

Frequency of Periodontal Problems in school children at different schools of Hyderabad

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Abstract- To estimate the prevalence of Periodontal Problems i.e. gingivitis and periodontitis in school going children at Hyderabad. This cross sectional study was conducted in different private schools in Hyderabad, Sindh from 18th September 2023 to 23rd September 2023. A total 1679 students varying in ages from 5-15 years old were counted in the study. We used Periodontal Disease Index (PDI) by Ramjford to assess the prevalence of gingivitis and periodontitis. A pre-formed questionnaire was used and 5 teams comprising of 6 doctors each of Lecturers, house officers, undergraduate students examined the students according to PDI and completed the data form. After evaluation the score was calculated. Data was analyzed via SPSS version 22. Descriptive statistics such as percentage, frequency distribution, cross tabulation were included in data analysis. The level of significance was set at <0.05%. This study revealed that 51.3% of students were healthy, 31.5% students were suffering from gingivitis and 17.2% of students suffered from periodontitis. This study concludes that the prevalence of gingivitis and periodontitis in Hyderabad school children is low.

Index Terms- Frequency, Gingivitis, Periodontitis, Periodontal Disease Index (PDI),

I. INTRODUCTION

Gingivitis is the most common inflammatory diseases affecting the gingiva. Bleeding on brushing, bleeding on probing, redness, inflammation and pain are some of the signs and symptoms of gingivitis, which if not diagnosed and treated on time continues to periodontitis and eventually ends with tooth loss.¹ Diseases of the periodontium also impedes other systems of the human body. Low birth weight children, rheumatoid arthritis, cardio vascular diseases, diabetes are some of the systemic diseases that have an association with periodontal diseases.²⁻⁵

Pakistan still needs a research study covering the entire country rather than just a few districts to assess the periodontal problems in the population for example a National oral health survey which was conducted by WHO in 2003 was done in 21 districts of Pakistan and in that survey, periodontal problems was a insignificant element.⁶

Although the purpose of this survey was not specifically to assess the incidence of periodontal disorders, the results showed that periodontal health in Pakistan was extremely poor, with over 93% of those over 65 having the condition and

only 28% of those under 12 having healthy gingiva. ⁶ This finding indicates that periodontal disease, which includes gingivitis and periodontitis, is common in Pakistan, with a higher prevalence in the country's rural areas. ^{6, 7}

Many people worldwide suffer from periodontal illnesses such as gingivitis and periodontitis; however older persons and children typically experience higher rates of disease. ^{2, 4, 8} However, certain types of periodontal disorders can also have a significant impact on young people. ¹ Research has demonstrated that marginal gingivitis begins in young children and rises in frequency and severity in adolescence. Adult gingivitis still manifests in a more severe manner. Estimates of the prevalence of gingivitis in adults revealed that between 50% and 100% of the population had the condition. ⁶ The primary cause of periodontal disease is inadequate brushing and poor oral hygiene practices.

The aim to design this study was to estimate the prevalence of gingivitis and periodontitis in students at different schools in the city of Hyderabad, Pakistan.

II. MATERIALS AND METHODS

This cross sectional study was conducted in different private schools in Hyderabad, Sindh from 18th September 2023 to 23rd September 2023. A total 1679 students varying in ages from 5-15 years old were counted in the study. Students from nursery to grade 8 were included in this study.

We used Periodontal Disease Index (PDI) by Ramjford to assess the prevalence of gingivitis and periodontitis. ⁹ A pre-formed questionnaire was used and 5 teams comprising of 6 doctors each of Lecturers, house officers, undergraduate students examined the students according to PDI and completed the data form. After evaluation the score was calculated. Data was analyzed via SPSS version 22. Descriptive statistics such as percentage, frequency distribution, cross tabulation were included in data analysis. The level of significance was set at <0.05%. Prior to the study, the ethical approval for this study was obtained from the ethical committee at Isra Dental College. Periodontal Disease Index (PDI) given by Ramjford, 1959, ⁹ was used to evaluate the incidence of gingivitis and periodontitis in students. The details of index are given in table I.

Table I: Periodontal Disease Index

0	Healthy periodontium/ Absence of inflammation.
1	Mild to moderate inflammatory gingival changes not extending all around tooth.
2	Mild to moderately severe inflammatory gingival changes extending all around the tooth
3	Severe gingivitis, characterized by marked redness, tendency to bleed and ulcerate
	Gingival crevice/ attachment in any of the measured areas of the tooth are extending apical to cemento enamel junction (CEJ) but not more than 3 mm.
5	Gingival crevice/ attachment in any of the measured areas of the tooth is ranging from 3mm - 6mm apical to CEJ
6	Gingival crevice/ attachment in any of the measured area of the tooth is more than 6 mm apical to the CEJ

Six Indexed Teeth

16	21	24
44	41	36

If any of the indexed teeth is absent another tooth will not be substituted in its place.

PDI score: Total number of tooth scores ÷ Number of teeth examined

Gingivitis: PDI score 1 - 3

Periodontitis: PDI score 4 - 6.

III. RESULTS

The present study was conducted in different private schools in Hyderabad. The study was conducted to estimate the prevalence of gingivitis and periodontitis in students at different schools in the city of Hyderabad.

Distribution of the gender was, 893 males (53.2%) and 786 females (46.8%) respectively. Age of the students ranged from 5 – 15 years. Mean age was 10.40 ± 2.60 respectively.

On examining 1679 students, [893 boys and 786 girls] who were 5-15 years old, it was seen that 862 students (51.3%) were healthy, 530 students (31.5%) were suffering from gingivitis and 287 students (17.2%) suffered from periodontitis. The *p*-value was insignificant showing that there was no such difference between males and females. Gingivitis was moderately more common among males than females i.e. 53.9 % and 46.1 % respectively. Out of 530 schoolchildren suffering from gingivitis, 286 were males and 244 were females as shown in Table III. Periodontitis was also somewhat more common among boys as compared to girls. Out of 287 students suffering from periodontitis 165 (57.49%) were boys and 122 (42.51%) were girls as shown in Table III. Table IV demonstrates the association of periodontal problems with age. It indicates that gingivitis was more common in all age groups than periodontitis. The *p*-value was significant.

Table II: Distribution of Students According To Age and Gender

Age	Gender		Total
	Male	Female	
5	37	42	79
6	52	42	94
7	60	46	106
8	38	42	80
9	91	69	160
10	162	161	323
11	148	122	270
12	103	92	195
13	85	75	160
14	67	52	119
15	50	43	93
Total	893	786	1679

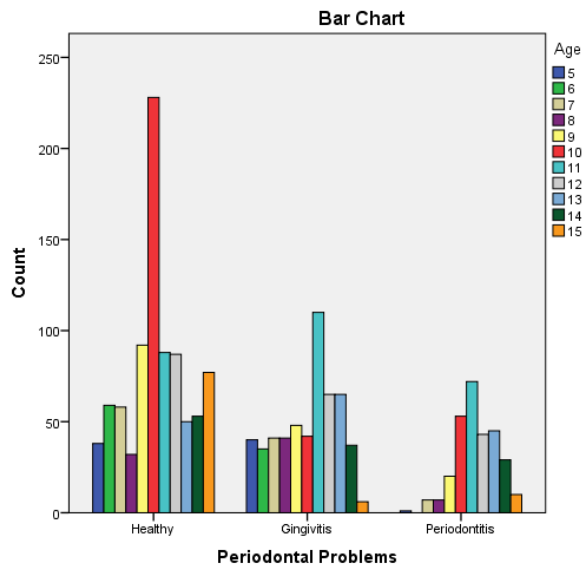
Table III: Distribution of students according to gender and periodontal condition.

Gender	Periodontal Problems			Total	<i>p</i> -value
	Healthy	Gingivitis	Periodontitis		
Male	442	286	165	893	0.061
Female	420	244	122	786	
Total	862	530	287	1679	

Table IV: Distribution of students according to gender and periodontal condition.

Age	Periodontal Problems			Total	<i>p</i> -value
	Healthy	Gingivitis	Periodontitis		
5	38	40	1	79	0.001
6	59	35	0	94	
7	58	41	7	106	
8	32	41	7	80	
9	92	48	20	160	
10	228	42	53	323	
11	88	110	72	270	
12	87	65	43	195	
13	50	65	45	160	
14	53	37	29	119	
15	77	6	10	93	
Total	862	530	287	1679	

Figure I: Distribution of students according to age and periodontal condition.



IV. DISCUSSION

The present study is an original research conducted by Isra University at different private different schools of Hyderabad which assessed the Frequency of Periodontal Problems in school children. 31.5% of students suffered from gingivitis and 17.2% of the students suffered from periodontitis, whereas 51.3% students had healthy periodontal condition. These findings are similar to the findings of National oral health survey, according to which healthy individuals among 12 years old were only 28%, whereas in our study it was 5% for 12 year old but our research was not particularly focused on 12 year old hence that cannot be said for the majority as 51.3% students had healthy gingiva. 6

Out of 1679 students, a total of 530 schoolchildren suffered from gingivitis, 286 were males and 244 were females. This showed that gingivitis was moderately more common among males than females i.e. 53.9 % and 46.1 % respectively, in contrary a study which was carried out on Ukraine children and adolescents showed that there was no difference in distribution of gingivitis based on gender. 5 One more study which was conducted in Surkhandarya, Uzbekistan population revealed that males are affected more by gingivitis as compared to females. This is similar to our findings. 10

Research has shown that maintaining better oral hygiene reduces the frequency and severity of gingivitis, which is strongly correlated with gingivitis prevalence. 11, 12

There were approximately 530 children with gingivitis out of 1679 total students; of these, 37% of the children with calculus in their mouths and 63% of the children without calculus had gingivitis. Calculus is a mineralized deposit that develops over time and is constantly coated with dental plaque. Although calculus's abrasive surface does not cause gingivitis, it does offer the perfect surface for further plaque build-up. It might

also impair someone's capacity to get rid of every plaque build-up. 13-15 This demonstrates that calculus is one of the primary risk factor indicators for periodontal disease. Patients with gingivitis who do not have calculus may have recently had professional cleanings, and gingivitis may be caused by dental plaque. 13

PDI used in this study showed that students were mostly suffering from mild gingivitis to moderate gingivitis, and mild to moderate periodontitis as well in both genders. The fact that students do not become aware of their dental health when symptoms of gingivitis begin to occur indicates that they lack understanding about basic dental hygiene and prevalent dental disorders. Therefore, in order to give pupils more understanding about prevalent mouth diseases, their implications, their prevention, and—more specifically—the role that oral hygiene plays in their prevention, a comprehensive oral education and oral health promotion program should be established at the school level. In order to help students and young people change their attitudes and behaviours toward brushing their teeth and other oral hygiene aids, attention should also be paid to the inspiration and motivation of students for improving oral hygiene and, consequently, oral health. 16, 17

IV. CONCLUSION

This study concludes that the prevalence of gingivitis and periodontitis in Hyderabad school children is reasonable and not too high. It shows that in this new age of social media, students are aware of their oral health but still every school should provide oral hygiene guidelines and teach pupils about the dangers of periodontitis and gingivitis as well as how to prevent them. Since the incidence of edentulous populations may rise in the future due to this elevated prevalence of gingivitis and periodontitis, preventative measures should be implemented today.

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