

Frequency of Dental Caries in Children and Its Association with Oral Health Literacy

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Abstract:

Objective: To determine the frequency of dental caries in children and its association with oral healthy literacy.

Methods: This observational study was conducted from August 2022 to February 2023 at dental hospital of Karachi. We enrolled 150 children and assessed them for dental caries. The association between dental caries and oral healthy literacy was determined along with parents' employment status and education. Chi Square test as used for association keeping P value < 0.05 as significant.

Results: The mean age of the children was 5.01 ± 1.37 years and the mean age of their parents was 33.86 ± 8.15 years. The frequency of dental caries was 61.3%. Dental caries was significantly associated with OHL ($P = 0.0001$).

Conclusion: The frequency of dental caries in our study was 61.3% while having statistically significant association with OHL, parents' employment status and education.

Keywords: Oral Health Literacy, Dental caries, Children, Oral hygiene, Knowledge

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Introduction: Oral diseases constitute one of the most widespread medical conditions nowadays since they are distributed worldwide with a major impact on quality of life. Furthermore, dental health is an important component of overall wellbeing ¹. One or more decaying, missing, or filled teeth in a children's primary dentition is considered to be a case of early childhood caries ². The terms nursing caries and rampant caries are synonyms for what is commonly referred to as early childhood caries ³. Baby bottle syndrome, breastfeeding caries, or bottle mouth caries are all terms for a form of dental decay in which the deciduous upper incisors and molars are more significantly affected than the rest of the permanent teeth in the mouth ⁴. The lower incisors are

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typically unaffected or rather minimally affected by this form of caries. Children between the ages of three and four who have significant caries that does not match the nursing caries pattern are often diagnosed with rampant caries⁵. Caries in young children is one of the most common childhood diseases worldwide, especially affecting those from low-income communities⁵.

Caries in young children are more common in low-income communities. Hence, the frequency might reach as high as 70% in less developed nations and among socially disadvantaged groups in industrialized ones⁶. In comparison, developed nations see a prevalence of ECC of 1% to 12%⁷. Early childhood caries is predicted to affect between 3% and 6% of American children⁸. Males and children aged 3-4 years are disproportionately affected⁹. Some societal risk factors for developing ECC include a mother's age when she gives birth being low and being of a race other than white¹⁰.

The concept of oral health literacy (OHL) has earned attention over the past decade due to reports that proper health education can help to establish beneficial dental hygiene routines¹¹. The assessment of knowledge, attitudes, and behaviors is crucial for the development of successful health education, according to the literature¹². Learning about the importance of maintaining good oral health is fundamental to any holistic approach to wellness. A higher understanding of proper oral hygiene practices has also been linked to improved dental health¹³. Dental caries was found to be the most common chronic childhood disease in Pakistan, with prevalence rates five times higher than those of asthma and seven times higher than those of hay fever, according to a World Health Organization path finder survey that surveyed more than 9,000 people across 21 districts of the country¹⁴.

The material available on the internet depicts that very little work has been done on the concerning occurrence of dental caries and its relationship with oral health knowledge particularly in children. Thus, the goal of this research work is to find out the association between dental caries oral health literacy in children.

Material And Methods:

We conducted this observational study in dental department hospital of Karachi from August 2022 to February 2023 after receiving ethical certificate from the hospital's ethical committee. We enrolled 150 school going children having age bracket between 3 to 7 years. The parents of the children were informed about the study and they gave us written consent for participation in the study. We excluded those children whose parents did not provide us written consent. All the children were examined for dental caries by an expert dentist having more than five years of experience.

We used modified oral health literacy questionnaire, the questionnaire had a total score of 0 to 100, and the higher score represented greater knowledge of OHL. We scored inadequate OHL from 0 to 59, marginal from 60 to 74 and adequate from 75 to 100.¹⁵

All the data was entered in IBM SPSS 20. Mean and standard deviation was used for children's and parents' age while frequencies and percentages were used for OHL, gender, education and

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employment status. For association of dental caries with OHL, employment status and education we used Chi Square test keeping P value at < 0.05 as statistically significant.

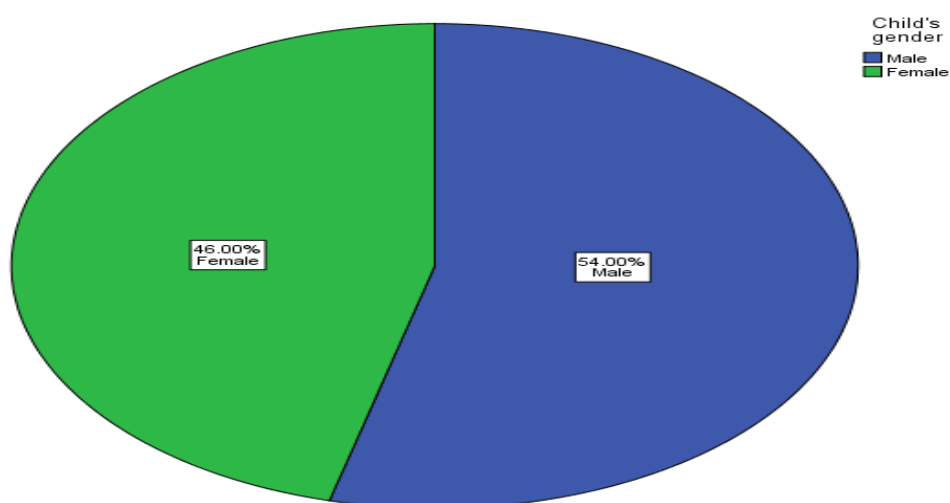
Results:

Our study was conducted on 150 children having age between 3 to 7 years. The mean age of the children was 5.01 ± 1.37 years while the mean age of their parents was 33.86 ± 8.15 years. Primary and secondary education was obtained by 26% parents while bachelors and masters level education was attained by 22.7% and 25.3% parents. Regarding the employment status 54% parents were employed while 46% parents were unemployed (Table 1). According to the gender of the children 46% were females while 54% were male. In our study The frequency of dental caries was 61.3%. According to the parents' OHL, inadequate were 32%, marginal were 33.33% while adequate were 34.67%. The association of dental caries with OHL, parents' education and employment status can be seen from table no 2 to table 4. We observed that dental caries were significantly associate with parents' OHL, education and employment status ($P = 0.0001$).

Table 1 Basic demographics

Variables		Statistics
Children's age (Years)		5.01 ± 1.37
Parents' age (Years)		33.86 ± 8.15
Parent's Education	Primary	39 (26%)
	Secondary	39 (26%)
	Bachelors	34 (22.7%)
	Masters	38 (25.3%)
Employment status	Employed	84 (54%)
	Unemployed	69 (46%)

Graph 1 Children's gender



Graph 2 Parents' OHL level

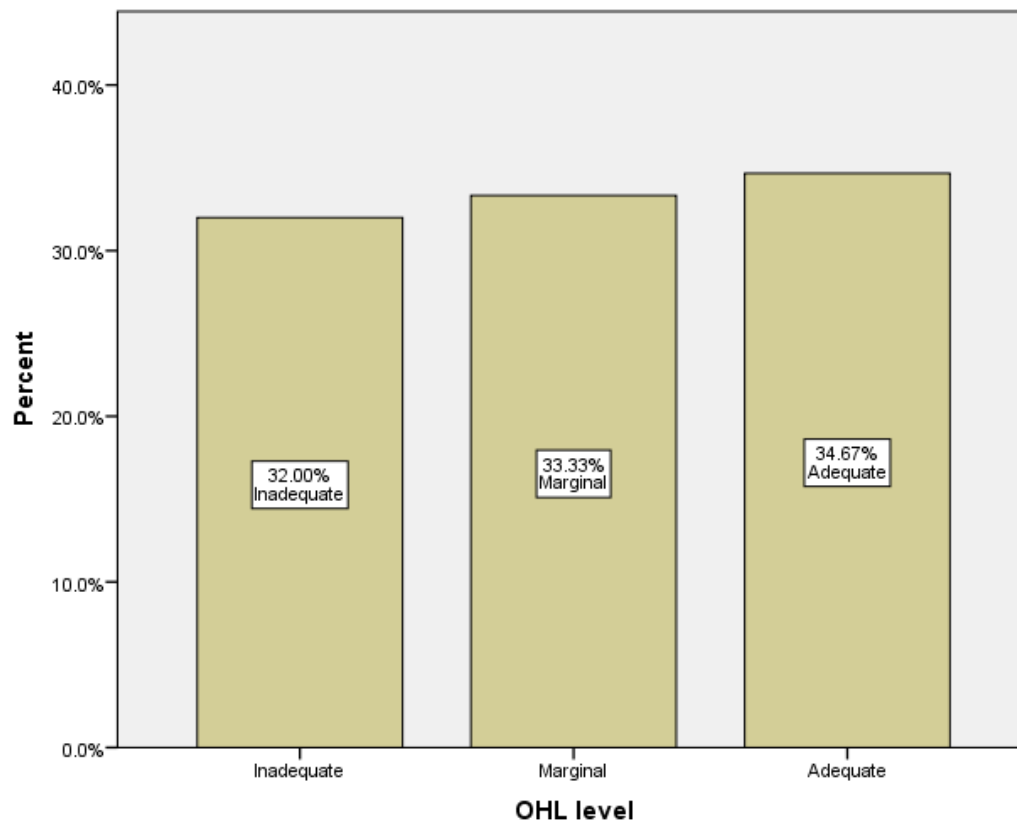


Table 2 Association of dental caries with OHL

		OHL level			Total	P value
		Inadequate	Marginal	Adequate		
Dental caries	Yes	42	27	23	92	0.0001
		45.7%	29.3%	25.0%	100.0%	
	No	6	23	29	58	
		10.3%	39.7%	50.0%	100.0%	
Total		48	50	52	150	
		32.0%	33.3%	34.7%	100.0%	

Table 3 Association of dental caries with parent's education level

		Parent's education				Total	P value
		Primary school	Secondary school	Bachelors	Masters		
Dental caries	Yes	32	36	15	9	92	0.0001
		34.8%	39.1%	16.3%	9.8%	100.0%	
	No	7	3	19	29	58	
		12.1%	5.2%	32.8%	50.0%	100.0%	

Total	39	39	34	38	150	
	26.0%	26.0%	22.7%	25.3%	100.0%	

Table 4 Association of dental caries with parents' employment status

		Parent's employment status		Total	P value
		Employed	Unemployed		
Dental carries	Yes	31	61	92	0.0001
		33.7%	66.3%	100.0%	
	No	50	8	58	
		86.2%	13.8%	100.0%	
Total		81	69	150	
		54.0%	46.0%	100.0%	

Discussion:

A person's dental health and overall wellbeing are significantly influenced by their level of oral health literacy (OHL). The OHL received little attention in dentistry until the past 10 years, when academics and practitioners of oral health were more interested in discovering the relationship between oral health and health literacy, giving rise to the term OHL.¹⁶ OHL is now developing as a dental research area. The American Dental Association has put in place an effective strategy to increase OHL among the populace because it believes that people with low OHL are a barrier to the effective diagnosis, treatment, and prevention of dental problems. Also, experts recently asserted that in order to lessen oral health issues and create better oral health outcomes in the community, it is critical to enhance people's OHL. Experts in health promotion, epidemiologists, physicians, nurses, dentists, and dental hygienists participated in a study by the Institute of Medicine committee on oral health and the American Dental Hygienist's Association that demonstrated the importance of measuring people's literacy when assessing the risk to general or oral health.¹⁷

Compared to diet- and behavior-related oral disorders in children, dental caries is more common. Dental caries is not dangerous, but it has a negative impact on a child's quality of life, nutrition, capacity to eat, impact on self-esteem, and general health. Children's preventive dental health care and primary treatment must be given the utmost consideration due to the early onset of caries and its infectious nature.¹⁸ Previous research has shown that parents are crucial in the prevention and management of childhood caries, and that parental oral hygiene behavior is directly related to the dental health behaviors of their offspring. In the first three years of a child's life, parents play a crucial role since they continue to be the main guardians of their children's dental health, even when they enter preschool. Age, parental education, employment status, attitudes, behavior, and knowledge are a few elements that are related to establishing healthy behaviors among themselves and, indirectly, in their children's dental health.¹⁹

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OHL for parents of preschoolers is extremely important because it may have an impact on the state of the children's oral health. Also, policymakers may find it useful to know the OHL level of parents when developing interventions and putting into practice policies for promoting oral health in preschoolers.²⁰

We conducted our study on 150 children aged between 3 to 7 years as this age group is vulnerable to dental caries. The mean age of the children recorded was 5.01 ± 1.37 years while the age of their parents was 33.86 ± 8.15 years. We observed that the majority of the children belonged to the male gender.

The frequency of dental caries in our study was 61.3% which is comparable to a study²¹ which reported the frequency of dental caries 67.82%. We found that the OHL of the parents was inadequate 32%, marginal 33.3% and adequate 34.7%, which is again comparable with the aforementioned study.

As mentioned in the previous studies^{19,20,21} we found that the dental caries were significantly associated with lower OHL of the parents, we observed that parents with inadequate knowledge of OHL had higher frequency of dental caries in their children. Dental caries were also significantly associated with parents having lower education level and their employment status, which is again in comparison with various studies^{20, 21, 22}.

We found significant association between OHL of the parents and their education level as well as their employment status as observed in a study²¹ which found significant association between parents' education and employment status with parent's OHL. Parents with higher education had better knowledge of OHL and parents who were employed also had better knowledge of OHL. A study conducted in Pakistan also found significant association between parents' education level and their OHL²².

Conclusion:

From our study we conclude that the frequency of dental caries was 61.3%. We found significant association of dental caries with oral health literacy along with parent's education and employment status.

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