



Prevalence of Oral Health Problems among Children In Chengalpattu – A Retrospective Study

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Abstract

Aim: The purpose of this study was to evaluate the magnitude and distribution of common oral health problems in children attending the Department of Dental Surgery – Chengalpattu Medical college (CMC), Chengalpattu district, Tamil nadu.

Method: This is a retrospective study of data from the registry of Department of Dental Surgery, CMC, from January 2018 to August 2019. The study included all Pediatric patients recorded in the registry during the study period.

Results: The result showed a male to female ratio of 1: 0.96. The commonest reason for presentation was Dental Caries (68 %), followed by Gingival diseases (20.7%), Retained deciduous tooth (19.2%), Traumatic dental injury (6.4%), Malocclusion (5.9%), Regular dental checkup (4.8%), Developmental defects of Enamel (3.3%), Mucocele (1.4%), Oral habits (0.9%), Natal & neonatal tooth (0.9%), Oro-facial clefts (0.7%), Ectodermal Dysplasia (0.2%) & Others (0.2%).

Conclusion: From the present study it was concluded that the dental caries remains the most common oral health problem in children visiting CMC from Chengalpattu district

Keywords: Oral health problems, Dental caries, Pediatric patients

Introduction

Oral and dental ailments are the most prevalent non-communicable diseases (NCDs) and affect people all through their lifetime, and result in pain, discomfort, disfigurement and even death. The Global Burden of Disease Study 2016 estimated that oral diseases affected half of the world's population (3.58 billion people).¹ The unique characteristic of dental diseases is that they are universally prevalent and do not

undergo remission or termination if untreated and require technically demanding expertise and time consuming professional treatment. According to G. Dale deciduous teeth serve as a foundation for the permanent dentition but if retained beyond the time of exfoliation, they are investigated cause of delaying eruption of permanent teeth and thus effectuating malocclusion and other orthodontic problems, which

will then need expensive corrective measures.² Dental caries and periodontal diseases are the most common oral diseases showing striking geographic variations, socio-economic patterns and severity of distribution all over the world.³ Many studies has been conducted in different parts of the world.⁴⁻⁷ The review of literature indicates that there is a great deficiency in baseline data concerning the oral health of Indian children.

A large number of studies establish the fact that underdeveloped nations had dental infectious diseases such as dental caries as the foremost cause for dental visit in children contrary to, the developed nations where it was congenital diseases and orodental traumatic injuries.⁸⁻¹⁰ Developmental disorders in Asians are reported to be very high in comparison to others,⁸ Especially in India and Pakistan, the ratio of consanguineous marriages are very high causing a lot of genetic disorders to pass from one generation to the other. Although global improvement in oral health was attributed to oral health research, not much study was found focusing solely on pediatric oral health.

There is paucity of information regarding the frequency and prevalence of oral diseases in many parts of India. Oral and dental problems in adults are affiliated with absenteeism from work and the undocumented effects on the level of performance of children in class are now recognized as problems of public health and socioeconomic concern. This article assessed the magnitude and distribution of selective oral health conditions affecting children attending Department of Dental surgery – CMC, Tamilnadu.

Materials And Methods

A retrospective analysis was done on the case records of patients treated in Department of Dental surgery – CMC from January 01, 2018 to August 31,2019.

A total of 2560 patient's records were analyzed for oral diseases in the study period retrospectively. The data was collected by trained personnel's and the privacy of the patient's data was maintained by the investigators. All the diagnosis entered was recorded and when multiple problems were recorded in the same patient each was recorded separately, as it was well known that many of these conditions co-exist. Data were collected and spread on excel sheet and subjected to statistical analysis.

Results

As per the record a total of 2560 pediatric patients between the ages of day one to 13 years were analyzed of which,1306 male and 1254 female children in the ratio 1:0.96 made up the study population.

Out of 2560 children 1741(68%) showed evidence of dental caries, 530(20.7%) showed evidence of gingival diseases, 491(19.2%) showed evidence of retained deciduous teeth, 163(6.4%) showed evidence of traumatic dental injuries, 152(5.9%) showed evidence of malocclusion followed by other reasons like regular dental checkup 122(4.8%), Developmental defects of Enamel 84(3.3%), Mucocele 37(1.4%), Oral habits 23 (0.9%), Natal & Neonatal tooth 22(0.9%), Oro-facial Clefts 18 (0.7%), Ectodermal Dysplasia 5 (0.2%) & Others 6 (0.2%). It was observed that dental caries was the most prevalent condition affecting the children. This was followed by gingival diseases, retained deciduous tooth, traumatic injury to tooth, Malocclusion, Regular dental checkup (No apparent oral health Problem), Developmental defects of Enamel, Mucocele, Oral habits, Natal & neonatal tooth, Oro-facial clefts, Ectodermal Dysplasia & Others.

Discussion

Globally, the incidence of oral diseases differs depending upon the genetic makeup, social habits, socio economic status of the country and the quality of health care provided at the lowest level. The Chengalpattu Government Medical College Hospital is the only governmental tertiary health care centre in this district and serves as the referral unit for several secondary care centres and Primary Health Centres (PHC's) in the area. Data was collected from January 01, 2018 to august 31, 2019. Around 13 categories based on diagnose entered in the register were made including congenital anomalies as the objective was to document the burden of oral diseases. The male to female ratio was 1:0.96 (1306 males and 1254 females), Comparing it to the stats of systemic analysis done by W. Marcenes⁸ in 2010 in an effort to find out the global burden of diseases, the ratio was 1.07 derived from 7805 males and 7265 females, which is almost similar to the ratio of our study (1.04).

One of the principal cause of oral ailment among school age children is dental caries. WHO reported 60-90% of school children worldwide have experienced caries with the disease being most prevalent in Asian and Latin American countries.¹¹ Dental Caries is the commonest dental problem encountered and the prevalence observed in this study was 68%. Both males (53%) and females (47%) were almost equally affected by caries with slightly higher prevalence among males and within gender the prevalence was 70.7% in males and 65.2% in females. These results were similar to studies reported by Misra and Shee¹² (60.41%) and Chopra et al.¹³ (61.88%). However, a cross-sectional study conducted in Bundelkhand region, India¹⁴ reported a much higher prevalence of dental caries (82.62%) in a 3–14 years old group as compared to the present study. The overall prevalence of dental caries was found to be lower in comparison to the studies reported by Rao et al. who reported prevalence of 76.9%, among 5-12 year olds,¹⁵ Shingare et al. who reported prevalence of 80.92% among 3-14 year olds.¹⁶ Sudha P et al. reported prevalence of 82.5% in Mangalore city¹⁷ and Damle et al. reported prevalence of 79.48% in Dharavi Mumbai.¹⁸

In the present study the boys showed slightly higher prevalence as compared to girls. This is similar to the findings by Mahesh P et al,¹⁹ Rao et al,¹⁵ Sarvanan et al,²⁰ Sudha P et al,¹⁷ and Auckland & Bgel Karoey et al.²¹ On the contrary, girls were found to have higher caries prevalence by Misra and Shee,¹² Gaikwad and Indurkar²² and Singh & Saimbi et al.²³ This variation could be attributed to the difference in age groups and the geographical locations studied.

Children are affected by countless gingival diseases which may progress to endanger the periodontium of the adult. The results of this research showed that the overall prevalence of gingival diseases was about 20.7%. The prevalence of gingivitis was more in females (59.4%) than in males (40.6%) and within gender the prevalence was 25.1% in females and 16.5% in males. These results contrary to the results of Kelly and Sanchez study,²⁴ Marshal and Magnusson study²⁵ which showed that the prevalence of gingivitis was more in boys and this difference could be due to social and eternal differences.

A retained deciduous tooth is a tooth that is retained beyond the time of normal exfoliation. The

prevalence observed in this study was 19.2%, with a distribution of 48.1% in females and 51.9% in male and within gender the prevalence was 18.8% in females and 19.5% in males, which is almost similar to the results of the study done by Ghazal Iraqi et al,²⁶ who reported prevalence of 15.2%.

Traumatic Dental Injury range from minor fractures of the enamel to major damage involving the displacement or avulsion of teeth. The prevalence of traumatic injuries to the teeth was found to be 6.4%. A lower prevalence of the traumatic injuries was observed in the present study as compared with other studies (10-35%).²⁷⁻³¹ Males accounted for 65.6% , whereas females accounted for 34.4% of affected children in the present study. Within gender the prevalence was 8.2% in male and 4.5% in female. Overall, males experienced more traumatic injuries than the females with a male to female ratio of 1.9:1. The general agreement in the literature about male predominance of dental trauma has been reported in majority of the previous studies,^{27,32-34} which were consistent with our findings. This might be related to the tendency of boys being more energetic and choosing more active and vigorous outdoor games with higher trauma risk than girls.

Malocclusion is a misalignment or incorrect relation between the teeth of both the dental arches when they approach each other as the jaws close. The results showed a 5.9% prevalence of malocclusion in children, with distribution of 52.6% females and 47.4% males. Within gender the prevalence was 6.4% in females and 5.5% in males. The prevalence was very low in compared to the study conducted by Prasad A Rajendra and Savadi S³⁶ who conducted an epidemiological study of malocclusion in the age group of 5-15 years in Bangalore city in 1971, that reported a high incidence of malocclusion of 85.7% and Nagaraja Rao (1980)³⁷ who found only 28.8% prevalence of malocclusion in school children of Udipi, Karnataka.

About 4.8% of the study population visited the department with no apparent oral health problems, came for regular dental checkup. Regarding gender variations, females (5.9%) and males (3.7%) came for dental check-up, comparatively females 60.7% reported in higher numbers than males 39.3% which showed girls have more interest in their oral health, and they perceived their own oral health to be good

to a higher degree than boys did. According to the guidelines prescribed by National Institute of Health and Care Excellence (NICE), UK, the longest interval between oral health examinations for patients under the age of 18 years should be 12 months. Children under routine dental check ups exhibit improved clinical oral health, demonstrated by low caries experience and fewer tooth loss due to caries.³⁸

Both the dentitions, the primary as well as the permanent are notably affected by developmental defects of enamel which have a severe impact on the oral health and aesthetics. Overall study shows the prevalence of 3.3% (females 60.7% & and males 39.3%), within gender females (5.9%) showed a higher prevalence than males (3.7%). A far-ranging variation appear in enamel defect prevalence (2.4–40.2 %).³⁹ However, because of the use of different indices and criteria, examination variability, methods of recording and different age groups cross comparison of the results of the various studies were arduous.

A mucocele is a benign, common, mucus-containing cystic lesion of the minor salivary glands in the oral cavity.⁴⁰ Of the 37(1.4%) patients, 20 (54.1%) were boys and 17 (45.9%) were girls. Within gender the prevalence was 1.5% in males and 1.4% in females. In the present study boys to girl's ratio was 1:0.85. Boys showed a slightly higher prevalence as compared to girls. This is in Contrary to the study done by W.K. Kopp et al.⁴¹ and M.M. Nico et al⁴² that reported boys to girls ratio of 1:1.1 in United Kingdom and 1:2.6 in Brazil respectively.

Oral habits, especially if they persist beyond the preschool age, have been implicated as an important environmental etiological factor associated with the development of malocclusion.⁴³ The prevalence of oral habits in the present study was 0.9%. Within gender the prevalence was more common in girls 1.3% (69.6%) compared to boys 0.5% (30.4%). This prevalence rate is lower than that reported by Garde et al.,⁴⁴ who reported 51% prevalence rate in 6–12-year-old children. Motta et al. reported that, among preschoolers, 87.4% had oral habits.⁴⁵ The lower prevalence rate of oral habits found in the present study may be due to the fact that it was a hospital-based study and does not represent the general population.

Natal teeth are teeth present at birth and neonatal teeth are teeth erupted within the first month of life.⁴⁶ The reported incidences vary greatly, from those of Mayhall at 1:11 and Gordon at 1:100 through those of Massler and Savara, Gardiner, Spouge, all at 1:2000; down to those of Ballantyne at 1 in 6000 births, and Howkins at 1:10,000.⁴⁶⁻⁴⁹ In the present study the prevalence was 0.9% and within gender females 1.1% (63.6%) showed a greater prevalence than males 0.6% (36.4%). In other studies, the reported prevalence is 1:700 to 1:30,000 depending on the type of the study; the highest prevalence is found in the only study that relies on personal examination of patients.⁵⁰

Oro-facial clefts, particularly cleft lip with or without cleft palate and cleft palate alone are a major public health problem affecting 1 in every 500 to 1000 births worldwide.^{51,52} Globally, the prevalence rate of Oro-facial clefts was suggested to be 1.5/1000 live births, while in the present study the prevalence was 0.7% and within gender the prevalence was 0.5% in female (33.3%) and 0.9% in male (66.7%). The difference is probably due to the estimates. The present study estimates the number of people living with Oro-facial clefts while the earlier reports concern live births.

Ectodermal dysplasias comprise of a large heterogeneous group of inherited disorders that are diffuse and nonprogressive and are characterized by primary defect in ectodermal structures. These tissues include the skin, hair, nails, eccrine glands and teeth.⁵³ The prevalence in the population has been assessed as between 1:10,000 and 1:100,000 male live births.⁵⁴ In the present study the prevalence was 0.2% occurred predominately in male (100%).

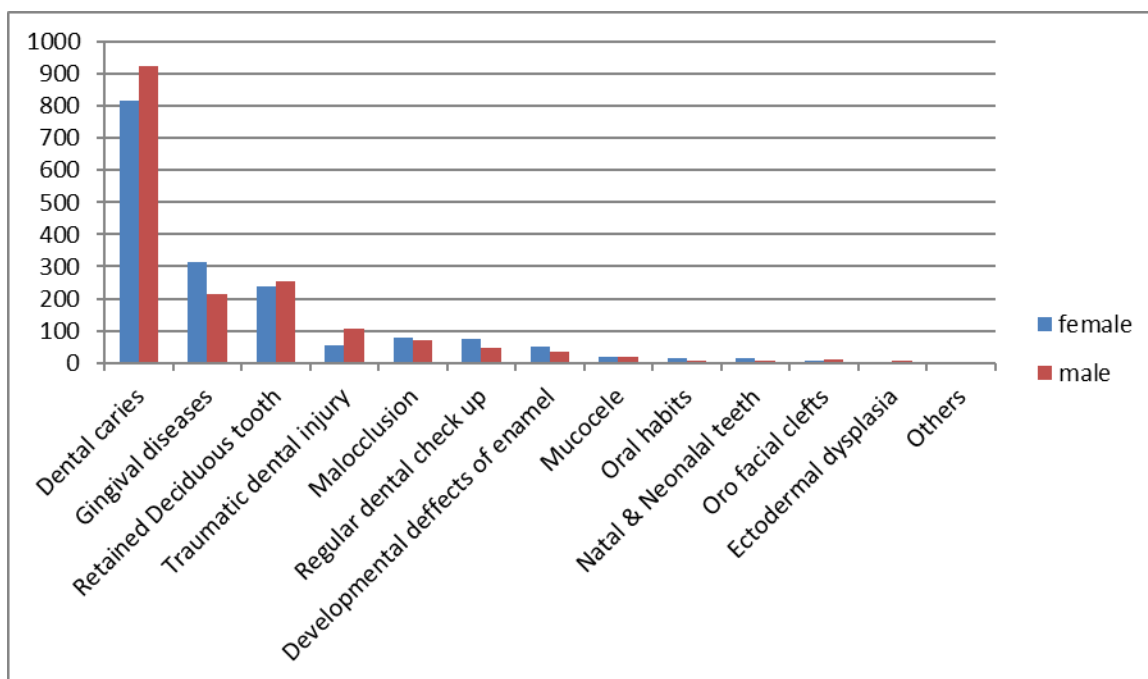
A prevalence of 0.2% was found in the criteria of "others", includes diseases or conditions, which cannot be included in any of the above criteria eg. Non specific ulcers, incomplete tongue tie, self-correcting anomalies, developmental anomaly affecting the tooth such as germination, fusion etc.

Conclusion

On the basis of the findings, it was concluded that a high proportion of oral health problem found in the children visited Department of Dental surgery was dental caries. The prevalence of gingival diseases, congenital and developmental defects was also high.

This study highlights the state of Oral Health in the pediatric population of Chengalpattu district. The impact that poor oral conditions have on individuals and communities as a result of the pain, suffering as well as the impairment of function and reduced quality of life they cause is considerable. It must be remembered that regular dental check ups, effective management of dental diseases and following good

oral hygiene methods can lead to strong teeth, which eventually can improve the overall wellbeing of an individual. This calls for an immediate need to increase awareness about Oral health problems. Education programs could be included in the school curriculum for the children to emphasize and inculcate a positive attitude toward oral health.



Graph 1 : Sex wise distribution of different oral health conditions.

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