Assessing the Impact of Oral Disorders on the Oral Health-related Quality of Life of Preschool Children and their Families: A Cross-sectional Study

SHAKUNTALA BETHUR SIDDAIAH[1], PRAGNA S VIJAYA[2]

ABSTRACT

Introduction: Oral disorders such as Traumatic Dental Injury (TDI) and Early Childhood Caries (ECC) can significantly impact the functional, social, and psychological well-being of growing children and their families. The Early Childhood Oral Health Impact Scale (ECOHIS) serves as a proxy assessment of Oral Health-Related Quality of Life (OHRQoL) in children, developed to evaluate the effects on the quality of life of preschool children.

Aim: To assess the impact of oral disorders on the OHRQoL of children aged two to six years and their families.

Materials and Methods: In this cross-sectional study, a total of 1000 children aged 2 to 6 years from various preschools in South Bangalore were selected. All children underwent examinations for caries, stains, and fractures. A modified questionnaire survey based on ECOHIS, consisting of 26 questions, was completed by the parents of the children. The answered questionnaire was then evaluated to assess the impact of dental conditions on the

quality of life of both children and parents. Kruskal-Wallis Test, Dunn's post-hoc Test, and Mann-Whitney Test were used to compare the mean scores of different domains of the OHRQoL scale based on ECC and dental trauma, respectively.

Results: The severity of ECC demonstrated an adverse effect on the symptom domain (p<0.001), function domain (p=0.002), psychology domain (p=0.03), and the entire score of the Child Impact Section (CIS) (p<0.001). In the Family Impact Section (FIS), the mean scores of the family distress domain and the overall FIS were statistically significant (p<0.001). Dental trauma also showed an adverse effect on the symptoms domain (p<0.001) and the entire scores of the CIS (p=0.001). Additionally, the mean scores of the family distress domain and the overall FIS were statistically significant (p<0.001).

Conclusion: The presence of ECC and dental trauma is likely to have a negative impact on the physical, psychological, and emotional well-being of preschool-aged children and their families.

INTRODUCTION

The ECC is a common oral disease among pre-schoolers. ECC has a detrimental effect on the lives of children, including chewing issues, reduced appetite, weight loss, trouble sleeping, behavioral disorders, and poor academic performance [1]. Trauma is a common oral disorder in preschool children. Being a miserable incident physically, it could have emotional and psychological repercussions. Additionally, trauma causes pain, function loss, and affects the development of occlusion and aesthetics [2]. Despite recent advancements in oral health, problems persist in many societies worldwide, especially among under-priviledged populations. Oral conditions and disorders in childhood negatively influence the lives of preschool children, affecting their growth and development, weight, socialising, self-esteem, learning capacities, and the well-being of their parents [2].

The assessment of quality of life has become a crucial component in evaluating health initiatives [3]. Over the years, tools for assessing OHRQoL have been developed and evaluated on various populations, with particular emphasis on adults and the elderly. In recent years, there has been significant attention on children and adolescents. This is an important breakthrough since dental caries, traumatic dental injuries, enamel defects, and dental wear all affect children under the age of six, subsequently impacting overall family life [3].

The ECOHIS was developed to assess the negative impact of oral disorders on the quality of life among preschool children (0-5 years of age). The responses from the parents take into account the entire lifetime experience of a child with dental problems and treatment.

The CIS and FIS are the two sections that make-up the structure of the questionnaire [4].

Research by Abanto J et al., Aldrigui JM et al., Scarpelli AC et al., and Vieira-Andrade RG et al., have described that the quality of life of children was unaffected by the existence of trauma while other studies observed a negative impact of the condition [1,2,4,5]. Due to the lack of studies about the consequences of trauma and caries on overall health and quality of life based on the age, gender of preschool children, and the educational status of their parents, this research article aimed to assess the impact of oral disorders on the quality of life among preschool children aged between 2 to 6 years and their parents.

MATERIALS AND METHODS

This cross-sectional study was conducted from January 2023 to March 2023, involving all preschool children aged between 2 to 6 years of both genders, along with their parents, who received dental care in the oral health screening program at 15 preschools in South Bangalore, Karnataka, India. The study obtained approval from the institution's ethical committee (RRDCH/IEC/23/19). An informed consent form was signed by the parents of 1000 children who agreed to their child's participation in the study.

Inclusion criteria: Comprised children aged between two and six years who were willing to take part in the study and who were accompanied by a parent or guardian were included in the study.

Exclusion criteria: Those children with serious underlying medical conditions such as congenital heart disease, epilepsy, asthma, and other respiratory problems, and those on long-term medication

use such as anti-convulsants (phenytoin, carbamazepine), anti-cholinergics (Risperidone, Lorazepam), as well as those with physical or learning disabilities were excluded from the study.

Sample size estimation:

$$N=\frac{Z^2_{(1-\alpha)} \times PQ}{\delta^2}$$

$Z_{(1-\alpha)}$=2.58 (For a 99% Confidence Interval), P=0.50, Q=1-P, δ (Error Margin)=0.05, N=384.16, rounded off to 400. A design effect of 2 was considered to compensate for the heterogeneity in sample characteristics, and anticipating a non-response rate of 20% among study subjects. With a design effect of 2×400=800 samples, the non-response rate of 20% inflated the sample size to 1000 samples. The total sample size included 1000 children aged 2-6 years in this study.

Procedure

Visual inspection of children's teeth for trauma and ECC was conducted using tongue depressors under natural light at pre-school institutions. Trauma was assessed by tooth fractures and the presence of crown discoloration, and analysed based on the presence of at least one type of trauma or absence of trauma. Evaluation of ECC was carried out in accordance with the World Health Organisation (WHO) criteria [6] and calculated in terms of decayed, indicated for extraction, and filled primary teeth (dmf-t), which were categorised based on the severity of ECC. Children were then grouped according to the suggested scores: Caries-free indicated by dmf-t 0, low severity by dmf-t 1-5, and high severity by dmf-t 6 [2].

One of the parents was asked to respond to a modified version of the ECOHIS questionnaire on the day of the dental screening. The questionnaire consisted of 26 items corresponding to the effects of oral health and disease on an individual's function, emotional, and social well-being, including schooling, peer interaction, individual health, and overall quality of life. The 26 questions align with four domains in the CIS: child symptoms (05 items), child function (09 items), child psychological (03 items), and child self-image and social interaction (03 items); and two domains in the FIS: family distress (04 items) and family function (02 items). This questionnaire assesses parents' perceptions of the OHRQoL of children aged two to six years. The Likert scale provided five-point rating response options for the questionnaire to indicate the frequency of events in a child's life: Score 0=never; 1=hardly ever; 2=occasionally; 3=often; 4=very often; 5=do not know. Responses marked as number 5 ("do not know") were considered as missing data [2]. The CIS and FIS scores for the modified questionnaire are calculated as the sum of the response codes, ranging from 0 to 104 for the total scale (0 to 80 for CIS and 0 to 24 for FIS, respectively). Higher scores indicate more oral health issues, poorer OHRQoL, and a greater impact on overall health. The questionnaire also collected demographic data, such as the age (2, 3, 4, 5, and 6-years-old) and gender (male and female) of the children, and the educational status of one of the parents.

The modified questionnaire based on ECOHIS underwent a validation process with the assistance of four subject matter experts using a content validity ratio. The new questions, consisting of 11 items in the CIS and two items in the FIS, received a content validity ratio ranging between 0.75 to 1.00. The validity questionnaire was then assessed for reliability using the test-retest method, revealing that the intraclass correlation coefficient for most questions ranged between 0.85 to 0.95.

A bilingual (local language and English) self-designed questionnaire was created, and measures were taken to ensure the reliability of the language translation. All participants were asked to complete the questionnaire under supervision, with no interpersonal communication permitted. The completed questionnaires were collected from the participants on the same day after 30 minutes. Any queries regarding the questionnaire were clarified by the investigator, and the responses were collected and subjected to statistical analysis. To prevent influencing their answers, parents were given advice and comments on their children's dental health after completing the questionnaire.

STATISTICAL ANALYSIS

To perform statistical analyses, the Statistical Package for Social Sciences (SPSS) for Windows version 22.0, released in 2013 by IBM Corp. in Armonk, NY, was used. The Kruskal-Wallis test, followed by Dunn's post-hoc test, and the Mann-Whitney test were used to compare the mean scores of different domains of the OHRQoL scale, total scores, and family impact scale scores based on ECC status and trauma of the study subjects, respectively. The level of significance was set at p<0.05.

RESULTS

The present study was conducted on 1000 children in the age range of 2 to 6 years, of whom 527 (52.7%) were boys, and girls accounted for 473 (47.3%). The mean age of the children was 3.95 (SD=1.37). In 81% of cases, the participating parent had an undergraduate education level, while 18.8% had a postgraduate level. Most of the children did not have traumatic injuries (83.4%). Of the cases, 50.1% had ECC of low severity (dmft score=1-5), and 16.1% were caries-free (dmft score=0) [Table/Fig-1]. In the CIS, after calculating the responses of the five items in the child symptom domain, the maximum and minimum obtained were 15 and 0, respectively. The maximum and minimum scores of the total CIS were 36 and 0, respectively. In the FIS, the maximum and minimum scores of the total FIS were 13 and 0, respectively [Table/Fig-2].

Variable	Category	n	%
Age (years)	2	198	19.8%
	3	211	21.1%
	4	191	19.1%
	5	243	24.3%
	6	157	15.7%
		Mean	SD
	Mean	3.95	1.37
	Range	02-06	
Gender	Males	527	52.7%
	Females	473	47.3%
Educational status of parents	SSLC	224	22.4%
	PUC	355	35.5%
	Graduate/diploma	233	23.3%
	Post-graduate	157	15.7%
	Post-doctoral	31	3.1%
ECC	Caries free	161	16.1%
	Low severity	501	50.1%
	High severity	338	33.8%
Trauma	Presence	166	16.6%
	Absence	834	83.4%

[Table/Fig-1]: Descriptive data of study subjects (n=1000).

In the study, 100% of the parents or caregivers answered the questionnaire. [Table/Fig-3] shows that between the 2-4 years and 5-6 years age group, there was no significant difference in the overall total scores of the CIS (p=0.16) and FIS (p=0.21). The overall gender comparison shows that the gender of the children did not affect the total score of all domains of the CIS (p=0.79) and FIS (p=0.48) on OHRQoL.

Descriptive analysis for child impact on OHRQoL scores among study subjects				
Domains	Mean	SD	Min	Max
Child symptoms	6.02	3.13	0	15
Child function	10.78	3.64	1	22
Child psychology	1.76	1.48	0	7
Child self-image and social interaction	2.1	1.52	0	7
Total scores	20.66	5.31	2	36
Descriptive analysis for family impact on OHRQoL scores among study subjects				
Domains	Mean	SD	Min	Max
Family distress	3.47	2.82	0	11
Family function	1.03	0.83	0	4
Family impact	4.50	2.92	0	13

[Table/Fig-2]: Descriptive analysis for Child and family Impact on OHRQoL scores among study subjects.
Total N in each domain=1000

Domains	Age	N	Mean	SD	Mean Diff.	p-value
Child symptoms	2-4 years	600	6.14	3.11	0.29	0.14
	5-6 years	400	5.85	3.16		
	Males	527	6.07	3.16	0.10	0.56
	Females	473	5.97	3.10		
Child function	2-4 years	600	10.89	3.62	0.27	0.22
	5-6 years	400	10.62	3.68		
	Males	527	10.82	3.71	0.08	0.96
	Females	473	10.74	3.57		
Child psychology	2-4 years	600	1.75	1.45	-0.03	0.89
	5-6 years	400	1.78	1.53		
	Males	527	1.71	1.45	-0.10	0.35
	Females	473	1.81	1.51		
Child self-image and social interaction	2-4 years	600	2.09	1.53	-0.01	0.91
	5-6 years	400	2.10	1.51		
	Males	527	2.12	1.55	0.05	0.70
	Females	473	3.68	1.49		
Total scores	2-4 years	600	20.88	5.27	0.53	0.16
	5-6 years	400	20.35	5.36		
	Males	527	20.72	5.13	0.12	0.79
	Females	473	20.60	5.52		
Age and gender wise comparison of mean scores of family impact OHRQoL scale						
Parameter	Age	N	Mean	SD	Mean Diff.	p-value
Family impact scores	2-4 years	600	4.59	2.90	0.21	0.21
	5-6 years	400	4.38	2.94		
	Males	527	4.42	2.85	-0.17	0.48
	Females	473	4.59	2.99		

[Table/Fig-3]: Age and gender wise comparison of mean scores of different domains of child impact on OHRQoL scale.

The presence of ECC showed to have a significant negative impact on the symptom domain (p<0.001), function domain (p=0.002), psychological domain (p=0.03), and on the overall score of the CIS (p<0.001). When comparing the mean scores of the FIS between children with different severities of caries, there was a statistically significant difference in family distress (p<0.001) and in the overall scores of the FIS (p<0.001) [Table/Fig-4].

A statistically significant difference was observed when analysing the presence of trauma, which likely has a negative impact on the child symptom domain (p<0.001) and the total scores of the CIS (p=0.001). Moreover, the parents of children with traumatic injuries were more likely to experience a negative impact [Table/Fig-5].

[Table/Fig-6] shows the distribution of study samples according to the responses to the questionnaire. A statistically significant

Domains	ECC	N	Mean	SD	p-value[a]	Sig. Diff.	p-value[b]
Child symptoms	Caries free	161	4.83	3.61	<0.001*	C vs L	0.04*
	Low severity	501	5.21	2.53		C vs H	<0.001*
	High severity	338	7.79	2.93		L vs H	<0.001*
Child functions	Caries free	161	10.48	3.89	0.002*	C vs L	0.84
	Low severity	501	10.49	3.54		C vs H	0.02*
	High severity	338	11.36	3.62		L vs H	<0.001*
Child psychology	Caries free	161	1.49	1.40	0.03*	C vs L	0.01*
	Low severity	501	1.84	1.50		C vs H	0.04*
	High severity	338	1.77	1.48		L vs H	0.25
Child social interaction	Caries free	161	2.14	1.54	0.49	C vs L	..
	Low severity	501	2.03	1.48		C vs H	..
	High severity	338	2.17	1.57		L vs H	..
Child Impact Section (CIS)	Caries free	161	18.95	5.86	<0.001*	C vs L	0.43
	Low severity	501	19.58	4.63		C vs H	<0.001*
	High severity	338	23.09	5.15		L vs H	<0.001*
Comparison of mean scores of family impact on OHRQoL scale based on ECC status							
Domains	ECC	N	Mean	SD	p-value[a]	Sig. Diff.	p-value[b]
Family distress	Caries free	161	3.52	3.44	<0.001*	C vs L	0.42
	Low severity	501	2.75	2.24		C vs H	<0.001*
	High severity	338	4.53	2.94		L vs H	<0.001*
Family function	Caries free	161	1.00	0.84	0.74	C vs L	..
	Low severity	501	1.02	0.82		C vs H	..
	High severity	338	1.05	0.85		L vs H	..
Family Impact Section (fis)	Caries free	161	4.52	3.50	<0.001*	C vs L	0.22
	Low severity	501	3.77	2.36		C vs H	<0.001*
	High severity	338	5.58	3.03		L vs H	<0.001*

[Table/Fig-4]: Comparison of mean scores of different domains of OHRQoL scale based on ECC Status.
*Statistically Significant; C: Caries free; L: Low severity; H: High severity; Kruskal Wallis Test, b. Dunn's Post-hoc Test

Domains	Trauma	N	Mean	SD	Mean Diff.	p-value
Child symptoms	Absent	834	5.79	3.09	-1.39	<0.001*
	Present	166	7.18	3.10		
Child functions	Absent	834	10.79	3.65	0.03	0.96
	Present	166	10.76	3.63		
Child psychology	Absent	834	1.78	1.50	0.10	0.60
	Present	166	1.68	1.38		
Child social interaction	Absent	834	2.09	1.53	-0.02	0.83
	Present	166	2.11	1.50		
Child Impact Section (CIS)	Absent	834	20.45	5.30	-1.28	0.001*
	Present	166	21.73	5.27		
Comparison of mean scores of family impact on OHRQoL scale based on dental trauma status						
Domains	Trauma	N	Mean	SD	Mean Diff	p-value
Family distress	Absent	834	3.11	2.66	-2.20	<0.001*
	Present	166	5.31	2.89		
Family function	Absent	834	1.05	0.85	0.14	0.10
	Present	166	0.91	0.76		
Family impaction section	Absent	834	4.16	2.77	-2.06	<0.001*
	Absent	166	6.22	3.04		

[Table/Fig-5]: Comparison of mean scores of different domains of the OHRQoL scale based on dental trauma status.
*Statistically Significant

difference was observed in the child function domain (p=0.04) based on parents' educational status [Table/Fig-7].

Domain	Never		Hardly ever		Occasionally		Often		Very often	
	n	%	n	%	n	%	n	%	n	%
Child symptoms domain										
How often has your child had…. because of dental problems?										
1. Pain in the teeth, mouth or jaws?	312	31.2%	282	28.2%	135	13.5%	142	14.2%	129	12.9%
2. Sores in the mouth	286	28.6%	291	29.1%	141	14.1%	147	14.7%	135	13.5%
3. Bad breath	299	29.9%	273	27.3%	139	13.9%	157	15.7%	132	13.2%
4. Medications for pain	511	51.1%	222	22.2%	105	10.5%	108	10.8%	54	5.4%
5. Worsened general health	580	58.0%	392	39.2%	22	2.2%	6	0.6%	0	0
Child function domain										
How often has your child…. because of dental problems?										
1. Had difficulty in chewing food	304	30.4%	299	29.9%	130	13.0%	139	13.9%	128	12.8%
2. Avoided eating some foods	281	28.1%	289	28.9%	146	14.6%	151	15.1%	133	13.3%
3. Had difficulty drinking hot/cold beverages	283	28.3%	288	28.8%	140	14.0%	155	15.5%	134	13.4%
4. Skipped meals	269	26.9%	300	30.0%	135	13.5%	157	15.7%	139	13.9%
5. Had food lodges in between teeth	280	28.0%	286	28.6%	139	13.9%	157	15.7%	138	13.8%
6. Had difficulty in speech	1000	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0
7. Avoided maintaining oral hygiene	273	27.3%	294	29.4%	135	13.5%	162	16.2%	136	13.6%
8. Missed school	426	42.6%	473	47.3%	94	9.4%	7	0.7%	0	0
9. Had difficulty paying attention in school	445	44.5%	455	45.5%	56	5.6%	44	4.4%	0	0
Child psychology domain										
How often has your child…. because of dental problems?										
1. Had woken up at night	857	85.7%	103	10.3%	37	3.7%	3	0.3%	0	0
2. Been irritable with others	290	29.0%	289	28.9%	137	13.7%	154	15.4%	130	13.0%
3. Had lost confidence/Became self-conscious	970	97.0%	30	3.0%	0	0.0%	0	0.0%	0	0
Child social and interaction										
How often has your child…. because of dental problems?										
1. Avoided talking/smiling/laughing	524	52.4%	399	39.9%	66	6.6%	8	0.8%	3	0.3%
2. Stopped from playing	288	28.8%	296	29.6%	140	14.0%	150	15.0%	126	12.6%
3. Avoided eating with people/friends	1000	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0
Distribution of responses to the Family Impact Section (FIS) among study subjects										
Domain	Never		Hardly ever		Occasionally		Often		Very often	
	n	%	n	%	n	%	n	%	n	%
Family distress										
How often have you or another family member….because of your child's dental problems?										
1. Been upset	312	31.2%	282	28.2%	135	13.5%	142	14.2%	129	12.9%
2. Skipped sleep	857	85.7%	103	10.3%	37	3.7%	3	0.3%	0	0
3. Felt guilty	312	31.2%	288	28.8%	137	13.7%	141	14.1%	122	12.2%
4. How often has your child's dental problems or dental treatments had a financial impact on your family?	680	68.0%	320	32.0%	0	0.0%	0	0.0%	0	0
Family function										
How often have you or another family member….because of your child's dental problems?										
1. Taken time off from work	426	42.6%	473	47.3%	94	9.4%	7	0.7%	0	0
2. Avoided going out	661	66.1%	334	33.4%	3	0.3%	2	0.2%	0	0

[Table/Fig-6]: Distribution of responses to the Child Impact Section (CIS) among study subjects.

Domains	Education	N	Mean	SD	Mean Diff.	p-value
Child symptoms	Undergraduate	579	6.04	3.12	0.58	0.82
	Graduate and above	421	6.00	3.15		
Child functions	Undergraduate	579	10.97	3.66	0.45	**0.04***
	Graduate and above	421	10.52	3.60		
Child psychology	Undergraduate	579	1.76	1.50	0.00	0.77
	Graduate and above	421	1.76	1.45		
Child social interaction	Undergraduate	579	2.13	1.57	0.07	0.68
	Graduate and above	421	2.06	1.46		
Child impact scores	Undergraduate	579	20.89	5.19	0.54	0.11
	Graduate and above	421	20.35	5.47		

Comparison of mean scores of family impact on the OHRQoL scale based on parents' educational status						
Parameter	Gender	N	Mean	SD	Mean Diff.	p-value
Family distress	Undergraduate	579	3.57	2.84	0.23	0.19
	Graduate and above	421	3.34	2.80		
Family function	Undergraduate	579	1.00	0.82	-0.07	0.24
	Graduate and above	421	1.07	0.85		
Family impact scores	Undergraduate	579	4.57	2.96	0.16	0.41
	Graduate and above	421	4.41	2.85		

[Table/Fig-7]: Comparison of mean scores of different domains of child impact on OHRQoL scale based on parents' educational status.

DISCUSSION

This cross-sectional study analysed the impact of trauma and ECC on the OHRQoL of two to six-year-old children and their families. The authors observed that the co-occurrence of trauma and ECC can have a detrimental effect on the quality of life of preschool children.

In the present study, the most commonly responded items in the questionnaire were oral and dental pain, difficulty drinking hot or cold beverages, and difficulty chewing food. This outcome was consistent with previous research by Abanto J et al., and Correa-Faria P et al., on preschool children [1,7]. Parents of pre-schoolers notice the child's fundamental limitations in carrying out these tasks more than the child's aesthetic qualities. Children complain to a lesser degree at this age as they are not mature enough to compare their perception of themselves to that of others. Furthermore, as a child gets older, they are more capable of communicating with their parents and clarifying how maintaining good dental health affects their quality of life. Negative impact among younger children should be taken into consideration, even if the associations between age and negative impact were only significant at the ages of 5 and 6. Early diagnosis is more challenging since parents of younger children might not acknowledge a negative impact due to language and communication difficulties [7,8].

In the present study, findings confirmed the association between trauma and ECC on the quality of life of preschool children. The responses reported that items related to pain, irritation, difficulty in chewing foods, food lodgement, irritability with others, and stopping from playing were reported on the CIS, which related to ECC and showed a negative impact on the child symptoms, child function, and child psychology domain of CIS. Assessing each domain of the questionnaire, the negative impact on the symptom domain, such as pain, the presence of sores, and bad breath, was significant. Aldrigui JM et al., and Locker D et al., observed comparable results of a negative impact on the OHRQoL of school children at higher severity levels of TDI [2,9]. A similar study by Abanto J et al., reported that items related to pain were the most frequent ECOHIS responses on the symptom domain of the CIS [1].

This study observed a negative impact on function domains such as difficulty chewing food, difficulty drinking hot or cold beverages, avoidance of maintaining oral hygiene, avoidance of eating some foods, food lodging between teeth, and missing school due to dental problems. Aldrigui JM et al., and Vieira-Andrade RG et al., observed similar ECOHIS responses on the function domain of OHRQoL in school children when more severe levels of TDI were present [2,5]. A similar study by Abanto J et al., and Correa-Faria P et al., observed similar ECOHIS responses for items related to ECC [1,7].

The negative impact of trauma and ECC on the psychological domain was due to discomfort that may cause the child to have difficulty sleeping, feel irritable with others, and lose confidence. Similar results were obtained by Aldrigui JM et al., Vieira-Andrade RG et al., Corrêa-Faria P et al., and Sakaryali D et al., where the negative impact of dental caries on children's lives displayed impaired psychological aspects, aesthetic problems, difficulty sleeping, and irritability [2,5,7,10].

In the present study, the response on children's self-image and social interaction domain, comprising items related to avoiding talking or smiling, avoiding playing and eating with parents or friends, were hardly reported. The developmental psychology of children states that concepts, self-image, and abstract thinking begin to emerge at age six. Children begin to contrast their physical attributes and personality traits with those of other children or with the norm [1]. One possible explanation for the low frequency of responses in this domain could be that the children assessed in this research are younger than six years old. A study by Abanto J et al., has shown the negative impact as a result of dislocation, avulsion, or discoloration of the tooth, which can produce aesthetic discomfort and damage the harmony preventing smiling and speaking [11].

In this study, the authors observed that the presence of trauma and ECC had a negative impact on the family function domain of the FIS. Most likely, this is a result of the pressing need to cope with the child's dental condition, which results in disturbances in parents' work or attending family functions. Parents also feel guilty or upset about the child's condition, and the additional monetary expenses cause significant negative family distress. A similar result was noted in the study by Aldrigui JM et al., where it was found that complicated TDI had a negative effect on the family function domain [2]. Another study by Locker D et al., observed that children's oral and orofacial disorders influence parental emotions, interfere with family activities, and cause conflict in the family [9].

This study examined the relationship among age, gender, and OHRQoL. Gender and age did not significantly correlate with ECOHIS. The rationale for this is that gender disparities may not have yet affected the preschool-aged children examined in this study and also may not yet have influenced their understanding of the aesthetic aspects of oral health. A similar outcome was obtained by Nemati S et al., and Pakkhesal M et al., who discovered that there is no significant difference between boys and girls in the impact of oral health on quality of life [12,13].

In this study, the authors found a significant association between the child's OHRQoL and the education attainment of the parents. Parents with lower education levels have a poorer perception of their child's quality of life. According to Sanders' report, low education levels have been linked to lower incomes, unemployment, and unfavorable occupational statuses. Increased general and specialised knowledge may raise oral health awareness or cause parents to be more concerned about their children's oral health. These conditions also influence health behaviors and self-rated oral health [14]. A similar result was found in the study by Kumar S et al., where children from wealthy and well-educated families had a higher OHRQoL [15]. Conversely, some research has not found any significant correlation between the parents' education attainment and the child's OHRQoL [16,17].

Limitation(s)

The limitations of the current study include oral conditions such as malocclusion and Dental Developmental Effects (DDE) that were not considered. Future studies are needed to analyse providing oral health education and counseling and its influence on oral problems on OHRQoL. In addition, the evaluation of OHRQoL after trauma treatment and ECC would be of great relevance.

CONCLUSION(S)

The study provided data concerning the impact of a child's dental problems or treatment on the child and their parents. It can be concluded that the lives of parents of young children experience significant physical, psychological, emotional, and social issues because of their children's dental problems. Therefore, to prevent a later adverse effect on children's quality of life, it is crucial to facilitate children's access to dental care services. Furthermore, these findings can support researchers and clinicians in their endeavors to enhance the outcomes of oral health for young children.

REFERENCES

[1] Abanto J, Carvalho TS, Mendes FM, Wanderley MT, Bönecker M, Raggio DP. Impact of oral diseases and disorders on oral health-related quality of life of preschool children. Community Dent Oral Epidemiol. 2011;39(2):105-14.

[2] Aldrigui JM, Abanto J, Carvalho TS, Mendes FM, Wanderley MT, Bönecker M, et al. Impact of traumatic dental injuries and malocclusions on quality of life of young children. Health Qual Life Outcomes. 2011;9:01-07.

[3] Martins-Júnior PA, Ramos-Jorge J, Paiva SM, Marques LS, Ramos-Jorge ML. Validations of the Brazilian version of the early childhood oral health impact scale (ECOHIS). Cad Saude Publica. 2012;28(2):367-74.

[4] Scarpelli AC, Oliveira BH, Tesch FC, Leão AT, Pordeus IA, Paiva SM. Psychometric properties of the Brazilian version of the early childhood oral health impact scale (B-ECOHIS). BMC Oral Health. 2011;11:19.

[5] Vieira-Andrade RG, Siqueira MB, Gomes GB, D'Avila S, Pordeus IA, Paiva SM, et al. Impact of traumatic dental injury on the quality of life of young children: A case-control study. Int Dent J. 2015;65(5):261-68.

[6] World Health Organization. Oral health surveys: Basic methods. 5th edition. World Health Organization; 2013.

[7] Corrêa-Faria P, Paixão-Gonçalves S, Paiva SM, Martins-Júnior PA, Vieira-Andrade RG, Marques LS, et al. Dental caries, but not malocclusion or developmental defects, negatively impacts preschoolers' quality of life. Int J Paediatr Dent. 2016;26(3):211-19.

[8] Anil S, Anand PS. Early childhood caries: Prevalence, risk factors, and prevention. Front Pediatr. 2017;5:157.

[9] Locker D, Jokovic A, Stephens M, Kenny D, Tompson B, Guyatt G. Family impact of child oral and oro-facial conditions. Community Dent Oral Epidemiol. 2002;30(6):438-48.

[10] Sakaryali D, Bani M, Cinar C, Alacam A. Evaluation of the impact of early childhood caries, traumatic dental injury, and malocclusion on oral Health-Related quality of life for Turkish preschool children and families. Niger J Clin Pract. 2019;22(6):817-23.

[11] Abanto J, Tello G, Bonini GC, Oliveira LB, Murakami C, Bönecker M. Impact of traumatic dental injuries and malocclusions on quality of life of preschool children: A population-based study. Int J Paediatr Dent. 2015;25(1):18-28.

[12] Nemati S, Ghasempour M, Khafri S. Impact of oral and dental health on quality of life in Iranian preschool children and their families. Electronic Physician. 2016;8(11):3296-301.

[13] Pakkhesal M, Riyahi E, Naghavi Alhosseini A, Amdjadi P, Behnampour N. Impact of dental caries on oral health related quality of life among preschool children: Perceptions of parents. BMC Oral Health. 2021;21(1):01-08.

[14] Sanders AE, Spencer AJ. Childhood circumstances, psychosocial factors and the social impact of adult oral health. Community Dent Oral Epidemiol. 2005;33(5):370-77.

[15] Kumar S, Kroon J, Lalloo R. A systematic review of the impact of parental socio-economic status and home environment characteristics on children's oral health related quality of life. Health Qual Life Outcomes. 2014;12(1):41.

[16] Piovesan C, Antunes JL, Guedes RS, Ardenghi TM. Impact of socioeconomic and clinical factors on child oral health-related quality of life (COHRQoL). Qual Life Res. 2010;19(9):1359-66.

[17] Li S, Veronneau J, Allison PJ. Validation of a French language version of the early childhood oral health impact scale (ECOHIS). Health Qual Life Outcomes. 2008;6:01-07. Doi: 10.1186/1477-7525-6-9.

PARTICULARS OF CONTRIBUTORS:
1. Professor and Head, Department of Paediatric and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka, India.
2. Postgraduate Student, Department of Paediatric and Preventive Dentistry, Rajarajeswari Dental College and Hospital, Bengaluru, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Pragna S Vijaya,
Postgraduate Student, Department of Paediatric and Preventive Dentistry,
Rajarajeswari Dental College and Hospital, No. 74, Ramohalli Cross, Mysore Road,
Bengaluru-560074, Karnataka, India
E-mail: pragnasv98@gmail.com

AUTHOR DECLARATION:
• Financial or Other Competing Interests: None
• Was Ethics Committee Approval obtained for this study?   Yes
• Was informed consent obtained from the subjects involved in the study?   Yes (from parents or caregivers)
• For any images presented appropriate consent has been obtained from the subjects.   NA