Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2017; 5(6E):2427-2431 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2017.v05i06.069

Original Research Article

Plaques Scores and Gingival Health Status between 5 To 20 Years Old Orphans and Parented Children

Ramanpreet Kaur[1], Lovepreet[2], Karanprakash Singh[3], Mahijeet Singh Puri[4], Chitra Anandani[5], Harinder Pal Singh[6]

[1, 2] Intern, Luxmi Bai Institute of Dental Sciences & Hospital, Patiala, India
[3]Reader, Department of Public Health dentistry, Luxmi Bai Institute of Dental Sciences & Hospital, Patiala, India
[4]Professor, Department of Public Health dentistry, Luxmi Bai Institute of Dental Sciences & Hospital, Patiala, India
[5]Senior Lecturer, Department of Oral Pathology & Microbiology, Luxmi Bai Institute of Dental Sciences & Hospital, Patiala, India
[6]Lecturer, Department of Public Health dentistry, Luxmi Bai Institute of Dental Sciences & Hospital, Patiala, India

***Corresponding author**
Ramanpreet Kaur
Email: raman1210kaur@gmail.com

Abstract: The study was conducted to assess plaque and gingival scores among orphans and parented children. This study was planned in an Orphanage school and a Private school. A total of 84 subjects were examined including 30 orphans and 54 school students. A modified Index of Loe and Silness was used to score condition of gingival levels. Similarly the plaque index developed by Silness and Loe used for the assessment of plaque levels. A periodontal probe was used for gingival index and a dental explorer for evaluating plaque scores. Chi-square test was applied to compare the values of plaque and gingival index at p value ≤ 0.05. More than half of the orphans (56.7%) and school children (55.6%) had mild type of gingivitis. The level of gingivitis was increasing with advancing age among orphanage children. The school children had worse plaque scores compared to orphans. The frequency of moderate plaque values enhanced with growing age in school going children. Orphans have a higher gingival index than children residing with their parents. Thus there should be adequate dental health educational programs for these children as well as for their parents or caregivers to improve the quality of oral health.
Keywords: Gingival Index; Plaque Index; Orphans; Children.

INTRODUCTION

An orphan is a child who has lost both parents or has been abandoned by them [1]. It is estimated that 153 million children worldwide, ranging from infants to teenagers have lost one or both parents [2]. Healthy personality development as well as full unfolding of opportunities is hampered in orphans by certain elements in their social environment such as lack of parental guidance, environmental deprivation and emotional disturbances [3]. Henceforth, they lack parental support and receive little general as well as oral health care [1]. Oral diseases seriously impair quality of life in a large number of individuals and they may affect various aspects of life, including function, appearance, interpersonal relationships and even career opportunities [1]. Oral diseases are significant health problems around the world [4]. Children from orphanages have shown a high prevalence of dental caries [5], gingivitis and dental trauma [6].

Gingivitis is an inflammatory process that begins in early childhood [7] and its prevalence is evident worldwide. Gingivitis is associated with dental bacterial plaque [DBP] and is the most common form of periodontal diseases [8] caused by the accumulation of dental plaque [9]. It has been shown that bacterial plaque found on the tooth surface is responsible for development of gingivitis, which is the initial stage of periodontal diseases [10]. Gingivitis is caused by various local and systemic factors. In general, localized tooth related factors contribute to the initiation and progression of periodontal diseases through an enhancement of plaque accumulation or the prevention of effective plaque removal by normal oral hygiene

measures [11]. Common signs of gingivitis are redness and sponginess of the gingival tissue, bleeding on provocation, changes in contour and presence of calculus or plaque with no radiographic evidence of crestal bone loss [12]. Gingivitis is reversible condition with professional treatment and good oral home care, whereas periodontitis is irreversible one and may lead to bone destruction. Untreated gingivitis can lead to periodontitis. Hence if gingivitis is assessed at an early stage it will minimize the chance of tooth loss. According to World Health Organization, oral health is integral to general health and essential for well-being [13]. The present oral health survey [OHS] for children aged 5-20 years of age was conducted at an orphanage home and in a school setting. The survey focuses on gingival inflammation and accumulation of plaque.

MATERIALS AND METHODS

This comparative study was conducted at an Orphanage school (Yadvandra Puran BAL Niketan) and in a Private school in the city of Patiala. Informed consent was also obtained from the orphanage and school authorities and caretakers to carry out the study. Orphanage has population of 30 orphaned children and their age group ranges from 5 to 20 years. Around 54 students enrolled from private school with similar age group to assess the prevalence of gingival diseases.

A modified Index of Loe and Silness [14] was used to score condition of gingival levels. The index teeth to be examined were 16, 12, 24, 36, 32 and 44. On each tooth both facial (3 units) and lingual surfaces (1 unit) were examined. The scoring criteria values mentioned as: 0 (Normal gingiva), 1 (Mild inflammation), 2 (Moderate inflammation) and 3 (Severe inflammation). Similarly the plaque index described by Silness and Loe used for the assessment of plaque levels [15]. Index teeth are same as that of gingival index and the scoring criteria is 0 (No plaque), 1 (A film of plaque adhering to the free gingival margin and adjacent area of the tooth), 2 (Moderate accumulation of soft deposits) and 3(Abundance of soft matter). The children were examined seated on a normal chair in the open room with natural light and the diagnostic instruments used were mouth mirrors, explorer and periodontal probe (Type III Examination). A periodontal probe was used for gingival index and a dental explorer was used to record the plaque score.

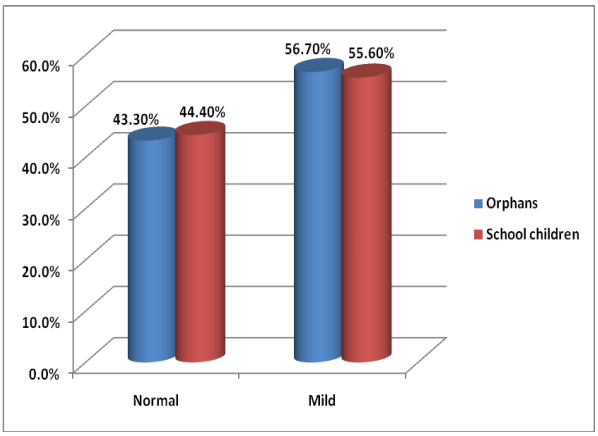
Data analysis

The data were analyzed using the SPSS version 15 software (SPSS Inc., Chicago, IL, USA). Chi-square test was applied to compare the values of plaque and gingival indices with variables and the level of significance was performed at p value ≤ 0.05.

RESULTS

Out of 84 subjects examined 56.7% of orphanages and 55.6% of parented children had mild form of gingivitis as mentioned in Graph 1. Orphans in the age group of 11 to 15 and 16 to 20 had poor gingival conditions compared to the age group of 5 to 10 years (Table 1). Whereas school children aged 11 to 15 years were more effected with mild gingivitis than other age groups (Table 2).

Majority of the orphans (63.3%) and school children (87.0%) had mild plaque scores and very few had moderate amount of deposited plaque as shown in Graph 2. Age wise, older orphan groups (11 to 15 and 16 to 20) had more plaque accumulation than younger ones and the presence of moderate plaque scores was only seen in the age group of 16 to 20 years (Table 3). School children aged 11 to 15 years had higher mild plaque scores (55.6%) and the frequency of moderate plaque values increased with advancing age (Table 4).



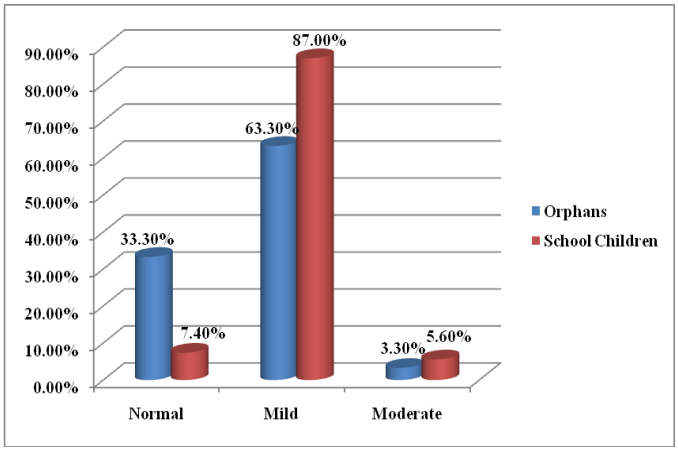
Graph 1: Gingival index scores of Orphans and School Children

Table 1: Gingival index scores of Orphans according to age groups

Age	Normal	Mild	p-value
5 to 10 years	2(6.7%)	1(3.3%)	0.673
11 to 15 years	6(20.0%)	8(26.7%)	
16 to 20 years	5(16.7%)	8(26.7%)	
Total	13(43.3%)	17(56.7%)	

Table 2: Gingival index scores of School Children according to age groups

Age	Normal	Mild	p-value
5 to 10 years	7(13.0%)	5(9.3%)	0.456
11 to 15 years	13(24.1%)	21(38.9%)	
16 to 20 years	4(7.4%)	4(7.4%)	
Total	24(44.4%)	30(55.6%)	



Graph 2: Plaque index scores of Orphans and School Children

Table 3: Plaque index scores of Orphans according to age groups

Age	Normal	Mild	Moderate	p-value
5 to 10 years	2(6.7%)	1(3.3%)	0(.0%)	0.518
11 to 15 years	5(16.7%)	9(30.0%)	0(.0%)	
16 to 20 years	3(10.0%)	9(30.0%)	1(3.3%)	
Total	10(33.3%)	19(63.3%)	1(3.3%)	

Table 4: Plaque index scores of School Children according to age groups

Age	Normal	Mild	Moderate	p-value
5 to 10 years	0(.0%)	12(22.2%)	0(.0%)	0.072
11 to 15 years	3(5.6%)	30(55.6%)	1(1.9%)	
16 to 20 years	1(1.9%)	5(9.3%)	2(3.7%)	
Total	4(7.4%)	47(87.0%)	3(5.6%)	

DISCUSSION

Maintenance of oral hygiene is known to be an integral component of oral health of an individual. A majority of oral diseases are found in disadvantaged and socially marginalized population. Thus, orphanage children are such disadvantaged groups having limited accessibility to oral healthcare. This is due to lack of sufficient financial resources and adequate dental manpower. This study showed the prevalence of gingivitis among orphans as >56.7% which was slightly higher when compared to school going children (55.6%), this can be due to lack of regular dental check-up in orphanage community. However, the plaque scores in school children (87.0%) was higher than orphanage children (63.3%), this could be due to more

consumption of carbohydrate diet among school children.

The prevalence of gingivitis in children residing in an orphanage home showed that 11-20 years (>53.4%) of children with mild to moderate gingivitis. Whereas Shanbhog *et al.;* [16)] evaluated 488 children between 12-14 years old living in different orphanages and showed 36.1% of them with mild form and 27.9% with moderate form of gingivitis.

In the present study, the prevalence of gingivitis among school children was 55.6% whereas 84.3% prevalence was seen in the reports of Dhar *et al.;* [17] which were very higher when compared to our findings. The results of this survey showed that 38.9% of school going children aged 11-15 years had gingivitis of mild to moderate severity, it was less when compared it with recent survey in Lucknow among school going children aged 8-16, showed 71.1% prevalence of gingivitis [18]. In a Metropolitan region [19], Palma (2007) reported a prevalence of mild gingivitis in 60% and moderate gingivitis in 40% school children. In Danube Delta Biosphere Reserve [20], gingival bleeding was found to be in 32.8% in school going children aged 6-12 years. The reasons of increasing gingival inflammation as age advances might be due to improper and unsupervised tooth brushing. Moreover mixed dentition and malocclusion contributes as an additional factor for the accumulation of plaque resulting in gingivitis [21]. Hugoson *et al.;* also found that in children with 10 years of age, gingivitis was significantly correlated with the eruption pattern of teeth [20].

Todd and Dodd (1985) found that the prevalence of gingivitis increased with age [22], also due to hormonal changes at the puberty enhances the inflammation gingival tissue [23, 24]. In a study conducted among Jordanian school children, it was reported that 14-15 years old had higher GI when compared with the >6 year old group [25]. In the present study, plaque scores was in 87.0% for school going children which is in agreement with the study conducted among children of Hyderabad division. The current data showed the higher levels of plaque were in agreement with others studies [17, 20], this variation in score may be due to difference in oral hygiene practices, culture and diet pattern.

CONCLUSION

This study revealed that orphanage children had a higher gingival index than parented children. Also, the presence of plaque was higher in both the groups because of a neglected oral hygiene. Thus, there should be increased exposure to dental health educational programs for these children as well as for their parents or caregivers to improve the quality of oral health.

REFERENCES

1. Gift HC, Redford M. Oral health and the quality of life. Clinics in geriatric medicine. 1992 Aug; 8(3):673-83.
2. Atrash HK. Parents' death and its implications for child survival. Revista brasileira de crescimento e desenvolvimento humano. 2011; 21(3):759.
3. Park K. Mental health. In: Park K. Editor. Park's text book of preventive and social medicine.
4. Peterson PE. WHO Global Policy for improvement of oral health – WH Assembly 2007. Geneva: WHO. Int Dent J . 2008;6:115-21.
5. Dixit S, Chaudhary M, Singh A. Molluscum contagiosum and dental caries: A pertinent combination. Journal of Indian Society of Pedodontics and Preventive Dentistry. 2009 Oct 1; 27(4):197.
6. O'Sullivan EA, Stephens AJ. The oral and dental status of children residing in a Romanian orphanage. International journal of paediatric dentistry. 1997 Mar 1; 7(1):41-2.
7. Kinoshita S, Wen R, Sueda T. Atlas a color de periodontics. Espana: Espaxs. 1998:1-10.
8. Zerón A. Nueva clasificación de las enfermedades periodontales. Revista de la Asociación Dental Mexicana. 2001; 58(1):16-20.
9. Gurenlian JR. The role of dental plaque biofilm in oral health. American Dental Hygienists Association. 2007 Dec 31; 81(suppl 1):116-.
10. Newbrun E. Cariologia. Mexico: Ed. Limusa. 1994:191-257.
11. Blieden TM. Tooth – related issues. Ann Periodontal. 1999; 4:91,35.
12. American Academy of Periodontology: Parameter on plaque – induced gingivitis. J Periodontal. 2000; 71:851.
13. Sheiham A. Oral health, general health and quality of life. Bulletin of the World Health Organization. 2005 Sep; 83(9):644-.
14. Löe H, Silness J. Periodontal disease in pregnancy I. Prevalence and severity. Acta odontologica scandinavica. 1963 Jan 1; 21(6):533-51.
15. Silness J, Löe H. Periodontal disease in pregnancy II. Correlation between oral hygiene and periodontal condition. Acta odontologica scandinavica. 1964 Jan 1; 22(1):121-35.
16. Shanbhog R, Raju V, Nandlal B. Correlation of oral health status of socially handicapped children

with their oral heath knowledge, attitude, and practices from India. Journal of natural science, biology, and medicine. 2014 Jan; 5(1):101.
17. Dhar V, Jain A, Van Dyke TE, Kohli A. Prevalence of gingival diseases, malocclusion and fluorosis in school-going children of rural areas in Udaipur district. Journal of Indian Society of Pedodontics and Preventive Dentistry. 2007 Apr 1; 25(2):103.
18. Singh AK. Prevalence of gingivitis and periodontitis among schools children in Lucknow region of Uttar Pradesh, India. IOSR J Dent Med Sci. 2014; 13:21-3.
19. Palma P, Gajardo M. Periodontal pathogens in children from 8 to 11 years old in two schools of the Metropolitan Region. Association with gingivitis. Rev Soc Chil Odontopediatría. 2008; 23:40.
20. Hugoson AN, Koch GÖ, Rylander H. Prevalence and distribution of gingivitis-periodontitis in children and adolescents. Swed Dent J. 1981; 5(3):91-103.
21. Jessri M, Jessri M, Rashidkhani B, Kimiagar SM. Oral health behaviours in relation to caries and gingivitis in primary-school children in Tehran, 2008/Comportements en santé bucco-dentaire associés aux caries et aux gingivites chez des enfants du primaire à Téhéran en 2008. Eastern Mediterranean Health Journal. 2013 Jun 1; 19(6):527.
22. Todd JE, Dodd T. Children's Dental Health in the United Kingdom, 1983: A Survey Carried Out by the Social Survey Division of OPCS, on Behalf of the United Kingdom Health Departments, in Collaboration with the Dental Schools of the Universities of Birmingham and Newcastl. Stationery Office; 1985.
23. Shaju JP, Zade RM, Das M. Prevalence of periodontitis in the Indian population: A literature review. Journal of Indian Society of Periodontology. 2011 Jan; 15(1):29.
24. Hemadneh S, Ayesh D. Prevalence of gingivitis in 6-7 years old Jordanian children. Pakistan Oral & Dental Journal. 2011 Jun 1; 31(1).
25. El-Qaderi SS, Quteish Ta'ani D. Dental plaque, caries prevalence and gingival conditions of 14–15-year-old schoolchildren in Jerash District, Jordan. International journal of dental hygiene. 2006 Aug 1; 4(3):150-3.