


Behavior and reaction of children to dental care, when submitted to play workshops before and after treatment

Comportamento e reação da criança ao atendimento odontológico, quando submetida a oficinas de brincar antes e após o tratamento

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ABSTRACT

Objective: Strategies to prepare the child with play activities in order to establish an initial friendly relationship between patient and dentist are widely used as a means to soften the inconsistent behaviors and negative emotions during dental treatment. Thus, the objectives of this study were to evaluate the emotions of children before and after performing play activities and at the end of dental treatment, as well as assessing child behavior. **Methods:** A total of 74 children, both boys and girls, aged 4 to 10 years old, participated in this study and attended the Pediatric Dentistry Clinic for two consecutive semesters. The children responded as they felt through the Emotions Deck during the three stages. In addition, data on behavior and procedures were also collected. **Results:** A total of 468 emotions were evaluated, of which 69 (14.75%) were negative and 399 (85.25%) were positive; the joy was the one of greater frequency in the three evaluated moments. A total of 128 (82.05%) positive emotions were observed before, 133 (85.25%) after the play activities and 136 (87.18%) of the positive emotions were after the dental treatment. As for negative emotions, 28 (17.94%) were before, 23 (14.74%) after play activities and 20 (12.82%) after treatment. Regarding behavior, only 9 (5.77%) were not registered as cooperative, while 147 collaborated (94.23%). **Conclusion:** Therefore, it was possible to conclude that the majority of the patients presented positive emotions at the different moments evaluated and the negative emotions were observed mainly before the ludic activities, having a reduction after the dental care. Most patients demonstrated cooperative behavior.

Indexing terms: Anxiety. Fear. Pediatric dentistry.

RESUMO

Objetivo: Estratégias para preparar a criança com atividades lúdicas, a fim de estabelecer uma relação amigável inicial entre paciente e dentista, são amplamente utilizadas como um meio de amenizar comportamentos inconsistentes e emoções negativas durante o

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tratamento odontológico. Assim, os objetivos deste estudo foram avaliar as emoções das crianças antes e depois de realizar atividades lúdicas e ao final do tratamento odontológico, bem como avaliar o comportamento infantil. **Métodos:** Participaram deste estudo 74 crianças, meninos e meninas, com idades entre 4 e 10 anos, que frequentaram a Clínica de Odontopediatria por dois semestres consecutivos. As crianças responderam como se sentiram através do deck de emoções durante as três etapas. Além disso, dados sobre comportamento e procedimentos também foram coletados. **Resultados:** Foram avaliadas 468 emoções, das quais 69 (14,75%) foram negativas e 399 (85,25%) foram positivas; a alegria foi a de maior frequência nos três momentos avaliados. Foram observadas 128 (82,05%) emoções positivas antes, 133 (85,25%) após as atividades lúdicas e 136 (87,18%) das emoções positivas após o tratamento odontológico. Quanto às emoções negativas, 28 (17,94%) eram anteriores, 23 (14,74%) após atividades lúdicas e 20 (12,82%) após tratamento. Em relação ao comportamento, apenas 9 (5,77%) não foram registrados como cooperativos, enquanto 147 colaboraram (94,23%). **Conclusão:** Portanto, foi possível concluir que a maioria dos pacientes apresentou emoções positivas nos diferentes momentos avaliados e as emoções negativas foram observadas principalmente antes das atividades lúdicas, apresentando redução após o atendimento odontológico. A maioria dos pacientes demonstrou comportamento cooperativo.

Termos de indexação: Ansiedade. Medo. Odontopediatria.

INTRODUCTION

Dental care of infant patients may occasionally become an obstacle to dental professionals, and situations in the office in which the children do not collaborate with the treatment are common [1]. The factors leading to poor collaboration during dental procedures may be pain, anxiety, fear, among others [2].

To improve the inconstant behaviors and negative emotions during dental treatment, dentists can employ strategies of infant patient preparation with play activities to reinforce the establishment of an initial friendly relationship between patient and dentist [3].

The playful proposal includes games using educational material, action figures, puppets, picture books, music, toys, and can be held in the waiting room or during the care procedures [4].

The "Mixed Emotions Card Deck" is widely used by psychologists and psycho-pedagogues as a tool for evaluating human emotions. It consists of 24 cards, each containing the expression of a feeling. Among them are six cards with basic emotions, that is, the first emotions experienced by humans from a very early age: love, sadness, joy, anger, fear, and disgust [5].

That said, the objectives of this study were to identify the children's emotions before and after performing play activities, and at the end of dental treatment, as well as assessing child behavior.

METHODS

Prior to the execution of this study, the research project was submitted to the Research Ethics Committee of the Federal University of Uberlândia (UFU). Upon approval

(as of the document no. 048060/2015), it was conducted according to the norms of Resolution No. 466/12 of the National Health Council.

The proposed sample consisted of 74 children. The study population included patients of four to 10 years of age, of both sexes, normoreactive, in good general health, born and residing in Uberlândia, Minas Gerais. These patients were attending the Pediatric Dentistry Clinic of the School of Dentistry of the Federal University of Uberlândia (FOUFU). Their parents were duly informed about the research objectives and signed the Informed Consent Form (TCLE).

The Mixed Emotions Card Deck was used for data collection. Thus, for this study, 13 emotion cards were presented, three with positive feelings (joy, love, and tranquility) and ten with negative ones (sadness, despair, fatigue, anger, distrust, worry, fear, shame, anxiety, confusion), according to Figure 1.

When the patient arrived at the Pediatric Dentistry Clinic, the cards were presented, and the children indicated the card with which they most identified. Following the first stage, the patients were invited to participate in play activities such as coloring activities, modeling clay, storytelling with drawings, educational games (connect the dots, labyrinth, seven errors), jigsaw puzzle, little parlor, music and reading games, and then again indicated the card with which they identified most at that moment. These activities alternated during the school term. After the dental treatment, the cards were presented again, and the child had to choose the one that best expressed what they were feeling at that moment. For the development of the activities, two undergraduate students participated.

Patient behavior categories were classified into two groups [5]:



Figure 1. Cards from the Mixed Emotions Card Deck selected for the project.

a) competing behaviors: those refer to the responses that prevent the dentist's intervention (head and/or body movements and crying), i.e., non-cooperative responses;

b) non-competing behavior: include responses that do not hinder and/or tend to facilitate the dentist's intervention.

For purposes of data analysis, procedures were grouped into preventive treatments (the first appointment, as prophylaxis is always performed during this moment, and application of sealants) and curative treatments (including restorative procedures, as well as endodontic and surgical interventions).

In order to verify the existence of statistically significant differences between the emotions identified before and after the realization of the recreational workshops, and after the dental treatment, the Cochran Q test was applied. The level of significance was set at 0.05 in a bilateral test.

In order to verify the existence of statistically significant correlations between the emotions identified in the children and the procedures, the Chi-squared test was applied, followed by the C Contingency test.

RESULTS

After data analysis, we observed that most child patients chose the joy card before and after the workshops,

as well as after the treatment (58.33%, 53.2%, and 68.58%) respectively (Table 1).

Table 2 shows that the frequencies and percentages of non-competing behaviors after dental treatment were high.

Table 3 shows the increase in positive emotions after the workshops (85.25%) and after the treatment (85.25%), as well as the reduction of negative emotions.

The curative procedures accounted for 42.95% of the cases, followed by initial appointments (30.77%) and preventive procedures, which accounted for 26.28% of all dental procedures performed.

Therefore, we were able to observe the positive correlation between the emotions and the procedures, and when the procedures were initial or preventive, the children had a higher frequency of positive emotions at the end of the procedure (table 4).

Due to the low frequencies found, it was not possible to analyze the data obtained before the workshops and the procedures.

DISCUSSION

Preventing and assessing children's fear and anxiety and their different capacities in their various stages are essential tasks for the pediatric dentist [3]. In addition,

Table 1. Distribution of frequencies and percentages of children's emotions, evaluated in the three situations analyzed. Pediatric Dentistry Clinic.

Emotions	Before performing play activities	After performing play activities	After treatment
Happy	91 (58.33%)	83 (53.2%)	107 (68.58%)
Tranquility	26 (16.66%)	26 (16.66%)	17 (10.89%)
Love	11 (7%)	24 (15.38%)	12 (7.69%)
Fear	5 (3.2%)	3 (1.92%)	2 (1.28%)
Anger	5 (3.2%)	1 (0.64%)	3 (1.92%)
Worry	4 (2.56%)	2 (1.28%)	1 (0.64%)
Confusion	3 (1.92%)	5 (3.2%)	2 (1.28%)
Shame	3 (1.92%)	2 (1.28%)	5 (3.2%)
Fatigue	2 (1.28%)	2 (1.28%)	4 (2.56%)
Sadness	2 (1.28%)	3 (1.92%)	1 (0.64%)
Anxiety	1 (0.64%)	1 (0.64%)	1 (0.64%)
Distrust	2 (1.28%)	4 (2.56%)	1 (0.64%)
Despair	1 (0.64%)	-	-

Table 2. Distribution of behavior frequencies and percentages observed in children after dental treatment. Pediatric Dentistry Clinic.

Behavior Categories	Frequencies	Percentages
Non-competing	147	94.23%
Competing	09	5.77%
Total	156	100.00

Table 3. Distribution of frequencies and percentages of children's emotions, grouped in positive and negative categories, evaluated in the three situations analyzed. Pediatric Dentistry Clinic.

Emotions	Positive	Negative
Before performing play activities	128 (82.05%)	28 (17.94%)
After performing play activities	133 (85.25%)	23 (14.74%)
After treatment	136 (87.18%)	20 (12.82%)

Table 4. Values of χ^2 and C found when applying the Chi-squared test, followed by the C Contingency test, to the values of the emotions identified in the children and the procedures.

Analyzed Variables	Values of χ^2	Values of C
Emotions before the performing play activities x Procedures	-----	-----
Emotions after the performing play activities x Procedures	38.21*	0.45
Emotions after Treatment x Procedures	9.07*	0.24

(*) $p < 0,05$

it is necessary to know the type of behavior and aspects of child development so as to plan appropriate attitudes and, consequently, to facilitate the relationship with the child patient, since high-level technical procedures cannot be adequately carried out without their cooperation. Therefore, for the child's approximation and management to be compatible with their experiences, we need to know their psychological and physical characteristics according to the different age group [6,7].

Even today, despite the technological advances in the field of dentistry, emotions involved in dental treatment are primarily characterized by fear and anxiety, both in children and adults.

The term "emotion" is defined as a moral, psychic or physical response, usually caused by a confusion of feelings derived from some fact, situation, or news, causing the body to behave according to this reaction, through respiratory and circulatory changes [8].

According to a study, there are five broad categories of emotions – anger, fear, disgust, sadness, and joy – and each presents an elaborate subset of emotional states, triggers, actions, and moods [9].

Therefore, it would be interesting to understand what other emotions would concern infant dental care, hence the justification for using the Mixed Emotions Card Deck, as each card represents – in the form of a picture – a specific emotion. The ability to recognize emotions in faces is present from the first year of life and continues to

develop during childhood [10]. As children grow older, they develop a more elaborate concept of emotion, experiencing more specific feelings, and beginning to acknowledge their negative emotions better [11].

The Mixed Emotions Deck aims to access children's emotions more accurately. Children as young as four or five would be able to indicate appropriate situations for basic emotions (joy, fear, anger, sadness), but complex emotions could not be so obviously depicted through a facial figure or behavioral expressions, such as shame, pride, and guilt [10,11]. Thus, it is reasonable to assume that the use of the Mixed Emotions Deck facilitated the task, for it allowed the children, even when realizing the complexity of the emotions and the difficulty involved in expressing them through words, to identify them through the cards. The card that portrayed joy was chosen more often, which agrees with the observation of a study in which joy concentrated more recognition hits through photos. In fact, the same research revealed that fear was the emotional expression that children were less able to recognize, being constantly mistaken for surprise [10].

The workshops conducted prior to dental care aimed to promote a more welcoming environment in which the play acquires not only the meaning of a source of pleasure but also as an important tool for reducing anxiety [12]. By playing, children externalize their fears and anguishes by dominating them through action. They repeat in the game all the problematic situations they must go through, which allows them to render active what they suffer passively. The playful activities can bring to the surface what often cannot be expressed in words. It is crucial that children perceive the attention given to their emotions so that a relationship of safety and harmony is established between patient and professional [14]. It should be noted that by using such resource we observed that 82.05% of the children presented positive emotions before the workshops, 85.25% after the workshops, and 87.18% after the treatment. And although a higher number of cards related to negative emotions was presented to the patients, their identification decreased as the steps advanced.

In order to provide the patient with the opportunity to acquire more efficient standards of coping with the demands of dental treatment, the professional may resort to psychological strategies of behavior management. The psychological intervention concomitant to the dental treatment helps some patients to face aversive dental

routines, reducing the level of anxiety manifested by individuals with a history of fear or non-collaboration during oral treatment [13].

The children who participated in this study presented a predominantly cooperative behavior since non-competing behaviors were observed in 94.23% of the patients. It was not possible to establish a correlation with the age group and the type of procedure due to the low frequency of competing behavior. The high rate of cooperative behavior is surprising, for the treatment was carried out by undergraduate students at a school-hospital where curative procedures predominated, performed on lower-class patients, if compared to a study [14] that found growing levels of resistance throughout the dental treatment sessions among infant patients assisted by undergraduate students with limited experience in clinical and behavior management tasks. It is reasonable to suppose that the fact that the infant patients predominantly chose cards representing positive emotions may explain the reduced number of children with competing behavior.

CONCLUSION

It is possible to conclude that most patients showed positive emotions during the various moments analyzed and that the negative emotions were primarily observed before the playful activities and decreased after the dental treatment. Most patients showed collaborative behavior.

Collaborators

L SOUZA, execution of the work and writing of the scientific article. F NOGUEIRA, execution of the work and writing of the scientific article. L MARTINS, review of the scientific article. D FERREIRA, F OLIVEIRA and A CASTRO, guidance and article review.

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