

Body Image in Preschool Children Following Premature Loss of Primary Teeth: A Cross-sectional Study

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ABSTRACT

Introduction: Pediatric dentists often see a good number of children under 6 years of age and are likely to encounter a child with missing anterior teeth. Here the parents are more concerned about the facial esthetics of the child and also about the timing of permanent teeth to erupt.

Aim: To know the impact on self-esteem or body image of preschool children following the premature loss of primary anterior teeth.

Materials and methods: The present cross-sectional study was conducted among 780 children in the age group of 4–6 years. The COHIP-SF 19 was utilized to know the social well-being of the child following the premature loss of anterior teeth. The descriptive and inferential analysis of the data was done by using IBM SPSS software.

Results: There was a statistically significant association between gender and social well-being. More number of boys were concerned about their looks ($p = 0.054$). However, girls were found to be significantly more ($p = 0.003$) shy or withdrawn as compared to boys. There was a statistically significant association between a child's age and social well-being. More number of children between the ages of 4 years (23.1%) and 6 years (25.8%) were worried or anxious due to premature loss of an anterior tooth. Significantly more no of children of age 5 years (48.6%) was uncomfortable when asked about the missing tooth as compared to 4- and 6-year-old children. No statistically significant ($p > 0.05$) difference in the mean social well-being scores between boys and girls. No statistically significant difference in the mean social well-being scores between children of ages 4, 5, and 6 years ($p > 0.05$).

Conclusion: There is an association between the self-image of younger children and missing anterior teeth.

Keywords: Body image, Child, Premature loss, Psychology, Self-esteem, Self-image.

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INTRODUCTION

Internal health of mouth has a deep impact on the overall general and social health of the entire population.¹ Intraoral well-being in a child seems to have special needs because of the increasingly high incidence of caries, potentially high risk for trauma, and distinct societal and mental well-being.² In pediatric dentistry, one of the most common oral problems is trauma to the teeth. Oro-dental injuries might lead to broken, subluxated, or avulsed front teeth which will result in a significant effect on the functional, cosmetic, verbal, and mental aspects of the young population which further impacts their quality of life (QOL).³

Social well-being is impacted by the outward show, self-image, and acceptance of individuals by society in large. This has been noted that one major ingredient of self-concept is self-esteem. Personal health in accordance with other important aspects plays a crucial role in the self-image concept. Oro-dental well-being is an important part of overall health that can also have an impact on the level of self-respect.^{4,5}

We do know that in adolescents the extraoral appearance plays a crucial role in how they perceive their appearance in society.⁶ Social relationships in adolescents are deeply based on physical appearance hence cosmetic alteration can lead to decreased self-esteem and ultimately impact QOL.⁷ The same cannot be said about younger children. There have been very few reports on self-esteem/body image and psychology among children.

The children form a viewpoint of their body image at a very young age. Studies have been conducted that prove that young children have to deal with body-image issues at an early age.⁸ The children are molded by many things that can influence their

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body image or how they present themselves to others.^{9,10} Parents/guardians are the ones who can play a major role in influencing children to develop a positive body and self-image. The parents are more worried about the facial appearance of their children which includes their dental appearance too. It is almost impossible to get away from the "ideal" body shape that is shown in various forums whether it's online or in print media (newspapers, journals etc). It does not matter howsoever we may try to protect kids from these means, the kids will come to know. This also happens in school when they mingle with peers or as they watch the older individuals in their respective environments. The face, especially the dental appearance also plays a major role in improving the self-image (part of body image) of the child.¹¹ The child and the parents are

concerned about the premature loss of primary anterior teeth because of the distorted facial esthetics of the concerned child who can lose an anterior tooth due to trauma, dental caries, or extraction.

Oral health can affect the general health of an individual. Oral health-related quality of life (OHRQoL) measures are built on inputs given by individual persons about their oral well-being position and the impact it has on various aspects of their life.¹² Incorporating OHRQoL creates a move from customary medical/dental standards to appraisal and management that focuses on a person's societal and mental experience as well as physical well-being. There had been many studies on finding OHRQoL in children and adults which have been studied in four major domains, oral, social, emotional, and functional well-being.¹³ There are very few OHRQoL that are specific to children like the Child Perceptions Questionnaire (CPQ), Child Oral Impacts on Daily Performances (C-OIDP), Early Childhood Oral Health Impact Scale (ECHOIS), Child Oral Health Impact Profile (COHIP), Pediatric Oral Health-Related Quality of Life (POQL).¹⁴⁻¹⁸ Out of all these questionnaires the COHIP SF-19 has been used here as the Child Oral Health Impact Profile, which is the first child oral health-related quality of life measure to accommodate both constructive and destructive health impacts. Also, it may fail to measure the absence of a condition but can show positive attributes or increased well-being (e.g., credence) as a consequence of management. This questionnaire can be used for assessing the social and emotional well-being in case of dental trauma.¹⁹

The research here was done to discern if the self-image is hampered due to the premature loss of anterior teeth in primary dentition, as yet there have been no studies published in any language on self-esteem or body image of nursery school children after the untimely loss of deciduous anterior teeth.

MATERIALS AND METHODS

The present study was conducted among 4–6 years school-going children in Bhubaneswar, Odisha, in a cross-sectional pattern that got the approval of the ethical board formed by the University. The study was conducted in 10 schools (which gave written permission to conduct the study) in which 780 students were screened by two

examiners over a period of 2 months. Those children who had lost their maxillary anterior teeth prematurely due to trauma, caries, or early exfoliation/extraction were included in the study. The children having systemic diseases or under medications were excluded from the study. After screening children in the mentioned schools, 92 children fulfilled the inclusion criteria.

The social/emotional well-being component of the COHIP-SF19 questionnaire (original eight items retained) was administered to all those included in the study. The questions were first interpreted by the examiners and then advocated by the children in the presence of their respective class teachers. The younger children were made to understand the questions in the local language if they had difficulty. Both the nodding of the head and verbal answer were accepted as a response. A pilot was conducted among 20 students (9 boys and 11 girls) prior to the main study to assess the difficulty in understanding and interpretation. The pilot study results were not taken into consideration for the larger research.

Statistical Analysis

Data were analyzed using Statistical Package for Social Sciences Version 20.0 (SPSS Inc, Chicago Illinois, USA). Summary statistics were prepared which included rates, ratio, proportions, commonness, etc. Test of significance for distribution of responses was done with a Chi-squared test. Comparison of social well-being scores between boys and girls was done with Unpaired Student's *t*-test and that between those of different ages was done with one-way analysis of variance. A *p*-value of ≤ 0.05 was considered to be of significance in statistics. Reliability of the social/emotional Well-Being component of the COHIP-SF19 questionnaire (original eight items) was assessed by determining the Cronbach's alpha which was found to be 0.81 (high reliability), and it did not increase on the deletion of any of the items (0.77–0.80).

RESULTS

The study had a sample of 780 children out of which 92, were included in this. There were 44 boys and 48 girls. Table 1 tells about the distribution of choices amongst the children in accordance

Table 1: Distribution of choices

Parameters	Option	N	N %
Unhappy or sad	No	70	76.1
	Yes	22	23.9
Worried or anxious	No	74	80.4
	Yes	18	19.6
Avoided smiling or laughing	No	83	90.2
	Yes	9	9.8
Look different	No	69	75.0
	Yes	23	25.0
Worried about others opinion	No	81	88.0
	Yes	11	12.0
Shy or withdrawn	No	80	87.0
	Yes	12	13.0
Teased or bullied	No	70	76.1
	Yes	22	23.9
Uncomfortable when questioned	No	63	68.5
	Yes	29	31.5

Impact of premature loss of anterior teeth on social well-being in pre-school children

with the choices described in COHIP-SF19 (social well-being). When comparing the distribution of choices, boys (34.1%) felt more than the girls ($p = 0.054$), that they looked different when anterior teeth were missing (Table 2). Whereas girls (22.9%) were withdrawn more than the boys ($p = 0.003$) if they had missing anterior teeth. The rest of the choices did not have a significant impact on the social well-being choices of children. While analyzing the age-wise distribution (Table 3), the children were worried, were teased due to the absence of front teeth, and also felt uncomfortable when asked about missing front teeth ($p = 0.02$). Five years old children (48.6%) felt significantly more ($p = 0.03$) uncomfortable when asked about missing teeth than 4 and 6 years old whereas the 4 years old children (23.1%) were more worried about the absence of teeth than the 5 and 6 years old children (25.8%). A comparison of social well-being choices among boys and girls did not yield any significant impact (Tables 4 and 5). Figure 1 tells us, that most of the participants had at least one issue with their upper front teeth being prematurely missing which gives us an idea that the missing upper front teeth have an impact on the social well-being of children.

DISCUSSION

Trauma to teeth is hard to welcome encounters that can deteriorate orodontal functioning, which affects growth and development, occlusion and attractiveness of a person.²⁰ Also, it has an important influence, on mental and social health, that can impair the QOL of young children and parents.²¹ A serious trauma to the tooth can cause pain immediately. Dental trauma can lead to economic costs, it can also develop a series of consequences that affect the QOL and may also lead to missing school or other duties, disturbance in sleeping, and influence on day-to-day programs.²² Multiple studies have established the fact that the look of the front teeth has a crucial mental and societal influence on the children.^{23,24} Consequently, the different types of trauma in the anterior teeth region can lead to notable psychic and societal load for children and their

parents/guardians. There are few research work on the impact of trauma to teeth on QOL of children.

Cortes et al. in 2002 found in a study involving 68 children 12–14 years old with enamel/dentine trauma and 136 children without a history of dental trauma, using the Oral Impact on Daily Performances (OIDP) questionnaire that children suffering a broken front tooth was little uncomfortable about smiling, laughing or showing their teeth, while they were with people.²⁵

A recent study, conducted in Brazil in 2015, investigated the impacts of tooth trauma on young children. 335 children in the age group of 3–5 years were evaluated to find their quality of life after trauma, using the ECOHIS index. In these groups, few references to pain and difficulty in chewing were gathered but no statistically significant difference was found in QOL amongst children with and without trauma to their teeth. But, a study in 2011 concluded that dental trauma to teeth can have a negative influence on the orodontal health and QOL in young children and their families. Therefore it becomes prudent to treat the dental trauma as soon as detected to allay the negative influences on the mind of young children.²⁶

One more study, conducted in Canada by Fakhruddin et al., used the CPQ11–14 index to assess the social impact of trauma on QOL of 2,422 children, aged between 12 and 14 years. Children who were not treated for trauma have difficulties when socializing and being happy as compared to children who had no dental trauma.²⁷

In our study, we included the COHIP-SF 19 as it had a close association with the social well-being of a child which encompassed the various problems children face when having dental issues.

There are studies that tell the impact of trauma on anterior teeth in the social, emotional, and functional well-being of children and adolescents but to date, there has not been any study to correlate the body image of preschool children with prematurely lost anterior teeth.²⁸ So this study was carried out to know the effect of premature loss of anterior primary teeth and self-image of preschool children.

Table 2: Comparison of distribution of choices between boys and girls

Parameter	Option	Boys		Girls		χ^2	p-value
		N	N %	N	N %		
Unhappy or sad	No	32	72.7	38	79.2	0.52	0.47
	Yes	12	27.3	10	20.8		
Worried or anxious	No	35	79.5	39	81.3	0.04	0.84
	Yes	9	20.5	9	18.8		
Avoided smiling or laughing	No	40	90.9	43	89.6	0.05	0.83
	Yes	4	9.1	5	10.4		
Look different	No	29	65.9	40	83.3	3.72	0.054
	Yes	15	34.1	8	16.7		
Worried about others opinion	No	38	86.4	43	89.6	0.23	0.63
	Yes	6	13.6	5	10.4		
Shy or withdrawn	No	43	97.7	37	77.1	8.63	0.003
	Yes	1	2.3	11	22.9		
Teased or bullied	No	31	70.5	39	81.3	1.47	0.23
	Yes	13	29.5	9	18.8		
Uncomfortable when questioned	No	31	70.5	32	66.7	0.15	0.70
	Yes	13	29.5	16	33.3		

* Chi-squared Test; $p \leq 0.05$; There was a statistically significant association between gender and social well-being. Significantly more ($p = 0.054$) number of boys (34.1%) was concerned about their looks compared to girls (16.7%). However, girls (22.9%) were found to be significantly more ($p = 0.003$) shy or withdrawn as compared to boys

Table 3: Comparison of distribution of choices as per age

	Option	4 years		5 years		6 years		χ^2	p-value*
		N	N%	N	N%	N	N%		
Unhappy or sad	No	18	69.2	30	85.7	22	71	2.901	0.23
	Yes	8	30.8	5	14.3	9	29.0		
Worried or anxious	No	20	76.9	31	88.6	23	74.2	2.443	0.03
	Yes	6	23.1	4	11.4	8	25.8		
Avoided smiling or laughing	No	24	92.3	31	88.6	28	90.3	0.237	0.89
	Yes	2	7.7	4	11.4	3	9.7		
Look different	No	17	65.4	25	71.4	27	87.1	3.940	0.14
	Yes	9	34.6	10	28.6	4	12.9		
Worried about others opinion	No	22	84.6	30	85.7	29	93.5	1.363	0.51
	Yes	4	15.4	5	14.3	2	6.5		
Shy or withdrawn	No	22	84.6	31	88.6	27	87.1	0.207	0.9
	Yes	4	15.4	4	11.4	4	12.9		
Teased or bullied	No	16	61.5	30	85.7	24	77.4	4.838	0.09
	Yes	10	38.5	5	14.3	7	22.6		
Uncomfortable when questioned	No	20	76.9	18	51.4	25	80.6	7.70	0.02
	Yes	6	23.1	17	48.6	6	19.4		

*Chi-squared Test; $p \leq 0.05$; There was a statistically significant association between child's age and social well-being in terms of their being worried or anxious. Children of 5 years of age (88.6%) were least worried or anxious as compared to those with 4 and 6 years of age. More number of children having age of 4 years (23.1%) and 6 years (25.8%) were worried or anxious due to premature loss of an anterior tooth. Significantly more no of children of age 5 years (48.6%) were uncomfortable when asked about the missing tooth as compared 4 and 6 year old children

Table 4: Comparison of social well-being score between males and females

Gender	N	Mean	Std. deviation	95% CI of the difference		p-value*
				Lower	Upper	
Boys	44	1.66	1.14	-0.290	0.566	0.215
Girls	48	1.52	0.92			

*Unpaired Student's t-test; $p \leq 0.05$; No statistically significant difference in the mean SWB scores between boys and girls ($p = 0.215$)

Table 5: Comparison of social well-being score between children of different ages

Age	N	Mean	Std. deviation	F	95% CI for mean		p-value*
					Lower	Upper	
4 years	26	1.88	1.18	1.73	1.41	2.36	0.18
5 years	35	1.54	1.07		1.18	1.91	
6 years	31	1.39	0.8		1.09	1.68	

*One-way ANOVA; $p \leq 0.05$; No statistically significant difference in the mean SWB scores between children of ages 4, 5, and 6 years ($p = 0.18$)

Body image is meant as the "figuration of our body formed in our mind." The increasing amount of research on body image recently is worth mentioning, especially those covering adolescents and young adults.³ Despite many studies in young adults there has been a dearth of research in preschool children. According to Papalia and Feldman, childhood is the stage from birth to the onset of puberty.^{29,30} This stage has been of extreme significance as because this phase deals with the formation of the body and its image. Throughout our lives, body image keeps changing, influenced by various factors in environment.³¹ During childhood period there are weight problems, beliefs on the bodily aspects, and behaviors that can influence physical appearance may begin.³² The body image becomes important as the child grows. A child having a negative body image can have serious psychological issues later in life. So, knowing that a negative body image in the formative period can impact the individual's psychological health in the future

periods of human development, it is important to gain knowledge in this subject.³³

Anterior teeth have an important influencing factor on the way each individual looks. Extra-oral and dental appeal shows an important element that impacts the QOL. The fact that it is seen more often than the posterior teeth, dental injury in front teeth can easily lead to disappointment, with oral beauty. Individuals who think of having lower oral aesthetics have lower self-esteem. Most of these people want to improve their outer look and social acceptability rather than their oral well-being. There is research showing that people with pleasant appearance with good dental aesthetics were considered more intelligent and are more likely to get better jobs than those who have an unpleasant facial appearance.³⁴

The major research work has been conducted on adult observers, with lesser work done on considering views of younger

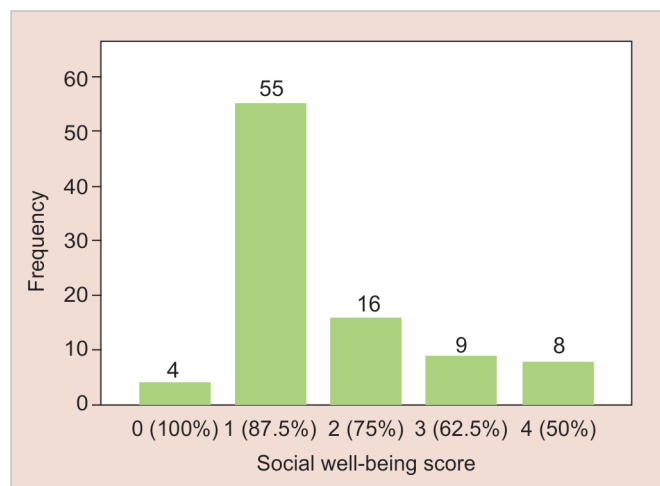


Fig. 1: Distribution of social well-being scores

children and adults. The period of childhood and young adulthood show many alterations in body and self-image which can influence all works of life, such as social, psychic, and working aspects, and familiar inter-relationships.³⁵

The impact of premature lose of upper primary front teeth in has not been studied yet. This was always neglected as quoted in many researches that children do not have any esthetic demands. But with the advent of internet, social media and the peer pressure it is difficult to ignore the esthetic demands of children, especially the facial and dental esthetics which are an integral part of body image and which in turn effects the QOL of children. The inter-relation of overweight children and body image of smaller children has been established which asserts that smaller children are worried about their body image but no study yet has established the same association of body image and premature loss of upper anterior teeth.^{36,37} Our study tried to find an association between self-image and premature loss of anterior teeth and we got to know that missing anterior teeth had some impact on the self-image of children.

CONCLUSION

The facial appearance and outward appearance, when unaesthetic can negatively impact the psychology of preschool children during social interactions. There was a belief earlier that children do not have esthetic demands but nowadays children are smarter and more demanding. So this study was an attempt to find an association between premature anterior teeth loss and self-image in children of younger age group. Our study showed an association between social well-being and prematurely lost anterior teeth. More studies are required on a larger population in this age group to establish it further.

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