

Prevalence of Gingival Diseases and Fluorosis in Children of Jammu City

Nanika Mahajan¹, Ritesh Gupta², Shivani Jandial³, Bhanu Kotwal⁴, Sharad Kharyal⁵, Vinod Tomar⁶

¹Lecturer, Department of Pedodontics and Preventive Dentistry, Indira Gandhi Government Dental College, Jammu, Jammu and Kashmir, India, ²Dental Surgeon, Department of Orthodontics, Indira Gandhi Government Dental College, Jammu, Jammu and Kashmir, India, ³Consultant Dental Specialist, Department of Prosthodontics, Indira Gandhi Government Dental College, Jammu, Jammu and Kashmir, India, ⁴Lecturer, Department of Periodontics, Indira Gandhi Government Dental College, Jammu, Jammu and Kashmir, India, ⁵Private Practitioner, Department of Orthodontics, Jammu, Jammu and Kashmir, India, ⁶Medical Officer, Civil Hospital, Dadahu, Himachal Pradesh, India

Abstract

Aim: The aim of the present study is to determine the prevalence of gingival diseases and fluorosis in children of Jammu City.

Materials and Methods: A total of 1436 children (746 males and 690 females) who visited the Department of Paediatric and Preventive Dentistry in Indira Gandhi Government Dental College, Jammu, during the period from February 2016 to May 2016 were selected for the study based on the inclusion criteria. All the children were examined by a single examiner to record gingival status using Loe and Silness index and fluorosis using the WHO index.

Results: About 51.9% males and 48.1 % females were included in the study. The overall prevalence of gingivitis was 83.4%. Gingivitis prevalence in the age group 6–8 years was 7.4%, 9–11 years 32.9%, and 12–14 years 43%. The difference between age groups was statistically insignificant ($P = 0.0748^{NS}$). Only 5.92% of the total subject size was affected with fluorosis, of which 4.25% showed questionable fluorosis, 0.97% were having very mild type, 0.35% showed mild type, 0.14% were having moderate type, and 0.21 % showed severe type of fluorosis. The relationship between age and gender with fluorosis is statistically insignificant ($P = 0.3638$).

Conclusion: It can be concluded that gingivitis is more prevalent in both males and females with age range of 6–14 years whereas the prevalence of fluorosis is found to be minimal.

Key words: Doda, Fluorosis, Gingiva, Jammu, Prevalence

INTRODUCTION

Periodontal diseases are one of the most widespread diseases in the world and are more prevalent in developing countries. They have been reported to appear at an early age in developing countries and progress with age. More than 90% of adults after attaining the age of 30 years suffer from a periodontal disease which also has its inception in childhood. Prevalence of gum disease in children is very high worldwide, with the majority of children being affected.^[1-3]

Dental caries and periodontal disease, the most commonly seen oral disease, show striking geographic variation, socioeconomic patterns, and severity of distribution all over the world.^[4-8]

Endemic fluorosis is widely prevalent in China, India, Middle East, North Africa, Ethiopian rift valley and other parts of Africa. High incidence of endemic fluorosis in India is due to the fact that large areas of the country contain water supplies having high levels of fluoride children in the age group of 0–12 years are the most prone to fluorosis as their body tissues are in formative/growth stage during this period.^[9]

In India, fluorosis problem has reached alarming proportions affecting at least 17 states (Andhra Pradesh, Tamil Nadu, Uttar Pradesh, Gujarat, and Rajasthan where 50–100% districts were affected).

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Corresponding Author: Dr. Nanika Mahajan, Department of Pedodontics and Preventive Dentistry, Indira Gandhi Government Dental College, Jammu, Jammu and Kashmir, India. E-mail: drnanikamahajan@gmail.com

In Rajasthan, all the 33 districts have been declared as fluorosis prone areas, and Jaipur District is one of the worst affected with Chaksu, Dudu, Phagi, and Sanganer being the worst affected areas.^[10]

Prevalence and severity of fluorosis in hilly district (Doda) of Jammu and Kashmir, India, have been investigated by few studies and it was concluded the fluoride level was beyond optimum levels in the drinking water of the particular area.^[11]

However, limited data are available regarding the prevalence of gingival diseases and fluorosis in Jammu children. Hence, the present study is conducted to determine the prevalence of gingival diseases and fluorosis in children of Jammu City.

MATERIALS AND METHODS

A total of 1436 children (746 males and 690 females) who visited the Department of Paediatric and Preventive Dentistry in Indira Gandhi Government Dental College, Jammu, during the period from February 2016 to May 2016 were selected for the study based on the inclusion criteria.

Inclusion Criteria

The following criteria were included in this study:

- Children above 6 years of age.
- Children are native to Jammu region.

Exclusion Criteria

The following criteria were excluded from the study:

- Children with any systemic diseases.
- Children suffering from craniofacial syndromes.

Table 1: Age and gender distribution

	6–8 years (%)	9–11 years (%)	12–14 years (%)	Total (%)
Males	83 (5.77)	289 (20.1)	374 (26.04)	746 (51.9)
Females	76 (5.3)	257 (17.9)	357 (24.9)	690 (48.1)
Total	159 (11.1)	546 (38.02)	731 (50.9)	1436 (100)

Table 2: Distribution of subjects with gingivitis

Age group	Total affected children (%)	Mild gingivitis (%)	Moderate gingivitis (%)	Severe gingivitis (%)	P value
6–8 years					
M	59 (4.1)	42 (2.9)	10 (0.7)	7 (0.5)	0.5020 ^{NS}
F	48 (3.3)2	29 (2.0)	11 (0.8)	8 (0.6)	
9–11 years					
M	276 (19.2)	201 (13.9)	52 (3.6)	23 (1.6)	0.5373 ^{NS}
F	197 (13.7)	138 (9.6)	45 (3.1)	14 (0.9)	
12–14 years					
M	343 (23.9)	236 (16.4)	87 (6.1)	20 (1.4)	0.2928 ^{NS}
F	274 (19.1)	183 (12.7)	66 (4.6)	25 (1.7)	
Total	1197 (83.4)	829 (57.7)	271 (18.9)	97 (6.8)	

p=0.0748^{NS} (Association of age range with gingivitis)

All the children were examined by a single examiner to record gingival status using Loe and Silness index and fluorosis using the WHO index.

RESULTS

Table 1 summarizes age and gender distribution. 51.9% males and 48.1 % females were included in the study. Table 2 summarizes distribution of subjects with gingivitis and association of age range with gingivitis. The overall prevalence of gingivitis was 83.4% (mild gingivitis 57.7%, moderate 18.9%, and severe 6.8%). Gingivitis prevalence in the age group 6–8 years was 7.4% (mild gingivitis 4.9%, moderate 1.5%, and severe 1.1%); 9–11 years 32.9% (mild gingivitis 23.5%, moderate 6.7%, and severe 2.5%); and 12–14 years 43% (mild gingivitis 29.1%, moderate 10.7%, and severe 3.1%). The difference between age groups were statistically insignificant (*P* = 0.0748^{NS}) [Table 2].

Table 3 summarized distribution of subjects with fluorosis. Only 5.92% of the total subject size was affected with fluorosis, of which 4.25% showed questionable fluorosis, 0.97% were having very mild type, 0.35% showed mild type, 0.14% were having moderate type, and 0.21 % showed severe type of fluorosis. The relationship between age and gender with fluorosis is statistically insignificant (*P* = 0.3638).

DISCUSSION

The current study was conducted with a total of 1436 children (746 males and 690 females) who visited the Department of Paediatric and Preventive Dentistry in Indira Gandhi Government Dental College, Jammu, during the period from February 2016 to May 2016 were selected for the study based on the inclusion criteria. The findings of our study showed that the overall prevalence of the gingivitis was 83.4% which tend to increase gradually with age, thus findings are in accordance with the results of studies conducted by Jose and Joseph, Kumar *et al.* and Dhar *et al.*^[12-14]

Table 3: Distribution of subjects with fluorosis

Age group	Total affected children (%)	Questionable (%)	Very mild (%)	Mild (%)	Moderate (%)	Severe (%)
6–8 years						
M	6 (0.41)	4 (0.3)	1 (0.07)	0 (0)	0 (0)	1 (0.07)
F	3 (0.21)	2 (0.12)	0 (0)	0 (0)	1 (0.07)	0 (0)
9–11 years						
M	22 (1.5)	16 (1.1)	3 (0.21)	2 (0.12)	0 (0)	1 (0.07)
F	12 (0.83)	9 (0.6)	3 (0.21)	0 (0)	0 (0)	0 (0)
12–14 years						
M	24 (1.7)	17 (1.2)	4 (0.3)	2 (0.12)	1 (0.07)	0 (0)
F	18 (1.3)	13 (0.9)	3 (0.21)	1 (0.07)	0 (0)	1 (0.07)
Total	85 (5.92)	61 (4.25)	14 (0.97)	5 (0.35)	2 (0.14)	3 (0.21)

$p=0.3638$

Majority of the subjects in each age group showed mild type of gingivitis and subjects showing and moderate form of gingivitis were more in the age group of 9–11 and 12–14 years; however, the difference for the prevalence of gingivitis among different genders was found to be not significant which is in contradiction with the study conducted by Dhar *et al.* who found more gingivitis in females due to pubertal changes.^[14] The respective finding can be attributed to the fact that more number of males was encountered in our study.

The present study was found that overall prevalence of fluorosis was found to be only 4.25% which is in contradiction with the findings of Dhar *et al.* and Susheela in their studies conducted on Gujarat and Haryana population.^[14,15] Out of the affected children, 4.25% showed questionable fluorosis which is in accordance with the findings of a study conducted by Dhar *et al.* in Udaipur District of Rajasthan.^[14]

The limitation of the current study is that broader geographic distribution including various districts of Jammu Kashmir with much larger sample size was not considered and must be incorporated in future studies to achieve better data of existing dental health problems.

CONCLUSION

It can be concluded that gingivitis is more prevalent in both males and females with age range of 6–14 years whereas the prevalence of fluorosis is found to be minimal.

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