In the voice control technique, students in the tenth semester obtained a positive deviation, however with the percentage of + 21%. The knowledge of the distraction technique when compared to the say-show-do, presented greater qualitative deviations, with results above 50%. The positive reinforcement and modeling techniques showed the lowest performances, reaching negative deviations of -90% and -76%. As for the restrictive techniques, a deficiency in the knowledge of the participants was noted, with percentages of + 25% and + 14%. Regarding the ethical infraction in the applicability of restrictive techniques, both classes presented a positive percentage above 50%. The study allowed to observe that the students obtained, in general, good performance with regard to the knowledge of the nonpharmacological management techniques used in child care, however, they demonstrated difficulties in non-verbal communication, modeling and positive reinforcement.

## **INTRODUCTION**

Oral care still generally awakens feelings of fear and anxiety in the population, despite considerable progress in pain control. Research indicates that 48% of the population has some kind of fear regarding dental care, the source of this fear being related to previous experiences experienced in the first consultation<sup>1</sup>. Within this context, pediatric dentistry presents itself as a specialty capable of making the first contact with children with dental care much more pleasurable, minimizing behavioral changes through the playful adaptation of the office and the techniques to introduce them to this new environment, bearing in mind that 6% to 20% of child patients have some anxiety disorder<sup>2,3,4</sup>.

The child has a continuous and dynamic growth both physically and psychically, being able to capture experiences of the environment in which he lives so that they can compose his personality and consequently influence the definition of his behavior<sup>5</sup>. Identifying the reasons that influence the negative behavior of each individual is the first step so that it is possible to circumvent or modify it since these will be decisive when defining the methods used with the infant patient in the office<sup>6</sup>.

In this perspective, child psychology allows professionals to adopt forms of therapeutic management based on the particularities of each patient following the procedural principles of psychological development<sup>7</sup>. When this step is neglected and behavioral problems are not identified, situations of stress or physical and psychological exhaustion can occur, generating discomfort for the patient, professional and responsible for the child, making the planned treatment unfeasible, with the possibility of abandonment<sup>8</sup>. Thus, the interest in the study took place, through the need to emphasize the importance of emo psychology and its significance for carrying out appropriate treatment, aiming at the well-being of each patient.

Knowledge about psychology in the context of fear, anxiety and pain can enable well-being and improve dental care. As well, it can better guide the professional as to the proper conditioning in pediatric dentistry and, consequently, in the success of child treatment<sup>8</sup>. In this perspective, the study aims to analyze the knowledge of students from the last period of a private college in Recôncavo of Bahia, regarding non-pharmacological behavioral management techniques in pediatric dentistry.

## **MATERIALS AND METHODS**

The research was evaluated by the Research Ethics Committee of Faculdade Maria Milza (CEP-FAMAM) according to the Resolution of the National Health Council of n° 466/2012 on research involving human beings. The study was approved by the Research Ethics Committee with CAAE No. 12517719.3.0000.5025. This is a descriptive study with a qualitative and quantitative approach conducted in a private higher education institution located in a municipality in the Recôncavo da Bahia.

The study took place with the participation of 55 students from the dentistry course, with 20 students from the 9th semester and 35 students from the 10th semester. Data collection took place through a questionnaire with questions of intensity addressing the existing theme, where it contemplated questions that assessed the knowledge of students in relation to non-pharmacological behavioral management techniques. The questionnaire used contained statements in which the response options were outlined using the Likert ordinal rating scale, with 6 possible answers, where: 0. I do not have information to evaluate; 1. I totally disagree; 2. I disagree; 3. Neither agree nor disagree; 4. Agree and 5. Strongly agree.

After applying the questionnaires, the scores obtained in the survey were evaluated using criteria established by the Degree of Relative Sensitivity (GSR) technique, with the results of parametricity being verified and the medians of the values found were calculated. For each statement in the questionnaire, it was defined when the alternatives selected by the participants represented "high performance", "intermediate performance" and "low performance". This description can be found in Table 1.

Table No. 1: Description of "high performance", "intermediate performance" and "low performance" for each statement in the questionnaire answered by the participants.

N°	High performance	Intermediate	Low performance
		performance	
01	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
02	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
03	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
04	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
05	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
06	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
07	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
08	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
09	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
10	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
11	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
12	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
13	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
14	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
15	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
16	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
17	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
18	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
19	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
20	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
21	Alternatives 4 e 5	Alternatives 0 e 3	Alternatives 1 e 2
22	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5
23	Alternatives 1 e 2	Alternatives 0 e 3	Alternatives 4 e 5

**Source:** Research data, 2019.

From the systematization of the values obtained for each question, the differential GIR ( $\Delta$ ) was also calculated, which presents the trend (positive or negative) of the concept expressed by each individual, in addition to the intensity (relative value) that indicates how much each critical factor is significant in the interpretation of the thematic analysis. Thus, after applying the questionnaires to the research participants, the answers were organized in an Excel spreadsheet so that the statistical analysis is recorded in the Statistical Package for the Social Sciences (SPSS), version 13.0 for data discussion.

## **RESULTS**

55 students participated in this research, 20 of whom are attending the ninth semester and 35 the tenth semester of the Dentistry course at that institution of higher education, among these participants 39 (70.9%) were female and 16 (29.1 %) male, aged 21 to 39 years, with an average age of 23.95 years. For data analysis, the questionnaire was grouped in a pre-defined manner, namely: use of behavioral management techniques (statement 1 to 4 of the applied questionnaire), use of non-restrictive behavioral management techniques (statements 5 to 16) and use of restrictive behavioral management techniques (statements 17 to 23), where each group of questions contained variables according to the topic addressed.

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Table 2 shows the distribution of the qualitative deviations in the responses regarding the use of behavioral management techniques divided into the pre-defined variables. Regarding the knowledge about the variable "approach to the infant patient" (assertive 4 of the applied questionnaire), the students had the lowest qualitative deviation, with +75% of students in the ninth semester and +76% in the tenth semester, but still, the result was favorable. In the other variables, the responses showed dominance on the part of the participants, with a positive qualitative deviation above 85%.

Table No. 2: Qualitative deviations regarding the use of behavioral management techniques for dentistry students, 2019.

	High	Intermediate	Low Performance	Detour			
Variables	Performance	Performance	Low Performance	Qualitative (%)			
	Kno	wledge of techni	iques				
9° period	20 (100%)	0 (0%)	0 (0%)	+100%			
10° period	31 (88%)	3 (9%)	1 (3%)	+85%			
	Use of techniques						
9º period	19 (95%)	1 (5%)	0 (0%)	+95%			
10° period	35 (100%)	0 (0%)	0 (0%)	+100%			
Importance of knowledge							
9º period	20 (100%)	0 (0%)	0 (0%)	+100%			
10° period	34 (97%)	1 (3%)	0 (0%)	+97%			
Child patient approach							
9º period	17 (85%)	1 (5%)	2 (10%)	+75%			
10° period	30 (85%)	2 (6%)	3 (9%)	+76%			

**Source:** Research data, 2019.

Table 3 addresses knowledge about verbal and non-verbal communication. Greater difficulty was observed by the 10th students in the technique of verbal communication (+ 63%). Regarding the technique of non-verbal communication, the results of both semesters reached a low percentage, with deviations of -5% for the ninth semester and + 12% for the tenth semester.

Table No. 3: Qualitative deviations regarding verbal and non-verbal communication techniques for dentistry students, 2019.

Variables	High Performance	Intermediate Performance	Low Performance	Detour Qualitative (%)			
	Verbal communication						
9° period	19 (95%)	0 (0%)	1 (5%)	+90%			
10° period	26 (74%)	5 (15%)	4 (11%)	+63%			
	Nonverbal communication						
9º period	4 (20%)	11 (55%)	5 (25%)	-5%			
10° period	15 (43%)	9 (25%)	11 (32%)	+12%			

Source: Research data, 2019.

In table 4, it is possible to analyze the distribution of data regarding the technique of voice control and desensitization. The responses obtained demonstrated the participants' knowledge of both techniques. However, students in the 10th semester had the lowest qualitative deviation (+ 21%) with regard to the implementation of voice control in pediatric dentistry.

Table No. 4: Qualitative deviations regarding the techniques of voice control and desensitization referring to dentistry students, 2019.

Variables	High Performance	Intermediate Performance	Low Performance	Detour Qualitative (%)			
	Voice control (concept)						
9° period	16 (80%)	2 (10%)	2 (10%)	+70%			
10° period	31 (88%)	1 (3%)	3 (9%)	+79%			
Voice control (execution)							
9° period	14 (70%)	4 (20%)	2 (10%)	+60%			
10° period	19 (53%)	5 (15%)	11 (32%)	+21%			
Desensitization							
9° period	17 (85%)	3 (15%)	0 (0%)	+85%			
10° period	29 (83%)	4 (11%)	2 (6%)	+77%			

Source: Research data, 2019.

Table 5 presents the students' knowledge about the concept and execution of the techniques of saying-showing-doing and distraction. From the data collected, it was possible to observe a lower performance of students in the tenth semester in relation to the aforementioned techniques, with the least qualitative deviation found in the execution of the say-show-do technique (+ 44%). The students of the ninth semester, in turn, demonstrated unanimity in their knowledge about the execution of the distraction technique, observing a deviation of + 100%.

HUMAN

Table No. 5: Qualitative deviations regarding the techniques of saying-showing-doing and distraction for dental students, 2019.

	High	Intermediate	Lovy	Dataum		
Variables	High		Low	Detour		
v arrables	Performance	Performance	Performance	Qualitative (%)		
	Say-sh	ow-do (concept)				
9° period	14 (70%)	2 (10%)	4 (20%)	+50%		
10° period	25 (72%)	1 (3%)	9 (25%)	+47%		
	Say-sho	ow-do (execution	)			
9° period	18 (90%)	2 (10%)	0 (0%)	+90%		
10° period	24 (69%)	2 (6%)	9 (25%)	+44%		
	Distraction (concept)					
9° period	17 (85%)	1 (5%)	2 (10%)	+75%		
10° period	25 (71%)	3 (9%)	7 (20%)	+51%		
Distraction (execution)						
9° period	20 (100%)	0 (0%)	0 (0%)	+100%		
10° period	27 (76%)	5 (15%)	3 (9%)	+67%		

**Source:** Research data, 2019.

Table 6 shows the distribution of responses on the modeling and positive reinforcement technique. From it, it is possible to notice that although the qualitative deviation in relation to the modeling technique is positive, both semesters obtained a low percentage. In the analysis of the data referring to the positive reinforcement technique, it was possible to notice a contradiction in the content of the students' responses, in a way that demonstrated ignorance in relation to the concept of the technique, thus reflecting, in the negative deviation of -90% and -74%, while in the execution item showed positive performance of +60% and +56%.

Table No. 6: Qualitative deviations regarding modeling techniques and positive reinforcement referring to Dentistry students, 2019.

Variables	High	Intermediate	Low	Detour				
variables	Performance	Performance	Performance	Qualitative (%)				
	Modeling							
9° period	6 (30%)	10 (50%)	4 (20%)	+10%				
10° period	11 (32%)	18 (50%)	6 (18%)	+14%				
Positive reinforcement (concept)								
9º period	0 (0%)	2 (10%)	18 (90%)	-90%				
10° period	5 (15%)	2 (6%)	28 (89%)	-74%				
Positive reinforcement (execution)								
9º period	14 (70%)	4 (20%)	2 (10%)	+60%				
10° period	23 (67%)	8 (22%)	4 (11%)	+56%				

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**Source:** Research data, 2019.

Table 7 shows the participants' knowledge about restrictive techniques. The assessment of students' knowledge on this topic revealed greater difficulties in relation to the use of these techniques in general, obtaining a deviation of +25% and +14%. In the protective stabilization segment, more precisely in the questioning question about the use of macri, a similar negative deviation of -21% was observed for the ninth semester and -20% for the tenth semester.

Table No. 7: Qualitative deviations regarding restrictive behavioral management and protective stabilization techniques for dentistry students, 2019.

Variables	High Performance	Intermediate Performance	Low Performance	Detour Qualitative (%)			
	Restrictive techniques						
9° period	10 (50%)	5 (25%)	5 (25%)	+25%			
10° period	16 (46%)	8 (22%)	11 (32%)	+14%			
Protective stabilization (classification)							
9° period	11 (32%)	20 (57%)	4 (11%)	+21%			
10° period	6 (30%)	14 (70%)	0 (0%)	+30%			
Protective stabilization (use of macri)							
9° period	4 (11%)	20 (57%)	11 (32%)	-21%			
10° period	0 (0%)	16 (80%)	4 (20%)	-20%			

Source: Research data, 2019.

Table 8 reveals the data referring to the hand-over-mouth technique and ethical infraction in the context of restrictive techniques. The participants demonstrate contradiction in the knowledge of the technique since the deviations obtained in the concept were + 25% and + 9% respectively. However, in terms of execution, both semesters showed a qualitative deviation of more than 50%. In the variation of the technique, the students of the tenth semester had less performance with deviation of -3%. In the variable that portrays about ethical infraction in the use of restrictive techniques according to the Dental Code of Ethics, the students showed a positive qualitative deviation above 50%.

Table No. 8: Qualitative deviations regarding the restrictive hand-over-mouth technique and ethical infraction regarding dentistry students, 2019.

Variables	High Performance	Intermediate Performance	Low Performance	Detour Qualitative (%)		
	Hand	-over-mouth (co	ncept)			
9° period	8 (40%)	9 (45%)	3 (15%)	+25%		
10° period	15 (44%)	7 (21%)	12 (35%)	+9%		
	Hand-	over-mouth (exe	cution)			
9° period	12 (60%)	6 (30%)	2 (10%)	+50%		
10° period	24 (69%)	8 (22%)	3 (9%)	+60%		
Hand-over-mouth (technique variation)						
9° period	15 (75%)	4 (20%)	1 (5%)	+70%		
10° period	9 (25%)	16 (47%)	10 (28%)	-3%		
Ethical infraction						
9º period	13 (65%)	5 (25%)	2 (10%)	+55%		
10° period	25 (71%)	4 (11%)	6 (18%)	+53%		

**Source:** Research data, 2019.

#### **DISCUSSION**

The knowledge of psychology applied to pediatric dentistry allows a better and more integrated professional-patient relationship since childhood is characterized as a critical period for the development of fear and/or anxiety, which is a significant reason for the absence of adolescents and adults in the odontological office<sup>9</sup>. The need for internalization and mastery of behavior management techniques is evident so that since childhood, positive bonds and demystification of fears related to oral health care are built.

The analysis of the results showed that the students have knowledge about the use of behavioral management in pediatric pediatric care, which is extremely relevant for building the professional's empathy towards the child. In child care, it is common to encounter various types of unwanted behavior, motivated by feelings such as fear, anxiety, tantrum or pain that can hinder dental treatment. Therefore, it is necessary to use non-pharmacological behavioral management techniques by pediatric dentists, in order to obtain good results in the treatment of the patient<sup>10</sup>.

In the present study, it was found that students demonstrate knowledge of the technique of verbal communication. In contrast, with regard to the technique of non-verbal communication, there was a low qualitative deviation around -5% for the ninth semester and + 12% for the tenth semester, denoting the deficiency in the dentist-patient interaction. According to Singh et al. (2014)<sup>11</sup>, gestures, postures, facial expressions and listening are examples of communications that are not explicit with words, but that make a difference during communication with the patient.

The need to investigate knowledge about the concept and the implementation of the voice control technique, part of the reason for errors during its use. Her goal is to capture the child's attention and cooperation, thus avoiding negative behaviors<sup>12</sup>. However, when used in the wrong way, it can create disgust in the child or the guardian in relation to the care of the minor. In the results of this study, it was observed that the students reported having knowledge about the concept of the technique.

With regard to knowledge about the desensitization technique, students showed a high level of knowledge about its applicability. The literature states that through the use of this technique, the professional will have time to establish greater social interaction and, in a way, will allow the recording of behavioral manifestations during the performance of the procedures<sup>11,13</sup>.

In the technique of saying-showing-doing, it is possible to observe greater knowledge of the participants of the ninth semester about its execution when compared to its concept. However, the qualitative deviations proved to be favorable, thus allowing the professional to promote a familiarization of the child with the office before the operation. Ratifying the statement by Pinkham (1979)<sup>14</sup>, that the technique is well accepted by children, being one of the management modalities most used by specialists in pediatric dentistry.

From the investigation of the distraction technique, it was evident the students' knowledge about the methods used to manage emotions during child care. As shown by other authors, the use of distraction has been widely used, as it provides a more relaxed and effective experience during dental treatment<sup>15</sup>. However, it was found that few participants are aware of the modeling technique, which suggests a low rate of application during child care by students in both semesters. Modeling helps the patient to have a new pattern of behavior, avoiding or reducing probable denials or previous fears that may exist related to dental

treatment. Since most of the children's learning is based on their observation and imitation of others<sup>16</sup>.

Regarding the knowledge of the positive reinforcement technique, it was possible to verify that there was a controversy in the responses of the participants in the ninth and tenth semesters. As for the concept, they obtained a negative qualitative deviation of -90% and -74% respectively, considered quite high and thus showing great deficiency in the knowledge of the applicability of this technique. However, regarding the classification, a positive deviation of more than 55% was found in both classes. According to Guedes, Côrrea and Zardetto (2013)<sup>17</sup>, positive reinforcement is an effective technique when rewarding the patient for satisfactory behaviors after dental care, where it becomes very productive to know how to reward the child at the right time.

Regarding the use of restrictive management techniques, it was demonstrated that students do not have sufficient knowledge about its use, obtaining qualitative deviations below 25%. Thus evidencing the need for greater emphasis on this content so that it is possible to provide the patient with more security when conducting care. Given that, when the child comes to the dental office to perform the treatment, their behavior will depend not only on the prior preparation performed by the parents but also on the ability of the pediatric dentist and his team to lead him<sup>7</sup>.

As for the protective stabilization, little knowledge was observed by the participants, the most significant result being regarding the use of the macri, with a negative deviation of -21% of the students in the tenth semester. According to Singh et al. (2014)<sup>11</sup>, the use of the technique is performed when there is no cooperation from the child during the procedures, requiring physical restraint, which aims to reduce the risk of injury to all while allowing the safe completion of treatment.

The hand-over-mouth technique demonstrated a contradiction regarding the knowledge of the concept and its applicability among students, where they obtained a deviation of + 13% regarding the concept and + 55% regarding applicability. This result can be justified due to the fact that the technique is quite divergent in the literature and is only used as a last resort. According to Albuquerque et al.  $(2010)^{12}$ , this method continues to be controversial from a psychological point of view because its use can be traumatic for the child and there is no parental acceptance in most cases.

Considering the ethical aspects related to the application of restrictive techniques, there was a greater need for knowledge on the subject, in order to support the professional from any legal and ethical responsibility. According to the Dental Code of Ethics (2003), it is specifically in restrictive techniques that the Free and Informed Consent Form must be signed. Being considered as an ethical infraction, the dentist who fails to adequately and clearly explain to the responsible persons the purposes, risks, costs and treatment alternatives for the patient.

## **CONCLUSION**

From the data revealed by the present research and the correlation with studies with a similar theme, the need to teach non-pharmacological management techniques is evident due to the benefits generated during child care. In view of the results found, it was shown that, in general, students have theoretical knowledge about most of the management techniques used to approach the patient. However, with regard to execution, there was a deficiency in the association of theoretical knowledge with clinical applicability. The techniques of modeling, positive reinforcement and non-verbal communication were presented as the greatest difficulties of the students, becoming evident the need of the dentist to seek understanding on this subject, in view of the importance of adequate conditioning for success in child care.

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HUMAN

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