ORIGINAL ARTICLE

REASONS FOR DENTAL EXTRACTIONS IN CHILDREN

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ABSTRACT

The objective of this study was to determine the reasons of dental extractions in children age up to 17 years. The Study was conducted at Sardar Begum Dental College and Hospital Peshawar. A total of 623 children were included, out of which [328(52.6%)] were males and [295(47.3%)] females. Caries was the main reason (36%) for the extractions. Majority of teeth extracted were deciduous molars with highest incidence [542 (87%)] of extractions between the ages of 6-12 years. More teeth were extracted in maxilla [356 (57%)] than mandible [267 (43%)]. Other reasons for tooth extraction were retained deciduous teeth (23.1%), supernumerary teeth (1.4%), neonatal teeth (0.2%) and radicular cyst (0.2%). It can be concluded that dental caries is the main cause of tooth extraction in the children.

Key Words: *Dental Extractions, dental caries, reasons for dental extractions*

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INTRODUCTION

Tooth mortality in a population provides evidence about the prevalence of dental diseases, availability of dental care, and attitudes of population towards dental health. Dental caries continues to affect many children particularly in developing countries, where the rate of the disease is increasing.[1,2] The goal of treatment in pediatric dental patients is preservation of primary and permanent teeth. Premature extractions are not desired because the teeth have role in development of the dental arches, normal occlusal relationship, esthetics, speech development, effective mastication and quality of life.[3-5] The tooth loss leads to drifting, tilting, and malpositioning of the adjacent teeth. Premature loss of a primary tooth may result in delayed eruption, mal-eruption, and failure of eruption and space loss of the permanent successor. When aesthetics is compromised as a result of tooth loss, more problems could arise such as psychological stress, disturbances in social interaction including peer group acceptance, and the development of negative self-image.[6]The cost of correcting and treating these complications is a burden to the parents.[7-9]

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Latest studies have shown that dental caries is the most important cause for extraction of teeth in children.[10,11] In addition, dental trauma, periodontal disease, external and internal root resorption have also been identified as causes for extraction of primary and permanent teeth in children.[12,13]

The aim of this study was to determine the reasons of dental extractions in children attending Department of Paediatric Dentistry, Sardar Begum Dental College and Hospital, Peshawar.

METHODOLOGY

This study was conducted in Sardar Begum Dental Hospital Peshawar, Khyber Pakhtunkhwa, Pakistan. Patients attending Department of Paediatric Dentistry from January to April 2019 were included in the study. The patients with special care needs were excluded from the study. All the patients were examined on a dental chair. Consent was taken from their parents, and the study purpose was explained to the patients. Those who needed extractions were included in the study. Statistical Package for Social Sciences (version #22) was used for data analysis. Frequencies and percentages for various variables were derived. Chi square test was carried out to see any relationship between the variables.

RESULTS

A total of 623 patients participated in the study, [328 (52%)] were male and [295 (47%)] females with age ranging upto 17 years. Most of the children were between the age 6 to 12years (66.6%) followed by 13 to 17 years (21%) and 0 to 5 years of age (12%) [Table 1]

TABLE 1: DISTRIBUTION OF PATIENTS BY AGE AND GENDER

Age of the child (Years)	Gender		Total (%)
	Male (%)	Female (%)	
0-5	38 (6.9)	39 (6.2)	77 (12.3)
6-12	219 (35.2)	196 (31.4)	415 (66.6)
13-17	71 (11.4)	60 (9.63)	131 (21.02)
Total	328 (52.6)	295 (47.3)	623 (100)

TABLE 2: TOOTH EXTRACTION IN RELATION TO PATIENT'S AGE AND CAUSE

Age (Years)	Grossly Carious Teeth (%)	External Root Resorption (%)	Trauma (%)	Retained Teeth (%)	Cyst (%)	Supernumery Teeth (%)	Internal Root Resorption (%)	Natal Teeth (%)	Total (%)	P value
0-5	23 (3.7)	39 (6.2)	1 (0.16)	4 (0.64)	0 (0)	0 (0)	9 (1.44)	1 (0.16)	77 (12.3)	0.000
6-12	144 (23.1)	139 (22.3)	7 (1.12)	78 (12.5)	1 (0.16)	9 (1.44)	37 (5.9)	0 (0)	415 (66.6)	
13-17	58 (9.3)	8 (1.28)	3 (0.48)	62 (9.95)	0 (0)	0 (0)	0 (0)	0 (0)	131 (21.02)	

TABLE 3: TOOTH EXTRACTIONS IN MAXILLARY AND MANDIBULAR TEETH

Jaw Involved	Teeth involved												P-value
	A (%)	B (%)	C (%)	D (%)	E (%)	1(%)	2(%)	3(%)	4(%)	5(%)	6(%)	7(%)	
Maxillary Teeth	44 (7.06)	13 (2.08)	12 (1.92)	151 (24.2)	98 (15.7)	5 (0.8)	7 (1.12)	2 (0.32)	1 (0.16)	2 (0.32)	20 (3.21)	1 (0.1)	0.001
Mandibula Teeth.	16 (2.56)	14 (2.24)	9 (1.44)	92 (14.7)	93 (14.9)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	36 (5.7)	5 (0.8)	

A=Primary Central Incisor, B=Primary Lateral Incisor, C=Primary Cuspid, D=Primary First Molar, E=Primary Second Molar. 1=Permanent Central Incisor, 2=Permanent Lateral Incisor, 3=Permanent Cuspid, 4=First Premolar, 5=Second Premolar, 6=First Permanent Molar, 7=Second Permanent Molar

TABLE 4: REASONS FOR TOOTH EXTRACTIONS IN PRIMARY AND PERMANENT TEETH

Causes	Teeth involved		Total (%)
	Deciduous (%)	Permanent (%)	
Grossly Carious	170 (27.2)	55 (8.82)	225 (36.1)
External Root Resorption	186 (29.8)	0 (0)	186 (29.8)
Trauma	1 (0.16)	10 (1.60)	11 (1.76)
Retained Deciduous Teeth	142 (2.27)	2 (0.32)	144 (23.1)
Cyst	0 (0)	1 (0.16)	1 (0.16)
Supernumerary Tooth	0 (0)	9 (1.44)	9 (1.44)
Internal Root Resorption	41 (6.58)	5 (0.80)	46 (7.38)
Natal Tooth	1 (0.16)	0 (0)	1 (0.16)
Total	541 (86.8)	82 (13.1)	623 (100)

Majority [415(66.6%)] of tooth extractions were during the mixed dentition stage. There were more tooth extractions of posterior teeth compared to anterior teeth, [542 (87%)] in case of deciduous molars and [62(9.81%)] in case of permanent molars. Main reason [225(36.1%)] for the tooth extractions was dental caries. Cause of tooth extraction was found to be significantly associated with age (P=0.000) [Table 2]

The most common extracted teeth were deciduous first and second molars [542 (87%)] and [81(13%)] permanent teeth were extracted majority of which were permanent molars [62(9.81%)]. Out of total extracted teeth, significantly more (p=.001) maxillary teeth [356 (57%)] were extracted than mandibular teeth [267 (43%)] [Table3]

More than one third (36.1%) teeth were extracted due to dental caries while the rest (63.8%) were extracted due to other reasons. The other reasons included infection that caused external and internal resorption of the roots (37.2%), trauma (1.8%), retained teeth (23.1%), cyst (0.2%), supernumerary teeth (1.4%) and natal tooth (0.2%) [Table 4]

DISCUSSION

Despite the abundance of studies on reasons of dental extractions in permanent teeth, similar information is scarce about primary teeth. Literature search shows that no study has been conducted on causes of tooth extractions among children in our region.[14] This information is useful to identify high risk children at the earliest age possible so that appropriate preventive and restorative services can be provided. This study was therefore designed to identify causes of dental extractions in children. The results obtained will help policy makers in designing appropriate preventive health education and intervention programs to promote children's oral health.

Dental caries was the main reason of extraction in our study; similar results were reported in dental hospitals of Peshawar and Multan cities of Pakistan.[15-18] Internal root resorption and external root resorption were also major causes of the extractions. The results were similar to that of Bani et al[19] in Turkey. Most of the teeth extracted in our study were deciduous teeth; the results were similar to those of Bani et al[19], in Turkish children, Chukwumah N[20], in Nigerian children and Murshid SA[21], in Yemeni children.

The dental extractions were mostly performed between the ages of 6-12 years. This finding was similar to previous reports;[21] this could be due to higher dental fear in younger children. Also issues like crowding, spacing and presence of both sets of teeth during mixed dentition can contribute to poor oral hygiene leading to development of dental caries in this age group.[22-24]

The result of the present study indicates that extraction of primary teeth due to caries is still a major oral health issue. It is necessary to provide school-age children and their parents with information about the importance of primary teeth and consequences of immature dental extractions. The school teachers also need to be informed about oral hygiene maintenance in their pupils and the importance of early dental visits for check-ups and dental treatment.

CONCLUSION

Dental caries remains the major reason for dental extractions both in primary and permanent teeth.

REFERNCES

1 Kidd EA, Fejerskov O. Essentials of dental caries. Oxford University Press 2016 Jun 16.

2 Whittle JG, Whittle KW. Five-year-old children: changes in their decay experience and dental health related behaviours over four years. Community Dent Health 1995;12(4):204-7.

3 Chen MS. Oral health status and its inequality among education groups: comparing seven international study sites. Int J Health Serv 2002;32(1):139-61.

4 Esan TA, Olusile AO, Oziegbe EO, Udoye CI, Olasoji HO. Pattern of tooth loss in Nigerian children: A national survey. Pediatr Dent J 2009;19(2):165-73.

5 Nsour HF, Masarweh NA. Reasons for extraction of primary teeth in Jordan-a study. Pak Oral Dent J 2013;33(2):336-9.

6 Blomberg S, Lindquist LW. Psychological reactions to edentulousness and treatment with jawbone‐anchored bridges. Acta Psychiatr Scand 1983;68(4):251-62.

7 De Almeida Heilborn JC, Küchler EC, da Silva Fidalgo TK, Antunes LA, Costa MC. Early primary tooth loss: prevalence, consequence and treatment. Int J Dent 2011;10(3):126-30

8 KobylińskaA, Borawska J, Chojnowska A, Janczewska J, Turska-Szybka A, Olczak-Kowalczyk D. Frequency and causes of premature extractions of deciduous molar teeth–a retrospective study. Nowa Stomatol 2015 Mar 4.

9 Taylor PJ, Carmichael CL. Dental health and the application of geographical methodology. Community Dent Oral Epidemiol 1980;8(3):117-22.

10 Eigbobo JO, Gbujie DC, Onyeaso CO. Causes and pattern of tooth extractions in children treated at the University of Port Harcourt Teaching Hospital. Odonto-stomatologietropicale= Trop Dent J 2014;37(146):35-41.

11 Ockell NM, Bågesund M. Reasons for extractions, and treatment preceding caries-related extractions in 3–8 year-old children. Eur Arch Paediatr Dent 2010;11(3):122-30.

12 Ashiwaju M, Folayan M, Sote E, Isikwe M. Pattern of tooth extraction in children attending tertiary health care centers in Nigeria: a prospective study. J Pediatr Dent 2011;36(1):107-10.

13 Moles DR, Ashley P. Hospital admissions for dental care in children: England 1997-2006. BDJ 2009;206(7):E14.

14 Folayan MO, Otuyemi OD, Esan TA, Adeleke AA, Adedigba MA. Pattern of dental extraction in children in a Nigerian tertiary hospital. J Contemp Dent Pract 2005;6(2):80-90.

15 Khan SA, Ullah A, Ahmad W, Baig BU, Sadiq MA, Liaqat S. Frequency And Pattern Of Removal Of Teeth In A Sample Of Population Of Southern Punjab. Pak Oral Dent J 2018;38(1):75-78.

16 Ilyas M, Kundi JA, Khan S, Amin S, Shah T. Causes and Patterns of Tooth Extraction among the Patients Attending a Dental Hospital in Peshawar, Pakistan. JGMDS 2016;3(01):11-15

17 Rukh Sl, Shah Sn, Gul R. Causes And Pattern Of Permanent Tooth Extraction With Frequency And Type Of Replacement. Pak Oral Dent J 2017;37(1).

18 Khan MM, Rehman S, Khan S, Iqbal S, Aziz A, Bukhari G. Frequency And Potential Reasons For Exodontia Among Patients Reporting To Dentistry Department Lady Reading Hospital, Peshawar. Kjms 2017;10(3):328

19 Bani M, Akal N, Bodur H, Odabaş ME, Tüzüner T, Delilbaşı AE, Özdoğan YT. The reasons for extractions of primary teeth in Turkish children. Eur J Paediatr Dent 2015;16(3):187-90.

20 Murray H, Clarke M, Locker D, Kay EJ. Reasons for tooth extractions in dental practices in Ontario, Canada according to tooth type. Int Dent J 1997;47(1):3-8.

21 Murshid SA, Al-Labani MA, Aldhorae KA, Rodis OM. Prevalence of prematurely lost primary teeth in 5–10-year-old children in Thamar city, Yemen: A cross-sectional study. J Int Soc Prev Community Dent 2016;6(Suppl 2):S126.

22 Al-Shammari KF, Al-Ansari JM, Al-Melh MA, Al-Khabbaz AK. Reasons for tooth extraction in Kuwait. Medical principles and practice 2006;15(6):417-22.

23 Mohammed AG. Causes of Primary and Permanent Teeth Extraction in Children Aged 3–12 Years in Mosul City. Al-Rafidain Dent J 2008;8(2):238-45.

24 Al-Assadi AH. Patterns and Causes of Teeth Extraction among Children Attending Baghdad Dental Teaching Hospital. Int J Med Sci 2018;7(5):88-95.

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3 Syed Imran Gillani:	Conclusion, Final Review.
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