

Original Research

Prevalence of periodontal disease among school going children

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ABSTRACT:

Background: This initiative is a consequence of the absence of recent information since studies being conducted much before in the past on the prevalence of gingivitis and periodontitis among schools children. **Aims and Objectives:** To assess the prevalence of gingivitis and periodontitis among schools children and evaluating the pattern of these diseases in different age groups among them. **Subjects & Methods:** A total of 565 school going children were examined, 210 children were in 8-10 years age group and 176 & 179 children were in the age group of 11 -14 years & 15-17 years, respectively. The gingival index, given by Loe & Silness was used for recording the severity of gingivitis and periodontal disease index, given by Ramfjord was used for evaluating periodontitis. **Result:** The prevalence of gingivitis and periodontitis were 62.3% and 20.21%, respectively. **Conclusion:** The younger age group children had comparatively lesser percentage of gingivitis and periodontitis than older age group children.

Keywords: Gingivitis, periodontitis, prevalence.

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INTRODUCTION

Periodontal diseases are one of the most prevalent oral diseases which get its roots early in childhood [1, 2]. Periodontal diseases including gingivitis and periodontitis are serious infection that if left untreated can lead to tooth loss. Chronic gingivitis, a nonspecific inflammatory reaction to dental biofilm bacterial challenge, is the most common oral health problem worldwide in both adults and children [3]. Gingivitis is reversible with professional treatment and good oral home care, whereas periodontitis is characterized by irreversible loss of periodontal attachment [4]. Untreated gingivitis can advance to periodontitis. Hence if gingivitis and periodontitis are assessed in an early stage it will minimize the chance of tooth loss. Periodontitis is common in adults, but is still seen in children either as a rare but severely destructive form called aggressive periodontitis or a more common milder form called chronic periodontitis [5]. Periodontitis represents a range of clinical manifestations from mild subclinical inflammation to advanced destructive forms, leading to tooth loss. Diagnosis is based mainly on clinical

assessment of surrogate markers such as probing pocket depth (PD) and clinical attachment level (CAL) and radiographic evidence of alveolar bone loss. Several factors influence the estimation of periodontitis prevalence including examination protocol (full mouth/partial mouth), age group, source population, and case definitions [6]. The WHO advocates the use of Community Periodontal Index (CPI) for disease estimation. At present, a modified CPI criteria is suggested which includes examination and reporting of all teeth for gingival bleeding and periodontal pockets and six index teeth for loss of attachment (LoA) and does not consider the presence of calculus [7]. Therefore, early intervention to improve oral hygiene and reduce gingivitis is probably an important approach to prevent periodontitis in children, as in the case with adults. Oral hygiene practices are those employed personally or professionally to prevent the establishment of pathogenic flora and their products that cause diseases in the oral cavity. The ultimate objective is to prevent disease initiation, progression, or recurrence [8]. Tooth brushing and other behaviours that comprise

young people's lifestyles may directly or indirectly impinge on their health in the short or long term. Most of behavioral patterns were established in early childhood. Oral health behaviour may constitute an integral part of an individual's lifestyle. It is essential to develop an effective education programs for oral health and practice targeted at young people.

The aim of the present study was to assess the prevalence of periodontal disease among school going children.

MATERIAL & METHODOLOGY

This study was cross-sectional in nature and carried out over a period of 6 months between the months of March 2021 & September 2021. A sample size of 565 school going children from 5 schools was examined. These schools were randomly selected. Written permission was obtained from school authorities. Only children who were available on day of examination were included in the study. Children were examined in their respective school on pre-decided dates. For dental examination and data recording, informed consent was obtained from the parents and verbal consent from the students. The examinations were carried out in broad day-light. Children were seated on ordinary chair in upright position. Intraoral examinations were made using mouth mirror and UNC-15 probe. Instruments were disinfected with an antiseptic solution after every use and antiseptic solutions were change frequently between the examinations.

The gingival index, given by Loe and Silness [9] was used for recording the severity of gingivitis and periodontal disease index, given by Ramfjord [10] was used for evaluating periodontitis. Gingival index, given by Loe and Silness measures severity of gingivitis on a scale ranging from 0.1 to 3.0 (0.1-1.0: mild gingivitis, 1.1- 2.0: moderate gingivitis, and 2.1-3.0: severe gingivitis).

The component of periodontal disease index, given by Ramfjord [10] measures severity of periodontitis on a

scale ranging from 4 to 6 (4: gingival crevicular depth from CEJ is up to 3 mm, 5: gingival crevicular depth from CEJ is 3-6 mm, and 6: gingival crevicular depth from CEJ is more than 6 mm).

Among 565 children, 210 were in the age group of 8-10 years, 176 were in the age group of 11-14 years and 179 were in the age group of 15-17 years.

RESULTS

A total of 565 school going children were examined in this study, out of them 210 children belong to age group 8-10 years and 176 & 179 children to the age group 11-14 years and 15-17 years, respectively [Table 1]. The overall prevalence of gingivitis [Table 2] was 62.3% (mild gingivitis: 78.4%, moderate gingivitis: 17.04% and severe gingivitis: 4.5%). In 8-10 years old, gingivitis prevalence was 65.7% (mild gingivitis: 75.36%, moderate gingivitis: 20.28% and severe gingivitis: 4.3%). In 10-14 years old, gingivitis prevalence was 61.9% (mild gingivitis: 85.32%, moderate gingivitis: 11.9% & severe gingivitis: 2.8%). In 15-17 years old, gingivitis prevalence was 60.9% (mild gingivitis: 75.23%, moderate gingivitis: 18.1% and severe gingivitis: 6.7%). The average healthy gingiva was 37.7% (34.3% in 8-10 years, 38.06% in 11-14 years & 41.34% in 15-17 years age group). The total prevalence of periodontitis [Table 3] was 20.21% (13.69% had score 4, 1.55% had score 5 & 0.77% had score 6). In 8-10 years old, prevalence of periodontitis was 8% (6.66% had score 4, 0.88% had score 5 & 0.44% had score 6). In 11-14 years old, prevalence of periodontitis was 15.34% (13.48% had score 4, 1.39% had score 5 & 0.46% had score 6). In 15-17 years old, prevalence of periodontitis was 24.76% (20.95% had score 4, 2.38% had score 5 & 1.42% had score 6). The average healthy periodontium was 83.96% (92% in 8-10 years, 84.65% in 11-14 years and 75.23% in 15-17 years age group).

Table 1: Demographic data

AGE GROUP	NO.OF STUDENTS
8 -10 years	210
11-14 years	176
15-17 years	179

Table 2: Gingivitis

Age group	No. of students	Normal	Total no. Of affected	Mild gingivitis	Moderate gingivitis	Severe gingivitis
8-10 years	210	72(34.3%)	138(65.7%)	104(75.36%)	28(20.28%)	6(4.3%)
11-14 years	176	67(38.06%)	109(61.9%)	93 (85.32%)	13(11.9%)	3(2.8%)
15-17 years	179	74(41.34%)	105(60.9%)	79 (75.23%)	19(18.1%)	7(6.7%)
Total	565	213(37.7%)	352(62.3%)	276(78.40%)	60(17.04%)	16(4.5%)

Table 3: Periodontitis

Age group	No. of students	Normal	Total no. of affected	PDI scores in %		
				4	5	6
8-10 years	210	184(87.6%)	26(14.13%)	18(69.2%)	5(19.23%)	3(11.53%)
11-14 years	176	137(77.8%)	39(28.46%)	28(71.79%)	7(17.94%)	4(10.25%)
15-17 years	179	149(83.2%)	30(20.13%)	24(80.00%)	5(16.67%)	1(3.33%)
Total	565	470(83.18%)	95(20.21%)	70(73.68%)	17(17.89%)	8(8.42%)

*PDI: - Periodontal disease index

DISCUSSION

School going children were targeted in this study for ease of accessibility [11]. The gingival index, given by Loe and Silness [9] was used to assess the severity of gingivitis. The overall gingivitis was 62.3% which increased with age, as was observed by Jose et al. [12] in 2003, Kumar et al. [13] in 2005 and Dhar et al. [14] in 2007. The periodontal disease index, given by Ramfjord [10] was used to evaluate periodontitis. Overall periodontitis was 16.03% which also increased with age. Our findings were close to the findings of Gill and Prasad [15] who in 1968 reported 83% gingivitis and 18.2% periodontitis among schools children in Lucknow. They also reported that younger age group had comparatively lesser percentage of gingivitis & periodontitis which were also similar to our study. Our findings also support the finding of Nanda RS et al. [18] in 1969 that used Glickman's method of periodontal examination and examined 1253 school children aged between 4 to 17 years in Lucknow. Their results indicated that prevalence of gingivitis increased with age. Highest prevalence was found in the 12-14 years age group. A similar finding to our finding were reported by Singh et al. [17] in 1985 who examined 141 subjects aged 15-40 years in Lucknow and concluded that prevalence of absolute pocket increased with age. Our findings contradict the findings of Chawla TN [18] who in 1963 reported 100% gingivitis and 72.2% periodontitis in a sample of 259 subjects in the age group 12 to 17 years in Lucknow. Mathur SK and Roy RK [19] in 1981 examined 1200 children aged 3 to 14 years from Lucknow. They reported that 100% of children had gingivitis which was also not in accordance with our findings. Information provided by the present study for prevalence of gingivitis and periodontitis can be used as preliminary data and further large scale epidemiological studies can be under taken to assess and confirm other dental diseases and their associated risk factors in India. School dental health programs and dental camps at school level are necessary in this region and they should be conducted at regular intervals, because children in this region do not have accessed to standard dental care and treatment. Because schools children do not know much about dental diseases, methods of their prevention and to maintain proper oral hygiene, therefore education and motivation of children is of paramount important in this region. Teachers and parents should be taught and encourage to enucleate healthy life style habits in children. The

more important aspect is the management of dental fear which is a worldwide problem and universal barrier to oral health care services should be covered in school dental health programs. Fears acquired in childhood through direct experience with painful dental treatment or vicariously through parents, friends or siblings may persist in adulthood. Lack of pain control and sympathy with children may exacerbate fears. The behavioral child management technique along with preventive dentistry should be a fundamental part of school dental health programs.

CONCLUSION

The overall prevalence of gingivitis and periodontitis were 62.2 % and 20.21%, respectively among schools children of 8 to 17 years of age in India. The younger age group children had comparatively lesser percentage of gingivitis and periodontitis than older age group children.

REFERENCES

1. Pilot T, Miyazaki H. Global results: 15 years of CPITN epidemiology. *Intern Dental J.* 1994;44:553-60.
2. Oh T-J, Eber R, Wang H-L. Periodontal diseases in the child and adolescent. *J Clin Periodontol.* 2002;29:400-10.
3. Axelsson P. An introduction to risk prediction and preventive dentistry. USA: Quintessence Publishing Co Inc.; 1999. p. 159
4. W. M. M. Jenkins and P. N. Papapanou, "Epidemiology of periodontal disease in children and adolescents," *Periodontology* 2000, vol. 26, no. 1, pp. 16-32, 2001.
5. J. M. Albandar and E. M. B. Tinoco, "Global epidemiology of periodontal diseases in children and young persons," *Periodontology* 2000, vol. 29, no. 1, pp. 153-176, 2002.
6. Shaju JP, Zade RM, Das M. Prevalence of periodontitis in the Indian population: A literature review. *J Indian Soc Periodontol.* 2011;15:29-34.
7. World Health Organization. *Oral Health Surveys Basic Methods.* 5th ed. Geneva: World Health Organization; 2013.
8. Sheiham, A. (1986) Mechanical oral hygiene practice. Response. In *Dental plaque control measures and oral hygiene practices.* Loe, H. and Kleinman, D.V. eds., IRL Press, Oxford, 117-119
9. H. Loe, J. Silness, Periodontal disease in pregnancy. 1. Prevalence and severity, *Acta Odontol Scand*, 21, 1963, 53
10. SP Ramfjord, Indices for prevalence and incidence of periodontal disease, *J Periodontol* 30, 1959, 51
11. AK Holm, Caries in preschool children-international trends, *J Dent* 18, 1990, 291-295.

12. A. Jose, MR Joseph, Prevalence of dental health problems among school going children in rural Kerala. *J Indian Soc Pedod Prev Dent* 21, 2003, 147-151.
13. MP Kumar, T Joseph, RB Varma, M Jayanth, Oral health status of 5 years and 12 years schools going children in Chennai city: An epidemiological study, *J Indian Soc Pedod Prev Dent* 23, 2005, 17-22.
14. V Dhar, A Jain , TE Van Dyke, A Kohli, Prevalence of gingival disease in school going children of rural areas in Udaipur District, *J Indian Soc Pedod Prev Dent* 25, 2007,103-105.
15. D. Marshall, as quoted in national oral health policy for India, *J Ind Dent Ass* 50, 1986, 378-401.
16. SS Hiremath, Epidemiology of periodontal diseases, in SS Hiremath, (Ed.), *Textbook of Preventive and Community Dentistry*, 2 (New Delhi: Elsevier press, 2011) 153
17. S Peter, DG Nayak, Epidemiology, etiology and prevention of periodontal diseases, in S Peter,(Ed.), *Essentials of Preventive and Community Dentistry*, 2 (New Delhi: Arya (Medi) press, 2006) 430.
18. TN Chawla, RS Nanda, MC Mathur, Prevalence of periodontal disease in urban Lucknow, India, Using Ramfjord technique. *J All Ind Dent Ass* 35, 1963, 151-156.
19. S Peter, DG Nayak, Epidemiology, etiology and prevention of periodontal diseases, in S Peter, (Ed.), *Essentials of Preventive - and Community Dentistry*. 2 (New Delhi: Arya (Medi) press, 2006) 428.