

Evaluation of Oral Health-Related Quality of Life to Assess Dental Treatment in Preschool Children with Early Childhood Caries: A Preliminary Study

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Purpose: The oral health-related quality of life (OHRQoL) of preschool children with Early Childhood Caries (ECC) was used to assess the outcome of dental treatment. **Study design:** Children (3.56±1.31years) affected by ECC were selected. Anamnesis, clinical and radiographic exams were performed. Data about sociodemographic aspects, OHRQoL and dmft index were collected. The Brazilian version of Early Childhood Oral health Impact Scale (B-ECOHIS) was applied in two time intervals: before and after 30 days of treatment. B-ECOHIS scores and effect size (ES) were used to evaluate the OHRQoL of preschool children. The Student's-t test was used for comparison between the B-ECOHIS averages, considering the following aspects: gender, age, socioeconomic status, severity of caries and type of treatment. **Results:** The mean dmft was 6.25±4.20 and no differences between boys (6.00±4.32) and girls (6.83±4.35) ($p=0,942$) were found. Pain and psychological problems among children and parents feeling upset and guilty were the most frequently reported impacts at baseline. There was a greater impact on girls (17.67±8.68) than on boys (13.30±10.53) ($p<0.001$); and on children younger than 4 years (16.71±9.96) ($p<0.05$). The highest B-ECOHIS scores were observed in treatments involving dental extractions and space maintainers. There was no difference between the total B-ECOHIS scores of subjects from middle (16.24±10.30) and lower socioeconomic classes (15.97±10.26). The total scores of B-ECOHIS and its domains decreased after 30-day follow-up. Dental rehabilitation of preschool children showed a large effect size for these subjects ($ES=1.19$) and their families ($ES=1.00$). **Conclusion:** Dental treatment resulted in significant improvement of the preschool children's OHRQoL.

Key words: Dental care for children, Dental caries, Quality of life, Dental treatment.

INTRODUCTION

The early childhood caries (ECC) is a disease that has a high prevalence rates worldwide, which may range from 6 to 90%, with lower values being more common in the developed countries; and higher values, in developing countries.¹⁸ It is considered one of the most aggressive forms of caries in childhood⁵ and an important health problem on the world scenario.²

ECC is related to episodes that lead to acute pain, anxiety, sepsis and loss of sleep.² Thus, there are a series of repercussions that are notable in children with ECC, especially at an advanced stage, compromising the child's quality of life. This makes it indispensable to institute the rehabilitative treatment of caries lesions from the disease⁷ and the follow-up of children and their families, in order to verify the success or not of all the therapeutic maneuvers implemented.

Over the last few years, instruments have been developed to determine the impact of oral problems on people's lives. The Early

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Childhood Oral Health Impact Scale (ECHOHIS) is used to assess the impact of oral problems and consequent treatments on the quality of life of preschoolers and their families.¹⁹ This instrument was validated for Portuguese to be used in the Brazilian population, and is denominated B-ECHOHIS.^{21,22} Therefore, the oral health-related quality of life (OHRQoL) of preschool children with Early Childhood Caries (ECC) was used to assess the outcome of dental treatment.

MATERIALS AND METHOD

The present study was approved by the Human Research Ethics Committee of the Federal University of Rio de Janeiro (Brazil) under protocol number 879.784 in compliance with Resolution 196/96 of the Brazilian National Health Council. The parents/caregivers were informed about the research and agreed with the proposed treatment.

In this prospective study, the oral health-related quality of life (OHRQoL) of preschool children with ECC, submitted to rehabilitative dental treatment was evaluated. These children, aged 1-5 years old, who sought the first dental care at the Pediatric Dental Clinic of the Federal University of Rio de Janeiro, Brazil, in a period of two months, were selected after complete anamnesis, clinical and radiographic exams. The exams were performed by two calibrated examiners with the purpose of observing their dental condition as well as their medical and dental history. Thus, the inclusion criteria were children aged 1-5 years with caries in dentin—with or without pulp involvement; and in good general health. Children with systemic alterations, syndromes, cleft lip and palate, or any other developmental anomaly were excluded. In addition, participants whose companion was someone other than parents/caregivers, or whose parents/caregivers were persons with special needs (conditions of psychological, psychiatric and neurological alterations) that would make it unfeasible for them to provide answers were also excluded. Therefore, a sample of 18 preschool children was selected to compose the population of this preliminary study.

The OHRQoL was evaluated in two distinct time intervals (M) of the study: before dental treatment (M1) and 30 days after conclusion of treatment (M2).¹² Therefore, each participant represented his/her own control.

Training and calibration exercise

The calibration exercise was carried out through two steps (theoretical and clinical).⁹ The theoretical step consisted of a discussion of the criteria for the diagnosis of dental caries. A professor of pediatric dentistry (gold standard) coordinated this step, instructing two specialists on how to perform the examination. The clinical step was performed with preschoolers who did not compose the main sample. Each dentist (the professor and the specialists) examined 5 previously selected children aged up to 5 years old. Data analysis involved Cohen's Kappa coefficient on a tooth-by-tooth basis. Inter-examiner agreement was tested by comparing each examiner with the gold standard (Kappa = 0.91±0.37). A seven-day interval was respected between clinical examinations for the determination of intra-examiner agreement (Kappa = 0.84 to 0.96).

Data collection through the parents/caregivers interviews

The Brazilian validated version of the Early Childhood Oral Health Scale (B-ECHOHIS) questionnaire²¹ was applied in the form of an interview by the main researcher, with the parents/guardians of the whole sample, in both time intervals; pointing out that the same person must respond the questionnaires in M1 and M2. The B-ECHOHIS has 2 sections: (1) Child Impact Section (CIS); and (2) Family Impact Section (FIS). It comprises 6 subscales and 13 items. The subscales for children are: child symptom (1 item); child function (4 items); child psychology (2 items); and child self-image and social interaction (2 items). The subscales for the family are: parental distress (2 items); and family function (2 items). The response options for the B-ECHOHIS are coded as :0 = never; 1 = hardly ever; 2 = occasionally; 3 = often ; 4 =very often; 5 = don't know. The general questions were coded as follows: 1 = very good; 2 = good; 3 = fair; 4 = poor; 5 = very poor.²¹

The total B-ECHOHIS scores and the scores for individual subscales were calculated as a simple sum of the response codes. Higher scores indicated a more negative impact on the oral health-related quality of life, and vice-versa.¹

A questionnaire addressing the following socio-demographic variables: child gender, child age, school-level education of the head of the family of preschool children, was also applied through interviews by the examiners. We used the Brazilian Economic Classification Criteria (Brazilian Criteria) to assess the economic classification.³

Clinical data collection

Clinical exams were performed with the preschoolers by two examiners who had undergone the calibration exercise. Patients were seated in a dental chair, and the examiner used a probe and dental mirror according to the criteria recommended by the World Health Organization.²³ Dental caries was assessed using the dmft index, after professional prophylaxis. Also, radiograph exams were conducted in order to elaborate the treatment plans according to the severity of caries lesions. Thus, there were the following types of rehabilitative treatment: with or without pulp involvement, in which all teeth capable of being treated would receive restorations with light polymerizing resin composite at the end of treatment (with and without pulp therapy), and those patients with indication for tooth extraction would receive fixed space maintainers, when indicated.

Data Analysis

Statistical analysis was performed using the SPSS statistical software (version 20.0, Chicago IL, USA). Properties of the B-ECHOHIS subscales were assessed by evaluating the internal consistency (Cronbach's Alfa coefficient = α). A test-retest was conducted with 5 children not included in this study, with a seven-day interval between interviews to assess the stability of the instrument used. The socio-demographic variables, such as: gender, age, school-level education of head of the family (elementary school, secondary school and higher school); and economic level (dichotomized into middle – B; and low socioeconomic status – C, D and E)³ were presented descriptively. Also, the dmft index values, prevalence of severity of caries (with or without pulp involvement) and type of treatment (with or without extraction; and with or without

space maintainers) were described. The initial scores of the total B-ECOHIS, CIS and FIS and their subscales (child symptom; child function; child psychology; child self-image and social interaction; parental distress and family function) were associated with age (categorized according to the child’s cognitive development, as “equal to or higher than” 4 years (n=9), or “lower than” 4 years (n=7); gender and socioeconomic level. We also calculated standardized scores (dividing the total score by the number of questions/items of the section/subscale), because each section and subscale contained different numbers of items.¹² Whereas the final scores of the total B-ECOHIS, FIS, CIS and their subscales were associated with the severity of caries (with or without pulp involvement); and with the type of treatment (with or without extraction; and with or without space maintainer).

Correlations between dmf-t and the subscales of B-ECOHIS were observed. The changes in B-ECOHIS scores from baseline to follow-up was determined by subtracting the B-ECOHIS scores in the follow-up after 30 days from those obtained before treatment.¹² The same calculation was used for CIS and FIS, as well as for all their subscales. The Student’s-t test served to compare the results between M1 and M2. The effect size (TE) was also calculated as the minimal important difference after treatment, according to Cohen,⁶ by dividing the mean value of change observed by the standard deviation in the total scores of B-ECOHIS and the respective impacts/subscales observed in M1. Therefore, an effect of 0.2 indicated a small, but a clinical change; the effect size of 0.2 – 0.7 demonstrated a moderate change, and the effects with values of over 0.7, represented a large change.¹² The difference between the prevalence of subscales reported as “often” and “very often”, before and after treatment was demonstrated by means of the Chi-square test. For all analyses, the significance level was 0.05.

RESULTS

In this study, 16 preschool children were included, taking into account that two dropouts occurred. Thus, 62.5% were boys. The mean age of the children was 3.56±1.31 years (minimum = 1 and maximum = 5) and the dmf-t of the whole sample was 6.25±4.20. There was no difference in dmf-t between boys (6.00±4.32) and girls (6.83±4.35) (p=0.942), and no correlation was found between dmf-t and the impacts on children (CIS) (p=0.236) and on families (FIS) (p=0.474).

There was uniformity as regards the frequency of severity of caries lesions (50% of the sample had pulp involvement); and as regards type of treatment with or without extraction (50% of the participants underwent tooth extractions). Of the families involved in this study, 81.3% belonged to the middle socioeconomic status and 18.8% to low socioeconomic status, with difference (p<0.001) as regards the dmf-t index between the two status (4.62±2.32 and 13.67±0.57, respectively). The B-ECOHIS questionnaires were answered by mothers (81.25%), fathers (6.25%) or other members of the family responsible for the children (12.5%). The large majority (62.5%) of heads of family were observed to have elementary school-level, while only 6.3% had higher school-level.

The results obtained by means of the Cronbach Alpha (α) for the CIS (α=0.74), and FIS (α=0.85) scores, and for both (α=0.84) demonstrated satisfactory internal consistency of the OHRQoL parameters studied.

Figures 1 and 2 illustrate the total scores of B-ECOHIS, CIS, FIS and their subscales, in the two time intervals of the study, M1 and M2, respectively. The parents/guardians reported greater impact on family, before and after treatment. The subscale parental distress had the highest score; and child self-image and social interaction, the lowest.

Figure 1: Mean values of total B-ECOHIS scores, their impacts and subscales before rehabilitative treatment (M1).

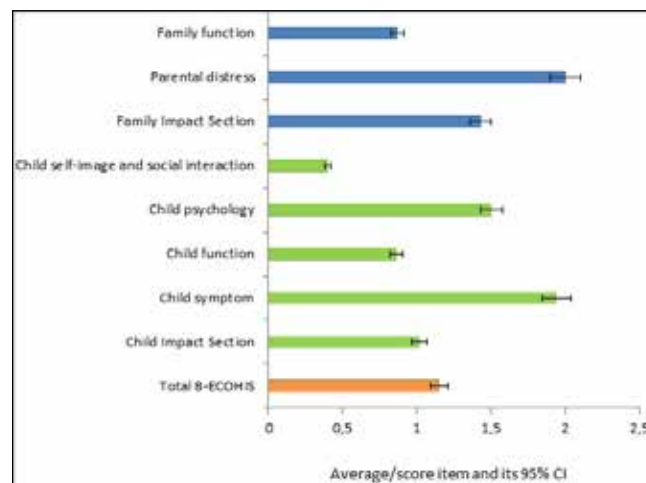


Figure 2: Mean values of total B-ECOHIS scores, their impacts and subscales after 30 days of rehabilitative treatment (M2).

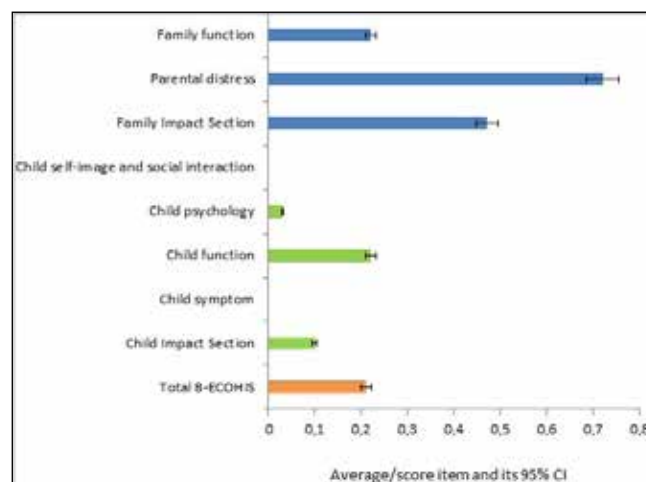


Table 1 shows data on changes in B-ECOHIS scores, as well as the effect size (ES). The total score of B-ECOHIS, as well as those of CIS and FIS decreased significantly in M2, demonstrating a great change (effect size > 0.7) after treatment. The child self-image and social interaction was the only subscale that demonstrated a moderate effect size.

The older children (4-5 years) presented more pain symptoms when compared with younger children (p<0.05). However, the impact on the family was greater in younger children (< 4 years) (p<0.05). As regards gender, it could be verified that the total score of B-ECOHIS and CIS values were higher in girls. There was no difference between the socioeconomic levels classified as middle and low, considering the total B-ECOHIS scores. However, the CIS value was significantly higher in low income families (Table

2). In Table 3, a higher value of B-ECOHIS could be observed in M2, related to treatment with extractions and space maintainers; however without difference as regards the severity of caries. The others data with reference to type of treatment and caries severity may be also observed in Table 3.

The prevalence of the most frequent impacts on the child and family, before and after treatment are presented in Table 4.

In our research we did not found “don’t know” responses after all interviews.

DISCUSSION

This preliminary study presents information about the OHRQoL before and after treatment of cavitated caries lesions, with or without pulp involvement, in preschool children affected by ECC, using the B-ECOHIS questionnaire as the instrument of evaluation. Therefore, the effectiveness of treatment performed, from the perspective of the children’s parents/guardians could

be assessed, as suggested by Martins-Júnior *et al*¹⁶. According to these authors, although preschool children and their families suffer a great deal from the consequences of the children’s poor oral health, their OHRQoL improved significantly after treatment. In the present study, the B-ECOHIS questionnaire was effective for evaluating the quality of life of the participants and their parents/guardians, even with the small sample studied, because there was a positive impact on the OHRQoL after 30 days of treatment. On the other hand, as the sample size represented a limitation of this study, the results observed here may be generalized only as regards the studied population; however without discrediting them. According to Mourão Jr¹⁷, even if the repetition of a research characterized by a small sample were to be conducted in other center and presented different results, this would not necessarily mean a lack of internal validity of the two researches. Moreover, in the present study, even with a small sample, the authors observed a significant effect size,

Table 1: Total mean values of B-ECOHIS, their impacts and subscales before beginning of treatment and 30 days after treatment (n=16).

B-ECOHIS (No. of items)	Before restorative treatment		Period of 30 days after treatment		Change in scores (SD)	p-value	Effect size
	Mean (SD)	Range	Mean (SD)	Range			
Total score of B-ECOHIS (13)	14.94 (9.82)	1-28	2.81 (2.16)	0-6	12.13 (8.80)	<0.001	1.23
Child Impact Section (9)	9.19 (6.93)	0-21	0.94 (1.06)	0-3	8.25 (6.76)	<0.001	1.19
Child symptom (1)	1.94 (1.23)	0-4	0	0	1.94 (1.23)	<0.001	1.57
Child function (4)	3.44 (3.26)	0-9	0.88 (0.95)	0-3	2.56 (2.20)	=0.001	0.78
Child psychology (2)	3.00 (2.73)	0-7	0.06 (0.25)	0-1	2.94 (2.72)	<0.001	1.07
Child self-image and social interaction (2)	0.81 (1.68)	0-6	0	0	0.81 (1.68)	=0.072	0.48
Family Impact Section (4)	5.75 (3.87)	0-12	1.88 (1.74)	0-5	3.87 (2.90)	<0.001	1.00
Parental distress (2)	4.00 (2.58)	0-8	1.44 (1.63)	0-4	2.56 (2.19)	<0.001	0.99
Family function (2)	1.75 (1.80)	0-4	0.44 (0.81)	0-2	1.31 (1.09)	=0.002	0.72

Note: SD, Standard Deviation

Table 2: B-ECOHIS Scores, impacts and subscales, before treatment, according to preschool children’s demographic data (n=16).

Number of patients	Gender		Age (years)		Socio-economic level	
	Male	Female	<4	4-5	Medium	Low
	10	6	7	9	13	3
Total B-ECOHIS score (13)	13.30 (10.53)	17.67 (8.68)**	16.71 (9.96)	13.56 (10.07)*	16.24 (10.30)	15.97 (10.26)
Child Impact Section (9)	7.60 (6.80)	11.83 (6.88)**	10.00 (6.27)	8.56 (7.71)*	8.77 (7.09)	11.00 (7.21)*
Child symptom (1)	1.80 (1.13)	2.17 (1.47)*	1.71 (1.11)	2.11 (1.36)*	1.87 (1.16)	2.03 (1.52)
Child function (4)	2.80 (2.86)	4.50 (3.88)*	4.14 (3.02)	2.89 (3.51)*	3.88 (3.37)	4.08 (2.64)
Child psychology (2)	2.20 (2.44)	4.33 (2.87)*	3.00 (2.51)	3.00 (3.04)	3.08 (2.62)	2.97 (2.01)
Child self-image and social interaction (2)	0.80 (1.93)	0.88 (1.24)	1.14 (0.26)	0.96 (1.13)	0.85 (1.81)	0.67 (1.15)
Family Impact Section (4)	5.70 (4.24)	5.83 (3.54)	6.71 (4.78)	5.00 (3.08)*	6.00 (4.10)	5.67 (3.05)
Parental distress (2)	3.80 (2.78)	4.33 (2.42)*	4.57 (3.20)	3.56 (2.06)*	4.15 (2.82)	3.33 (1.15)*
Family function (2)	1.90 (1.91)	1.50 (1.76)	2.14 (2.03)	1.44 (1.66)*	1.85 (1.77)	1.63 (2.30)

Note: Values presented outside parenthesis represent the means of scores; Values presented in parenthesis represent the standard deviation of the means; * *p* < 0.05, Student’s-t test; ** *p* < 0.001, Student’s-t test.

Table 3: B-ECOHIS Scores, impacts and subscales, after 30 days of treatment, according to severity of caries, treatment with or without extraction, and treatment with or without space maintainer in preschool children (n=16).

Number of patients	Severity of caries		Type of Treatment			
	Pulp involvement		Tooth extraction		Space maintainer.	
	With	Without	With	Without	With	Without
	8	8	8	8	5	11
Total B-ECOHIS score (13)	3.00 (1.85)	2.83 (2.53)	3.88 (1.80)	2.50 (2.61)*	3.80 (1.92)	2.36 (2.20)*
Child Impact Section (9)	1.35 (1.05)	0.93 (0.51)*	0.50 (0.53)	1.38 (1.30)*	0.80 (0.44)	0.90 (1.13)
Child symptom (1)	0	0	0	0	0	0
Child function (4)	0.93 (0.51)	1.13 (1.24)	0.80	0.50 (0.53)	0.80 (0.44)	0.90 (1.13)
Child psychology (2)	0	0.10 (0.30)	0	0.10 (0.30)	0	0.09 (0.30)
Child self-image and social interaction (2)	0	0	0	0	0	0
Family Impact Section (4)	2.38 (1.84)	1.98 (1.59)	2.63 (1.59)	1.03 (1.64)*	3.00 (2.00)	1.36 (1.43)*
Parental distress (2)	1.75 (1.66)	1.38 (1.92)	1.75 (1.66)	0.86 (1.57)*	2.00 (2.00)	1.08 (1.47)*
Family function (2)	0.63 (0.91)	0.45 (0.77)	0.88 (0.90)	0*	1.00 (1.00)	0.70 (0.63)

Note: Values presented outside parenthesis represent the means of scores; Values presented in parenthesis represent the standard deviation of the means; * $p < 0.05$, Student's-*t* test.

Table 4: Prevalence of impacts related to each question of B-ECOHIS, before and after 30 days of restorative treatment (n=16).

Item	Prevalence of impacts related as being often and very often*		
	Before Treatment (%)	After 30 days of treatment (%)	p-value**
Pain in the teeth, mouth or in the jaws	31.3	0	<0.001
Difficulty with drinking hot or cold drinks	18.8	0	<0.001
Difficulty with eating certain foods	31.3	0	<0.001
Difficulty with pronouncing any word	6.3	0	<0.05
Missed going to the day center, nursery school or school	6.3	0	<0.05
Difficulty with sleeping	25	0	<0.001
Irritated or frustrated	31.3	0	<0.001
Avoided smiling or laughing	12.5	0	<0.001
Avoided speaking	6.3	0	<0.05
Parents have been upset	43.8	0	<0.001
Parents have felt guilty	31.3	18.8	<0.001
Parents have missed work	25	0	<0.001
Child has had problems with teeth or undergone dental treatments that caused some financial impact on the family	6.3	0	<0.05

Note: * The values presented refer to the percentages of the response options "often" and "very often" of the parents interviewed. ** McNemar Test

which demonstrated that the differences between the moments of the study were not influenced by the size of the sample.

It is important to point out that no sample calculation was made for the present study, mainly because no previous studies, with the same outcomes, in which the authors could base the sample calculation, were found in the literature. Thus, the present preliminary study is perfect justified for future trials. Moreover, there is a great disparity in the prevalence of ECC worldwide, and within one and the same country;¹⁸ therefore, studies such this one are very important for the planning and development of oral health programs, emphasizing that the Public Health guidelines must be divided into sectors, prioritizing each region.

Jankauskiene *et al*¹² used the ECOHIS questionnaire before and after treatment of preschool children with ECC, who were submitted to treatment for the lesions under general anesthesia, and observed a magnitude of the effect of treatment (TE=2.1 related to the total score of ECOHIS), higher than those observed in the present research (TE=1.23 related to the total score of B-ECOHIS). Despite of our results, also demonstrating significant change in the OHRQoL of the sample after the treatment of ECC, we believe that the difference observed between both studies is due to the fact that children indicated for treatment under general anesthesia normally have high indices of caries, as was observed by Jankauskiene *et al*¹² They observed a mean dmf-t of 12.9±3.50, and in our study the mean value observed was 6.25±4.20; which leads us to think that the greater the problem, the more evident are the results when the problem is solved. In addition, the outpatient treatment of children in this age-range involves a greater degree of difficulty to perform, with sessions of short duration, which demands a larger number of appointments, with greater involvement and commitment of the parents, when compared with treatment under general anesthesia in a single session, in which the problem is not only resolved quickly, but also the parents have no knowledge about and do not see the clinical procedures performed.

Corroborating the study of Jankauskiene¹², the subscales of B-ECOHIS that presented greater impact before treatment were the child symptom and parental distress, included in the CIS and FIS, respectively. A systematic review¹¹ reported that the subscale least affected was also child self-image and social interaction as was found in our study. A possible reason for this finding could be the limitation of knowledge of those responsible for the children, about the social aspects of the child in OHRQoL evaluations.⁴

Considering the CIS, the parents reported greater impact on girls, in comparison with boys, ($p < 0.001$) in the larger part of the B-ECOHIS domains (M1), although no difference between the genders had been observed with regard to the dmf-t index. Klaasen *et al*¹³ found no difference in the impacts between genders observed in a study that evaluated the OHRQoL of children submitted to dental treatment under general anesthesia, but Jankauskiene¹², in a similar study, found difference, however, with greater impact on the boys. These cited studies^{12,13} also recorded no differences in the oral health status between girls and boys, as we found in the present study. They added that psychological factors may have influenced this result, so that future researches are necessary to confirm and explain this finding.

When we observed the results of FIS, it could be perceived that the impact on family did not differ between boys and girls as we

expected; mainly because it concerns a child, irrespective of gender, and the feeling of the person responsible for the child is impartial in this case. However, when specifically analyzing each domain of FIS, the parents of girls demonstrated greater anguish with regard to the OHRQoL of their daughters, in comparison with the parents of boys. According to Doey *et al*⁸, boys internalize their problems and afflictions and do not demonstrate them as much as girls do, which may have happened in the present study, therefore leaving their parents less afflicted.

In the present sample we perceived a greater impact on the total value of B-ECOHIS in children under 4 years of age (pointing out that there was no difference as regards age and gender), however the older children demonstrated a greater impact of the subscale child symptom. A possible explanation for this finding with regard to symptoms is that owing to the fact that more mature children are better able to verbalize what they feel; this generated more certainty in the parents with regard to the symptomatology. At the same time, this led to greater anguish in them, when compared with parents/guardians of children younger than 4 years, and this also ended up interfering in the total score of B-ECOHIS, which was higher in the last group.

In the literature,¹² we found data that demonstrated lower values of impact on the children of parents/guardians with a higher school-level, when compared with children belonging to families with a low school-level. In the population in general, the parents' higher level of school is associated with a better OHRQoL of the children.¹⁴ However, this may be different among the parents of children with high indices of dental caries.¹² In our study, we did not evaluate this variable with regard to the values of B-ECOHIS and its subscales, because the socioeconomic questionnaire used only asks about the level of instruction of the head of the family, which does not necessarily translate the true aspect of the school-level education of the child's family nucleus. Nevertheless, when we compared the social status, in spite of the total value of B-ECOHIS of the present study not differing between the middle and low income class families (the two socioeconomic status characterized in this study), we found higher values of CIS in the socioeconomic class classified as low. Piovesan *et al*²⁰ showed that the perception of those responsible for children about the oral health of their children may be influenced by the socioeconomic condition, while Gomes *et al*.¹⁰ suggested that the oral health condition may have an impact on the child's quality of life, irrespective of the socioeconomic condition. We believe the result found in the present research is owing to the higher caries index observed in the children from low income families.

On the other hand, the subscale parental distress presented higher impact on the middle class families. Because these families have a better financial condition, they probably also had better financial conditions to previous treatment. However, as this preventive therapy or treatment in the initial stages of caries disease was not performed, the authors of this study believe that these parents/guardians felt themselves more anguished.

Although there are methodological differences with regard to the studies conducted for evaluation of OHRQoL of children with caries lesions submitted to dental treatment, a Brazilian study¹⁵ evaluated the OHRQoL of children with caries in primary molars, before and after different restorative treatment protocols. The authors found no statistically significant differences in B-ECOHIS score's changes,

when the different types of treatment were compared. There was improvement in the subscales, child symptom and child psychology, demonstrating the effectiveness of the treatments, from the parents' perspective with regard to these subscales, irrespective of the restorative treatment performed. In this sense, the results found by the authors described were comparable with the results of the present study, even with different treatment protocols.

In the present research, the subscale child function, family function and particularly parental distress, represented the subscales with higher values after 30 days of treatment (M2). Jankauskiene¹² found similar results, in which the treatment of caries lesions was performed under general anesthesia. These authors considered that the treatment of multiple caries lesions and extractions, in the majority of the patients treated, could explain this fact. In the present study, higher values were also found for FIS and the parental distress subscale, when related to treatments with tooth extraction. Moreover, the present study demonstrated a higher value of FIS and the parental distress subscale in children with space maintainers. The authors believe that the presence of a space maintainer demands greater responsibility by the persons responsible for a child, as regards hygiene and diet, because they were warned about the importance of these devices remaining in the oral cavity, in order to prevent future malocclusions. The patient had to be periodically followed-up until the eruption of the permanent successors, which probably resulted in greater anguish of these parents/guardians.

When we analyzed the prevalence of each 13 items of the B-ECOHIS instrument (responded with the options "often" or "very often", Table 4), in the two time intervals of the study, we observed that the item "the parents have felt guilty" was the only domain that remained with a prevalence differing from zero in M2. This

result demonstrated that although a significant reduction occurred with regard to the impact related to this subscale, some parents still felt guilty after treatment; probably because they had been unable to avoid caries in their children with basic methods of oral hygiene and also they think about all the discomfort dental treatment brings to a child at a tender age, even no matter how well it was performed.

The literature informs us that children with ECC, who are not submitted to caries lesion treatment, present a negative impact as regards OHRQoL. It is known that public health programs normally do not include preschool children, which consequently, results in a worse state of oral health in this group, leaving many children with symptoms of pain and discomfort.¹⁶ Therefore, even with the limitation of a small sample, results such as those obtained in the present research are relevant and serve as an alert to health professionals as regards the importance of dental treatment for the well-being and improvement in the OHRQoL of children with ECC. This is particularly so, because access to this type of information may help clinicians and researchers, together with Public Health authorities, to achieve the inclusion of preschool children in programs for the prevention and treatment of caries disease.

CONCLUSION

It could be concluded that rehabilitative dental treatment in preschool children with early childhood caries caused a favorable impact on the OHRQoL of these children, which is extensively to their parents/caregivers. However, as this was a preliminary study, the authors suggest that further researches about OHRQoL of preschool children, before and after dental treatment, should be conducted with a larger number of children, in order to provide a strong evidence about the findings of the present study.

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