

Impact of Number of Exposed Carious Lesions as Reason for Pain or Tooth Extraction on Quality of Life of Children Aged 7-16 Years Attending Tertiary Care Hospitals in Peshawar

IHTESHAM-UD-DIN¹, ARIFFULLAH KHAN², AYESHA IFTIKHAR³, MUHAMMAD YOUSAF⁴, OWAIS NAEEM KHAN⁵, HINA REHMAN⁶

^{1,3,5}Lecturers, Sardar Begum Dental College, Peshawar

²Assistant Professor, Community & Preventive Dentistry, Khyber Medical University-Institute of Dental Sciences Kohat

⁴Resident Community Dentistry, ⁶Senior Lecturer, Dental Materials, Peshawar Dental College Peshawar

Correspondence: Dr. Arifullah Khan, Cell: 0332-5755578 E-mail: khan55578@hotmail.com

ABSTRACT

Background: Carious lesions are the record frequent oral health problem among school going kids everywhere the world. In the deciduous teeth, dental caries is the tenth most communal oral problem that affects about nine percent of the population worldwide.

Aim: To report impact on quality of life of exposed carious lesion as reason for tooth extraction in 7-16 years children.

Study design: Descriptive cross-sectional study.

Place and duration of study: Sardar Begum Dental College and Peshawar Dental College, Peshawar from 1st January 2021 to 31st December 2021.

Methodology: Three hundred and eight children aged 7-16 years of both genders were enrolled from two dental teaching hospitals of Peshawar. Children were examined clinically at a dental chair. A radiograph advised by the clinician was used to diagnose number of teeth having exposed carious lesions that are causing pain or extracted/filled because of pain were recorded for each participant in a structured data collection sheet. Child oral health impact short form was used to record oral health related quality of children.

Results: There were 182(59.1%) males and 126(40.9%) females and mean age was 10.0±2.8 years. The correlation between OHRQoL and number of teeth with exposed carious lesions that are causing pain, filled or have been extracted because of pain is 0.610, which indicates positive correlation, as lesion increases the QoL of an individual will decrease.

Conclusion: The positive correlations between OHRQoL and number of teeth having had exposed carious lesions that are causing pain, filled or have been extracted because of pain. It also signifies the negative impact of exposed carious lesion, over oral health related quality of life of 7-16 years old, visiting two tertiary care hospitals of Peshawar.

Key words: Quality of life (QoL), Oral health related quality of life (OHRQoL), Peshawar

INTRODUCTION

Carious lesions are the most frequent oral health problem among school-going children around the world. In both preschoolers and schoolchildren, caries not only lead to reduced OHRQoL but also have an effect on children's development. In the deciduous teeth, dental caries is the tenth most common oral problem that affects about nine percent of the population worldwide. Exposed carious lesions have a negative impact on children's quality of life by interfering with their psychological and social relationships, as well as causing distress in children from a young age⁴. Exposed carious lesions, when left untreated, cause toothache, discomfort, disruption of the normal eating routine, and delay the language development of the child, which can have an effect on daily activities, the intake of adequate food, learning, and communication. Pain caused by carious lesions can be stressful and agonizing. In the United States, dental visits because of dental caries or oral problems resulted in 120,000 lost school hours for every 100,000 children. Consequences of untreated caries include an amplified risk of emergency dental visits and hospitalization, added days with limited activity, and decreased educational progress.⁶ As dental caries is the most widespread chronic ailment in children, it is important to have an effective and credible method of evaluating, understanding, and refining OHRQoL of children⁷.

OHRQoL has been defined as "a multidimensional construct that includes a subjective assessment of the individual's oral health, functional well-being, emotional well-being, expectations and satisfaction with care, and sense of self"⁸. OHRQoL is associated with psychosocial as well as functional aspects in both children and adults. Dental pain may influence sleep, eating, social connections, school attendance, and everyday activities. Furthermore, it affects the emotional well-being and overall quality of life of children and their families. The term "oral health-related quality of life" (OHRQoL) refers to the influence of oral disease on everyday function and overall well-being. Young children are predominantly significant inhabitants in the context of OHRQoL because they are incapable of supporting themselves. Parents and carers have a direct impact on their children's oral health, so it's critical to understand how this disease affects them. Severe dental caries have an impact on their parents' or guardians' missed days of work and superior financial expenditure, with a subsequent negative effect on the OHRQoL of the family.⁹ The child oral health impact profile (COHIP) has been regarded as a reliable tool for assessing dental caries-related effects on the quality of life of children aged 8–15 years¹⁰. The COHIP is a well-established

Accepted on 03-11-2022

instrument for evaluating OHRQoL in children and adolescents, including four dimensions (school environment, self-image, social-emotional well-being, and functional well-being)¹¹.

MATERIALS AND METHODS

This descriptive cross-sectional study was carried out in two dental teaching hospital of Peshawar i.e. Sardar Begum Dental College and Peshawar Dental College. Participants were selected by non-probability consecutive sampling technique. Ethical approval was taken from the institutional review board (IRB) of Peshawar medical college.

The participants of the study were aged ranged between 7-16 years accompanied by their parents/guardians who visited the hospital. Data were collected after informed consent from their parents. Children who were not able to speak properly were excluded from the study.

A 19 item COHIP-SF19 scale was used to measure the oral health related QoL of children. Responses to questions were categorized using the 5-point Likert Scale. When added, a higher score denotes worse OHRQoL. OHRQoL of the child was categorized as; 1. No impact: 0-19. 2. Mild impact: 20-40. 3. Severe impact: 40-76

Data was entered and investigated in SPSS version 23. Pearson correlation was used to correlate OHRQoL with different variables. P value <0.05 was considered as significant.

RESULTS

There were 182(59.1%) males and 126(40.9%) females with mean age was 10.0±2.8 years. The mean age was 10±2.8 years. Fifty five were 7 years old (17.9%), 52 were 8 years old (16.9%), 33 were 9 years old (10.7%), 44 were 10 years old (14.3%), 22 were 11 years old (7.1%), 26 were 12 years old (8.4%), 25 were 13 years old (8.1%), 13 were 14 years old (4.2%), 16 were 15 years old (5.2%) and 22 were 16 years old (7.1%) respectively (Table 1).

There were 182 male patients, 27 were 7 years old, 28 were 8 years old, 24 were 9 years old, 32 were 10 years old, 13 were 11 years old, 15 were 12 years old, 12 were 13 years old, 9 were 14 years old, 8 were 15 years old, and 14 were 16 years old respectively. There were 126 female patients in all, 28 were 7 years old, 24 were 8 years old, 9 were 9 years old, 12 were 10 years old, 9 were 11 years old, 11 were 12 years old, 13 were 13 years old, 4 were 14 years old, 8 were 15 years old, and 8 were 16 years old (Table 2).

Received on 17-07-2022

There were 51(16.6%) participants having lower total COHIP SF 19 score (0-19) indicating no impact on quality of life, 117(38%) subjects had mild impact (20-40) and 140(45.5%) participants had greater total COHIP SF 19 score (40-76), signifying severe effect on QoL of children and the mean of total COHIP-SF 19 is 35.96 (Table 3).

The correlation amid OHRQoL and age is 0.049, which indicates very weak correlation because there was a defined age limit which is 7-16 years. Correlation between OHRQoL and number of teeth with exposed carious lesions that are causing pain, filled or have been extracted because of pain is 0.610, which indicates positive correlation, as exposed carious lesion increases the QoL of an individual will decrease. Correlation between QoL and SES is 0.046, which is a weak positive correlation (Table 4).

Table 2: Comparison of age according to gender

Gender	Age (years)										Total
	7	8	9	10	11	12	13	14	15	16	
Male	27	28	24	32	13	15	12	9	8	14	182
Female	28	24	9	12	9	11	13	4	8	8	126
Total	55	52	33	44	22	26	25	13	16	22	308

Table 3: Child oral health impact profile short form 19

Score	No.	%
0-19	51	16.6
20-40	117	38.0
40-76	140	45.5

Table 4: Correlation of oHRQoL with different variables

Variable	Mean	OHRQoL	Pearson correlation	Sig.
Number of teeth having had exposed carious lesions that are causing pain, filled or have been extracted because of pain	6.86	35.96	.610	0.001
Age	10.36	35.96	.049	.196
Socioeconomic status	13.27	35.96	.046	.210

DISCUSSION

Most of the children reporting to the hospital with carious lesions were male (59.1%) which are similar to study conducted in Rawalpindi and Islamabad, where high occurrence of carious lesions were reported in boys (72.1%) than their counter parts.¹² Another study conducted in Bengaluru India in 2016 also revealed similar trend.¹³ This trend might be due to the cultural norm observed in our society where boys are given preference over girls regarding their health needs.¹⁴

The mean age of the children included in the study was similar to a study conducted in Rawalpindi, Islamabad where mean age was reported (10.5 years) of the population¹². Another study conducted in Peru showed similar results¹³.

Pearson correlation between number of teeth having had exposed carious lesions that are causing pain, filled or have been extracted because of pain and oral health related QoL is 0.61 which showed positive correlation, as exposed carious lesion increases the QoL of an individual will decrease. A study conducted in Brazil showed similar trends¹⁵. Another study led in Brazil (2018) indicates the negative impact on QoL of children¹⁶. A study conducted in Indonesia (2018), results illustrates that there is a relation between dental caries and QoL (P=0.002)¹⁷. A prospective three years' study conducted in Brazil; author indicated that dental caries had significant effect on OHRQoL. A study conducted in India (2016), observed a negative but weak correlation between dmft and COHIP-SF19¹⁸.

This negative weak correlation might be because the study was conducted in orphanage centers where the individuals are socially/economically deprived and may not maintain a good oral health status. Many epidemiological studies have indicated that dental caries is a vital clinical factor that may influence OHRQoL¹⁹⁻²².

CONCLUSION

The existing study concluded a positive association amongst OHRQoL and number of teeth having had exposed carious lesions that are causing pain, filled or have been extracted because of pain. It also signifies the negative impact of exposed carious lesion, over OHRQoL of 7-16 years old, visiting two tertiary care hospitals of Peshawar.

Conflict of interest: Nil

Table 1: Demographic information of the patients (n=308)

Variable	No.	%
Male	182	59.1
Female	126	40.9
Age (years)		
7	55	17.9
8	52	16.9
9	33	10.7
10	44	14.3
11	22	7.1
12	26	8.4
13	25	8.1
14	13	4.2
15	16	5.2
16	22	7.1

REFERENCES

- Aas JA, Griffen AL, Dardis SR, Lee AM, Olsen I, Dewhirst FE, et al. Bacteria of dental caries in primary and permanent teeth in children and young adults. *J Clin Microbiol* 2008;46(4):1407-17.
- Kazemina M, Abdi A, Shohaimi S, Jalali R, Vaisi-Raygani A, Salari N, et al. Dental caries in primary and permanent teeth in children's worldwide, 1995 to 2019: a systematic review and meta-analysis. *Head Face Med* 2020; 16(1): 1-21.
- Van Chuyen N, Van Du V, Van Ba N, Long DD, Son HA. The prevalence of dental caries and associated factors among secondary school children in rural highland Vietnam. *BMC Oral Health* 2021;21(1):1-7.
- Cho KH, Kang CM, Jung HI, Lee HS, Lee K, Lee TY, et al. The diagnostic efficacy of quantitative light-induced fluorescence in detection of dental caries of primary teeth. *J Dent* 2021; 115: 103845.
- Munteanu A, Holban AM, Păuna MR, Imre M, Farcașiu AT, Farcașiu C. Review of professionally applied fluorides for preventing dental caries in children and adolescents. *Appl Sci* 2022;12(3):1054.
- Ostalska-Nowicka D, Paszyńska E, Dmitrzak-Węglarz M, Neyman-Bartkowiak A, Rabięga A, Zachwieja J, et al. Dental caries-related primary hypertension in children and adolescents: cross-sectional study. *Oral Dis* 2021;27(7):1822-33.
- Kalaoglu EE, Yazici B, Menten A. Relationship between the fungiform papillae number and dental caries in primary teeth: a cross-sectional study. *Clin Oral Investigations* 2021; 25(12): 6931-7.
- A study on trends of dental caries disparities according to household income level of children and adolescents using data from the Korea National Health and Nutrition Examination Survey. *J Korean Acad Oral Health* 2022;46(2):56-62.
- Alshammari FR, Alamri H, Aljohani M, Sabbah W, O'Malley L. Dental caries in Saudi Arabia: A systematic review. *J Taibah Univ Med Sci* 2021;16(5):643-56.
- Vélez-León E, Albaladejo A, Cuenca-León K, Jiménez-Romero M. Prevalence of caries according to the ICDAS II in children from 6 and 12 years of age from Southern Ecuadorian Regions. *Int J Environ Res Public Health* 2022;19(12):7266.
- Kazemina M, Abdi A, Shohaimi S, Jalali R, Vaisi-Raygani A, Salari N, et al. Dental caries in primary and permanent teeth in children's worldwide, 1995 to 2019: a systematic review and meta-analysis. *Head Face Med* 2020; 16(1): 1-21.
- Borilova-Linhartova P, Deissova T, Musilova K, Zackova L, Kukletova M, Kukla L, et al. Lack of association between ENAM gene polymorphism and dental caries in primary and permanent teeth in Czech children. *Clin Oral Investigations* 2018;22(4):1873-7.
- Fleming E, Afif J. Prevalence of total and untreated dental caries among youth: United States, 2015–2016.
- Youssefi MA, Afroughi S. Prevalence and associated factors of dental caries in primary schoolchildren: an Iranian setting. *Int J Dent* 2020;2020.
- Chatzimarkou S, Koletsi D, Kavvadia K. The effect of resin infiltration on proximal caries lesions in primary and permanent teeth. A systematic review and meta-analysis of clinical trials. *J Dent* 2018;77:8-17.
- Clemens J, Gold J, Chaffin J. Effect and acceptance of silver diamine fluoride treatment on dental caries in primary teeth. *J Public Health Dent* 2018;78(1):63-8.
- Deng Y, Feng G, Hu B, Kuang Y, Song J. Effects of Papacarie on children with dental caries in primary teeth: a systematic review and meta-analysis. *Int J Paediatr Dent* 2018; 28(4):361-72.
- Abbas CI. Prevalence and comparison of dental caries status of primary and permanent dentition in school children of Iraq using significant. *Int J Med Res Health Sci* 2018; 7(12):110-3.
- Tulumbaç F, Oba AA. Efficacy of different remineralization agents on treating incipient enamel lesions of primary and permanent teeth. *JCD* 2019;22(3):281.
- Barros MM, De Queiroz Rodrigues MI, Muniz FW, Rodrigues LK. Selective, stepwise, or nonselective removal of carious tissue: which technique offers lower risk for the treatment of dental caries in permanent teeth? A systematic review and meta-analysis. *Clin Oral Investigations* 2020;24(2):521-32.
- Ghasemiannour M, Bakhshandeh S, Shirvani A, Emadi N, Samadzadeh H, MoosaviFatemeh N, et al. Dental caries experience and socio-economic status among Iranian children: a multilevel analysis. *BMC Public Health* 2019; 19(1):1-8.
- Nomura Y, Otsuka R, Wint WY, Okada A, Hasegawa R, Hanada N. Tooth-level analysis of dental caries in primary dentition in Myanmar children. *Int J Environ Res Public Health* 2020; 17(20):7613.