IMPACT OF S-ECC ON ORAL HEALTH-RELATED QUALITY OF LIFE OF PRESCHOOL CHILDREN IN VISNAGAR, NORTH GUJARAT

Dental Science

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ABSTRACT

Oral health-related quality of life (OHRQoL) is the most important patient-reported outcome measure in oral health research. Early childhood caries can produce an impact on the quality of life of preschool children and their parents, affects oral health and well-being.
Objectives: To assess the impact of Sever Early Childhood Caries (S-ECC) on the Oral Health Related Quality Of Life (OHRQoL) of children between 2-5 years of age.
Methods: A cross sectional study consisted of 300 children of 2-5 years, of private and government preschools in Visnagar, Gujarat. Data was collected. Oral examination using dmft/dmfs index was performed. A previously validated questionnaire (OH-ECQOL tool) was applied.
Results: Statistically significant (P<0.001) Pearson co-relation test between the dmft/dmfs index scores and child's general health and oral health and family impact was observed.
Conclusions: Severity of ECC had a negative impact on the OHRQoL of preschool children and their parents.

KEYWORDS

Caries; Early Childhood Caries; preschool children; quality of life

INTRODUCTION

Oral diseases such as dental caries are highly prevalent and its consequences are not only physical but are economic, social and psychological. It is known that children under 5 years of age can suffer from many oral health problems, such as early childhood caries. [1]

Early childhood caries (ECC) is a relatively new term that encompasses all dental caries occurring in the primary dentition of young children from birth to 71 months of age. Over the past 40 years, this pattern of disease has been referred to as labial caries, caries of incisors, rampant caries, nursing bottle caries, and baby bottle tooth decay. According to the AAPD Guidelines, the diagnosis of ECC or Severe-ECC is dependent on the age of the child and extent of caries experience (decayed, missing, and filled tooth surfaces). In children younger than three years of age, any sign of smooth-surface caries is indicative of severe early childhood caries (S-ECC). From ages three through five, one or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth or a decayed, missing, or filled score of greater than or equal to four (Age 3), greater than or equal to five (Age 4), or greater than or equal to six (Age 5) surfaces also constitutes S-ECC. [2]

Currently renewed interests are centered in the recognition of oral health as a component of quality of life. At present, the dental research efforts are focused not only on rehabilitation of oral-dental diseases, but in the detection of the relationship between oral health status and quality of life- in order to evaluate, improve and maintain it. In fact, Oral Health Related Quality of Life (OHRQoL) is an integral part of general health and well-being and is documented by the WHO as an important segment of the Global Oral Health Program. [3]

The concept of OHRQoL, which was first given by Giddon in 1978. It is defined as an individual's assessment of how the following affect his or her wellbeing: 'Functional factors, psychological factors, social factors, and experience of pain/discomfort in relation to orofacial concerns. In simple words, OHRQoL is the effect of oral health on a person's functioning (eating, speaking), sensation of pain, psychological wellbeing (appearance and self-esteem) and social wellbeing.'

The concept of OHRQoL emphasizes that the improvement of a person's quality of life (QOL) should be the outcome of any intervention or treatment. This promotes a more holistic approach among clinicians toward treatment of people and widens their perspective to treat the patient as a whole [3].

Increasing prevalence of oral diseases such as ECC among the Indian child population, the interference of socioeconomic factors in the perception of oral health are existing realities. The lack of research that assesses quality of life among preschool children, has purposed this study to assess the impact of S-ECC on the OHRQoL of preschool children and their parents.

The first application of QOL by S Tandon et al[4] is the only documented literature available in the Indian context. The validation and modification of the OHRQoL tool for young children among Indian populace has encouraged this study to determine the effect of S-ECC on OHRQoL among the pre-school children of Visnagar, Gujarat. To the best of our knowledge, this is the first study to apply a recently developed and validated tool for assessment of OHRQoL among the Indian population. [5]

MATERIALS AND METHOD

The cross-sectional study populace covered by a convenience sampling technique, all the private and government preschools in Visnagar taluka, Gujarat, with the permission of school authorities. Ethical approval was obtained from the Institutional review board. Informed, written consent was obtained from parents/guardian of children. Participants were included based on the following inclusion criteria: Children aged from 2 to 5 years, of both gender, having S - ECC [2], with no systemic diseases. Those children with special health care needs, extremely uncooperative children and those who refused consent were excluded from the study. A total of 300 children and their parents were included in this research.

The data was collected from the oral examination of children to assess caries experience and questionnaire to obtain OHRQoL and socioeconomic status.

1.Children's oral examination

Children were screened by a single trained calibrated examiner with an recording assistant using natural light, mouth mirror and WHO probe. S-ECC was assessed using dmfs index recorded according to AAPD guidelines. [2]

2.Questionnaire

Parents of children affected by S-ECC were interviewed with the validated questionnaire, which included various questions based on demographic details, socioeconomic condition and quality of life parameters.

Socioeconomic status of the families was evaluated by Kuppuswamy's socio-economic status scale. [6] This scale was further divided into two groups for this study. Group1 comprised of socioeconomic status 1 & 2 i.e. Upper and middle. Group2 comprised of socioeconomic status 3,4 & 5 i.e. Lower Middle, Upper Lower and Lower.

Oral Health related Early Childhood Quality of Life (OH- ECQOL) scale developed and validated by Mathur et al, 2014 was applied. (Cronbach's alpha value 0.862) The proforma comprised of 16 items based on quality of life parameters. Among these 12 items based on child impact section and 4 items based on family impact section. Two additional questions appraised the parent/caregiver about the global rating of their child's general and oral health[5]. Data was analyzed with SPSS 22.0 version software.

RESULT

A total of 300 children were examined to assess the effect of S-ECC on QOL of children and their parents. Among them 132 (44%) were female and 168 (56%) were male affected by S-ECC. The mean age for the children was 4.1 yrs. The mean dmft was 5.18 and mean dmfs was 7.83.

The distributions of response frequencies [ranging from 11.3% (Difficulty cleansing teeth) to 66.3%(pain)] to the events of the OH-ECQOL instrument are presented in Table no. 1 Among the children having S-ECC 66.3% experienced pain, 53% had difficulty in eating, 57% experienced food caught between teeth and about 53.2% of their parents being worried. Of those children who were reported to have experienced these events, most were affected occasionally. [Table no. 1]

[Table no. 1: Items included in OH-ECQOL]

Child impact items	N (%)		
	Never	Occasionally	Often
Pain	101 (33.7)	153 (51)	46 (15.3)
Swelling	225 (75)	61 (20.3)	14 (4.7)
Difficulty eating	141 (47)	119 (39.7)	40(13.3)
Food caught between teeth	129 (43)	133 (44.3)	38 (12.7)
Bad Breath	209 (69.7)	57 (19)	34 (11.3)
Mouth breathing	246 (82)	38 (12.7)	16 (5.3)
Fever	217 (72.3)	72 (24)	11 (3.7)
Trouble sleeping	190 (63.3)	83 (27.7)	27 (9)
Irritable, crying	220 (73.3)	65 (21.7)	15 (5)
Difficulty cleansing teeth	266 (88.7)	29 (9.7)	5 (1.6)
Missed school	183 (61)	81 (27)	36(12)
Told by teachers or school authorities about bad teeth	254 (84.7)	40 (13.3)	6 (2)

Family impact items			
Worried	140 (46.7)	122(40.6)	38 (12.6)
Missed work	186 (62)	83 (27.7)	31(10.3)
Financial impact	184 (61.3)	92 (30.7)	24 (8)
Arguments amongst family members	237 (79)	36 (12)	27 (9)

The socioeconomic status of parents was scored based on Kuppuswamy index for socioeconomic status. Table no.2 shows comparison between Group 1 (Socioeconomic status 1 & 2) and Group 2 (Socioeconomic status 3, 4 & 5). Symptoms like pain, difficulty in eating, food impaction, fever, trouble during sleeping, missed school, and financial impact were more prominent in Group 2. This difference is statistically significant. ($p < 0.05$) [Table no.1]

[Table no.2: Correlation between age, dmft, dmfs, SES and impact on individuals and family]

Dependent variables		General health (p value)	Oral health (p value)	Child impact (p value)	Family impact (p value)
Independent variables	Age	0.171[**]	0.191[**]	0.165[**]	0.208[**]
		(0.003)	(0.001)	(0.004)	(0.000)
	dmft	0.255[**]	0.322[**]	0.505[**]	0.406[**]
		(0.000)	(0.001)	(0.003)	(0.000)
	dmfs	0.394[**]	0.450[**]	0.662[**]	0.593[**]
		(0.001)	(0.000)	(0.002)	(0.001)
	SES	0.215[**]	0.145[*]	0.129[*]	0.105[**]
		(0.000)	(0.012)	(0.026)	(0.001)

Test applied: Pearson Correlation test Positive Pearson's correlation coefficient between the child impact section versus perception of oral and general health and family impact section versus perception of oral and general health was as depicted in Table no.2. This correlation is statistically significant ($p < 0.05$). It shows Age, dmft, dmfs or SES score demonstrate a positive correlation to, general health oral health, child impact and family impact score (OH-ECQOL score).

DISCUSSION

In 1976, Davis argued that oral disease has only minimal relevance on a person's life. The notion has been clearly challenged by recent research demonstrating the consequences of dental disease. In case of children, it was observed that ECC has an impact on the child's wellbeing.

The affirmative responses reported with regard to the items related to pain, food caught between teeth, difficulty in eating foods and trouble sleeping were most frequent on the child impacts section. These are symptoms frequently related to S-ECC, which is one of the prime oral conditions that have a negative impact on the child's symptoms, function and psychological domains of OHRQoL. The Parental distress domain, showed higher response rate with a negative impact with OHRQoL.

In the present study, with regard to the question, pertaining to experienced pain and problems while eating food 66.3% and 53% respectively answered in affirmative. Other equivalent study done by Naidu et al [6] and Braun et al [7] found responses to having pain in teeth 10.4%-22.9% and difficulty in eating 9.7%-16.8%, which shows lower results from the present study. Most of the studies covered children having only ECC and present study has focused on children having S-ECC.

In relation to problems while sleeping (36.7%), the result is comparable to other similar studies where the outcome ranged from 16.8% to 53% by Naidu et al [7], Braun et a l[8], Mathur et al [5] and Filstrup et al[9] . In the current study around 53.2% parents were worried about their child's dietary habits, while similar results were observed in the study by Mathur et al (68.3%) [5].

Current study demonstrated that as dmft/dmfs score increased, the OH-ECQOL score increased which demonstrated the poor oral health related quality of life among the study populace. These results are similar to the study carried out by Mathur et al, using the same OH-ECQOL scale which would emphasize the applicability of their scale [5].

Various studies performed with different tools like CPQ (Child Perceptions Questionnaire), ECOHIS (Early Childhood Oral Health

Impact Scale) and ITQOL (The Infant Toddler Quality of Life Questionnaire) where comparison of general health with QOL was evaluated, positive correlation between poor oral status and impact on OHRQoL was evident Filstrup et al. 2003[9], Jokovic et al. 2002[10], Pahel et al. 2007[11], Lee et al. 2010[12]. This emphasizes the relationship between dental status and OHRQoL.

Parents of children with higher OH-ECQOL scores perceived their child's general health as well as oral health to be poorer than in children with lower scores also in agreement with the study by Low et al, 2010[13], Jabarifar et al, 2010[14], Scarpelli et al,2011[15], Mathur et al 2014[5].

Socioeconomic status remained a predictor of OHRQoL scores after adjusting for the effects of ECC. The present study showed children from lower SES had higher impacts on quality of life than children from high SES, indicating poorer OHRQoL. In 2007, Locker found similar socioeconomic disparities in the OHRQoL in a group of schoolchildren[16].

In conclusion, oral health has a definite effect on the QOL of children. This study established in a hitherto unexplored population that the severity of ECC presents a negative impact on the OHRQoL of preschool children and their parents. This OH- ECQOL tool has not been recorded in the Indian population prior to its development and validation among a small population in North India. [5] Hence this is probably the first study to explore this OH- ECQOL tool among Indian populace.

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