

Presentation Pattern for Common Oro-Dental Disease Trend among Children Attending a Selected Pediatric Hospital: A Cross Sectional Study

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ABSTRACT

Objective: To determine the pattern of common oro-dental presentation among children attending a selected pediatric hospital.

Material and Methods: A cross-sectional hospital-based review of pediatric patients attending dental OPD in a pediatric hospital for a period of eight months from March to October 2019.

Results: The study included a total of 301 patients. Patients majority (46.8%) were aged 6-12 years. Most common disease was dental caries (85%), followed by gingivitis (64.8%), mouth ulcer (39.5%), malocclusion (26.9%), dento-alveolar abscess (18.6%) and traumatic injury (12%). Other relatively less common oral problems were Retained deciduous tooth (15%), non-carious like attrition & erosion (6.3%). Supernumerary & mesiodens (4.7%), Birth tooth (2%) and Cleft lip & palate (1.7%) respectively.

Conclusion: Dental caries was the disorder that was the most common and mostly were 6-12 year of age. Programs on creating public awareness on the importance of oral health and Oro-Dental diseases are recommended.

KEY WORDS

Oro-Dental diseases, Pediatric patient, Pediatric hospital

INTRODUCTION

Oral health is important to safety and well-being in general. A healthy mouth allows a person to speak, eat, and socialize without an active illness, pain, or embarrassment¹⁾. Bangladesh is a developing country with little oral health knowledge and practice among the population of Bangladesh. 60-90% of school children worldwide and almost 100% of adults have dental cavities, frequently contributing to pain and discomfort. Pediatric dental presentation patterns include, among others, dental caries, periodontal diseases, traumatic injuries, eruption anomalies.

Oral diseases like dental caries, periodontal diseases, tooth loss and oral cancer have emerged as a major public health concern in the WHO area of South East Asia (SEA) Member States. Dental caries and periodontal disease are the two most common oral diseases and often start in childhood²⁾.

Early childhood caries (ECC) are a major public health problem which affects not only the oral health of babies and young children but also their overall health, quality of life and well-being. Although there are several risk factors identified in dental literature, these can be divided into four main types: socioeconomic, nutritional, microbiological & behavioral³⁾.

According to research report in developed countries the incidence of dental caries is decreasing, whereas in developing countries there is an increase. To strengthen the perceptions of dental health among children and young people, dental care has been systematically coordinated. Pediatric dentistry is somehow one of the ignored parts of our day to day dental practice due to the lack of awareness, ignorance of the parents and sometimes child's fear to dental chair⁴⁾.

Review of the literature shows that the dental disease research report among children is minimal in comparison to adult in Bangladesh. This research aims to examine the pattern of typical oral health presentation among children divided into deciduous, mixed and early permanent dentition visiting the pediatric hospital within an 8-month period of time.

METHODOLOGY

Study area

This study focused on the pattern of common oral health presentation among children (up to 15 year) attending the Dental OPD of Dr. M R Khan Shishu Hospital and Institute of Child Health which has been selected purposively as a study area. It is a 300 bedded hospital and the second largest pediatric hospital in Bangladesh.

Study Period: It was an 8 Month study from February to September 2019.

Study Design: The study used descriptive cross-sectional study to collect quantitative information using Semi Structured Questionnaire.

Sampling technique: Systematic sampling technique. Every alternate patient attending the dental OPD was included in this study.

Selection Criteria:

- Inclusion Criteria: Children with Oro-dental diseases aged up to 15 years attending the OPD of the Selected hospital.
- Exclusion Criteria: 1. Seriously sick patient. 2. Mentally retarded.

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Table 1: The pattern of disease seen among the child patients attending the dental OPD according to sex.

Common diseases	Total				
	Male		Sex		
	N	%	n	%	
Dental Caries	140	54.68	116	45.31	256 (85%)
Gingivitis	103	52.55	92	47.17	195 (64.8%)
Mouth ulcer	71	59.66	48	40.33	119 (39.5%)
Malocclusion	37	45.67	43	54.32	80 (26.9%)
Dento-alveolar abscess	30	53.57	26	46.42	56 (18.6%)
Traumatic injury	23	63.88	13	36.11	36 (12%)
Retained deciduous	21	46.66	24	53.33	45 (15%)
Supernumerary & mesiodens	10	71.42	4	28.57	14 (4.7%)
Cleft lip & palate	1	20	4	80	5 (1.7%)
Non-carious (attrition, erosion)	10	52.63	9	47.36	19 (6.3%)
Birth tooth	2	33.33	4	66.67	6 (2%)

date patient.

Data collection method

Data were collected using semi structured questionnaire by face to face interview of the parents and respondents (in some cases). At first questionnaire was Developed in English then Translated into Bengali. After that finalization of the questionnaire was done by pre-Testing and then data collection started with the final version of the Questionnaire.

Clinical Examination of the respondents was conducted in a dental chair in supine position with adequate light and instrument. WHO criterion was used for evaluation of dentition status. The examination proceeded in an orderly manner from one tooth or space to the adjacent tooth or tooth space.

ICDAS score used to find out caries index, gingival index (GI) created by Loe and Silness was used to monitor gingivitis. To estimate malocclusion anterior posterior relationship, overjet, overbite, cross bite, crowding, spacing have examined. Traumatic injury identified by fracture, avulsion, extrusion, intrusion and soft tissue injury and also using OPG (orthopantomogram). Findings of clinical examination were recorded in a developed format.

Ethical consideration

The research proposal was submitted to the Research Ethics Committee of Faculty of Allied Health Sciences of Daffodil International University for approval. Verbal informed consent was taken from one of the parents. In addition, assent was taken from the children where applicable before data collection. Administrative approval was taken from the proper authority of hospital. Confidentiality of data was strictly maintained.

RESULT

A total of 301 patients was taken for study attended the dental OPD during the time period. Among the study participants 55.5% were male and 45.5% were female. Majority (25.3%) of patients were in the age group of 6-12 years. 96% were dentulous whereas only 11% were edentulous. Deciduous, Mixed and Early permanent dentition were 31.9%, 46.8% and 17.6% respectively.

Patients suffered most often by dental caries (85%), followed by gingivitis (64.8%), mouth ulcer (39.5%), malocclusion (26.9%), dento-alveolar abscess (18.6%) and traumatic injury (12%). Other relatively less common oral problems among pediatric patient were Retained

Table 2: Distribution of the respondent according to Age.

Name of the diseases	Age group (in years)				Total
	< 1 (11%)	1-6 (31.9%)	6-12 (46.8%)	> 12 (17.6%)	
Dental caries	0(0)	87(33.98)	126(49.23)	43(16.79)	256
Gingivitis	0(0)	66(33.84)	102(52.3)	27(13.84)	195
Mouth Ulcer	0(0)	26(21.84)	59(49.57)	34(28.57)	119
Malocclusion	0(0)	5(6.17)	41(50.61)	35(43.2)	81
Dento-alveolar abscess	0(0)	32(57.14)	24(42.85)	0(0)	56
Traumatic injury	0(0)	18(50)	10(27.77)	8(22.22)	36
Retained deciduous	0(0)	5(11.11)	39(86.66)	1(2.22)	45
Supernumerary & mesiodens	0(0)	2(14.28)	8(57.14)	4(28.57)	14
Cleft lip & palate	5(100)	0(0)	0(0)	0(0)	5
Non-carious (Abrasion, erosion)	0(0)	5(26.31)	2(10.52)	12(63.15)	19
Birth tooth	6(100)	0(0)	0(0)	0(0)	6

deciduous tooth (15%), non-carious like abrasion, erosion (6.3%), Supernumerary & mesiodens (4.7%), Birth tooth (2%), Cleft lip & palate (1.7%) respectively. Distribution of dental diseases according to sex shows that a greater number of male patient were suffering from dental caries (54.68%), gingivitis (52.55%), mouth ulcer (59.66%), dento-alveolar abscess (53.57%), abrasion (52.63%), supernumerary tooth (71.42%) in comparison to that of females. The problem of malocclusion (54.32%) and retained deciduous tooth (53.33%) more commonly observed in females (**Table 1**).

Table 2 represents Mostly (46.8%) the patients belonged to 6-12 years of age group, followed by 1-6 years (31.9%) and >12 years (17.6%) while minimum (11%) number of patients belongs to <1 year of age. Dental Caries (49.23%), gingivitis (52.3%), mouth ulcer (49.57%), malocclusion (50.61%) and retained deciduous (86.66%) were seen most commonly among 6-12 years age group. Dento-alveolar abscess, traumatic injury, non-carious lesion which is (57.14%), (50%), (26.31%) respectively are more occurred in 1-6 year of age in comparison to 6-12 year. Birth tooth and cleft lip-palate seen in below 1 year.

Table 3 indicates the behavioral risk factor associated with the problem includes lifestyle, dietary habit and oral hygiene. Chocolate, sweet, fast food, soft drinks are included in the everyday eating routine. Majority are chocolate friendly (74.4%). Soft drinks, fast food and sweet consumption are respectively (69.1%), (65.8%) and (56%). 59.5% child brushes their tooth once daily whereas 27.2% twice, among them 44.9% brushes at morning time, 14.6% at night and 27.6% brushes both at morning and night but 9.3% do not brushes their teeth daily. Most of the patient (92.3%) use toothpaste where only 3.9% toothpowder as a brushing material.

Table 4 shows only 15% child have regular yearly check-up among those 9.6% visited several times to the dental OPD. 48.8% came 1st time, 28.9% 2nd time and 9% were 3rd time visited during the study period. 56.8% patient feel fear to dental chair mostly (42.2%) were afraid of injection.

Figure 1 represents involvement of traumatic injury in the study where crown fracture found mostly 7.3% in comparison to luxation, intrusion and cut injury. In **figure 2**, crowding (14%) is most common findings in malocclusion in contrast with spacing, edge to edge bite, openbite, overbite and anterior crossbite. **Figure 3** represent the reason visit to dental chair.

DISCUSSION

The need for dental care has increased among middle-aged and older adults rather than children. It should be noted that dental caries has not declined for lower-income groups of children, other minorities and immigrants. For developing countries, it is higher than in developed

Table 3: Distribution according to lifestyle, dietary habit and oral hygiene maintenance.

Dietary Habit	n	%
Fond of Chocolate	224	74.4
Sweet Intake	169	56
Soft drink intake	208	69.1
Fond of fast food	198	65.8
Bottle Feeding		
no	232	77.1
yes	59	19.6
Frequency of tooth brushing		
Single time	179	59.5
Two time	82	27.2
Time of brushing		
Morning	135	44.9
Night	44	14.6
Both	83	27.6
No brushing	28	9.3
Material used in brushing		
Toothpaste	271	92.3
Toothpowder	20	3.9

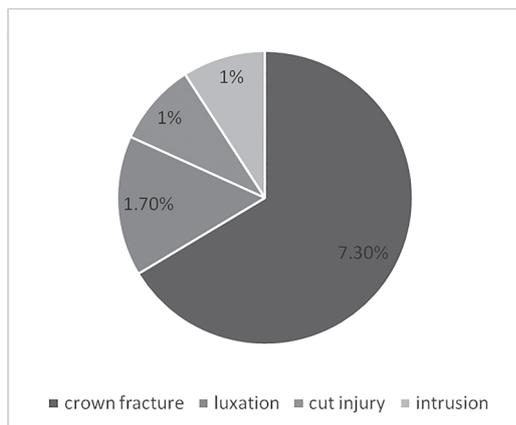


Figure 1: Effect of traumatic injury in the study

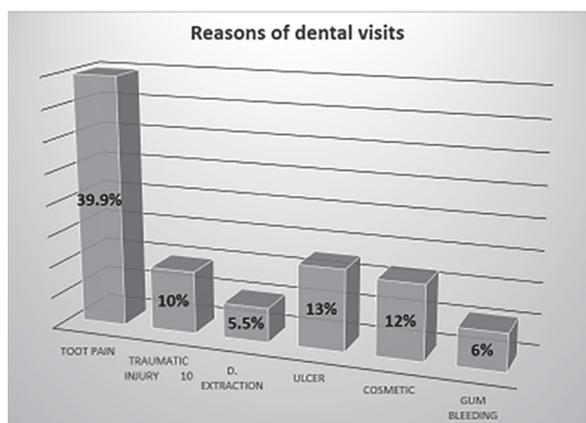


Figure 3: Represent the reason visit to dental chair.

Table 4: Distribution of the Respondents by Oral Screening & child fear of dental chair.

Regular check up	Frequency	Percent
no	255	84.7
yes	45	15
Number of visits to dentist		
1st	147	48.8
2nd	87	28.9
3rd	27	9
4th	11	3.7
Several	29	9.6
Feel Fear in dental Chair		
yes	171	56.8
no	122	40.5
Reason of Fear		
Injection	127	42.2
Fear of pain	41	13.6
Sight of blood	2	.7
Sound of drill	1	.3

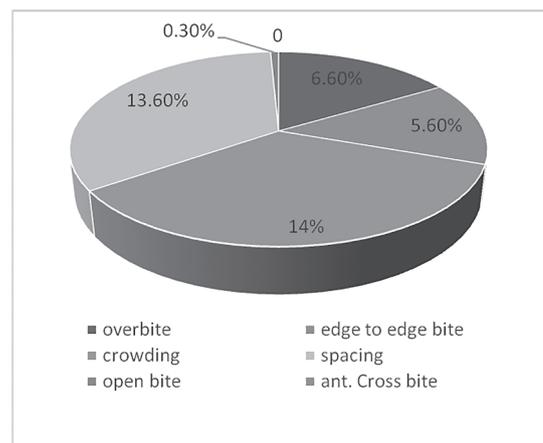


Figure 2: Malocclusion monitoring

countries because of deprivation, minority status. Several obstacles, such as low dental workforce, financial costs and lack of awareness, other factors may include anxiety, lack of parental knowledge, low family income, lack of facilities and services, misunderstanding of analphabetsism care³⁾.

The study revealed that Dental caries was 85% mostly among boys (54.68%) than girls (49.23%) followed by gingivitis (64.8%) also similar to dental caries in their gender analysis. Malocclusion (26.9%) which is higher among girls (54.32%) than Boys (45.67%), dento-alveolar abscess 18.6%, traumatic injury 12%, retained deciduous is 15.0%, and Supernumerary tooth 4.7.0% and in every case, boy are highest in number.

Khanal *et al.* also reported similar findings in Dental caries according to number and gender interpretation but found more in 1-6y children than our observed 6-12y old. dento alveolar abscess also very close to us in number, sex and age distribution. But the frequency of malocclusion is smaller than us and also reported 0.5% children for routine dental visit⁶⁾. Less dentoalveolar abscess and traumatic injury than us and dental routine check-up 7.8%. But our results showed a high prevalence of caries compared to the results published by Garkoti *et al.*²⁾

In our research, there are less retained deciduous noticed. The prevalence of fractured tooth observed in this study was 16.8%, and higher in male (65.5%) than in female (34.5%). Gingivitis is the most common problem in Bangladeshi citizens. Dental caries was the second most dental problem especially among adult where both dental caries (42.4%) and gingivitis (48.4%) were minimal to our study. In contrast with Jose *et al* who observed just 15% gingivitis with a higher prevalence in

women (56%) than in men (44%). Sutcliff Survey indicates even a high prevalence of females⁷.

74.4% patient consume chocolate, 69.1% take soft drink and 65.8% have fast food in their daily meal. Only 15% are included in regular check up where 39.9% are due to complaint with tooth pain. 27.2% kids brush twice daily where 59.5% are single time. 9.3% do not brush their tooth. Toothpaste and toothbrush are used by 92.3% child. 56.8% child feel fear to dental chair where mostly (42.2%) are afraid of injection.

Study described 32.4% children visited to a dentist due to pain which is less compared to our study, but other study found 58.9% that is much more than us⁸. 7.9% are afraid of injection which is contrary to our research, but one survey of low and high socio-economic status of Pakistani children is 47% and 26.5% respectively^{8,9}. Our study reported 74.4% patient consume chocolate, 69.1% take soft drink. As dental caries have not declined in lower income groups and developing countries, more study needed to prevent the obstacles regarding the child dentistry.

CONCLUSION

Dental caries was the disorder that was the most common and mostly were 6-12 year of age. Programs on creating public awareness on the importance of oral health and Oro-Dental diseases are recommended. A multi-centric study with larger sample may be conducted in the areas of pattern of Oro-Dental diseases among children and their dietary habit and oral hygiene.

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REFERENCES

1. Priya M, Devdas K, Amaral D, Venkatachalapathy A. Oral health attitudes, knowledge and practice among school children in Chennai, India. *J Education Ethics Dent*. 2013; 3(1): 26.
2. Garkoti PD, Singh RK, Rawat V, Bartwal J, Goyal N. Pattern of dental diseases among patients attending outpatient department of dental: a hospital based cross-sectional study. *National J Med Res*. 2015; 5(2): 112-5.
3. Baghdadi ZD. Early childhood caries and Indigenous children in Canada: Prevalence, risk factors, and prevention strategies. *J Int Oral Health*. 2016 Jul 1; 8(7): 830.
4. Hatipoğlu Z, Akşit-Bıçak D. Maternal anxiety, social status, and dental caries formation in children: a cross-sectional study. *J Int Med Res*. 2019; 47(12): 6206-14.
5. Douglass CW, Sheets CG. Patients' expectations for oral health care in the 21st century. *JADA*. 2000; 131: 3S-7S.
6. Khanal S, Acharya J, Gautam S, Malla M. Pattern of Distribution of Oral Diseases among Children in Jorpati, Kathmandu. *J Nepal Dent Assoc*. 2013; 13: 33-9.
7. Jose A, Joseph MR. Prevalence of dental health problems among school going children in rural Kerala. *J Indian Soc Pedo Prev Dent*. 2003; 21(4): 147-51.
8. Shah PM, Jeevanandan G. Prevalence of common dental diseases in 6-15-year-old children visiting Saveetha Dental College and Hospitals. *Drug Invention Today*. 2018 Sep 2; 10.
9. Mirza BA, Syed A, Izhar F, Khan AA. Oral health attitudes, knowledge, and behavior amongst high and low socioeconomic school going children in lahore, Pakistan. *Pakistan Oral Dent J*. 2011; 31(2): 396-401.