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Original Research

Prevalence of Dental fluorosis among village population

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***ABSTRACT*:**
Background: Dental fluorosis is a hypo mineralization of enamel and dentine produced by chronic or excessive ingestion of fluoride during tooth development process. The present study was conducted to assess dental fluorosis among village population. **Materials & Methods:** The present study was conducted on 1025 village population of both gender. The prevalence of dental flourosis was recorded by using Dean's fluorosis index. **Results:** out of 1025 subjects, males were 510 and girls were 515. Age group 20-30 years had 147 males and 130 females, 30-40 years had 120 males and 145 females, 40-50 years had 115 males and 120 females, 50-60 years had 70 males and 80 females and >60 years old were 58 males and 40 females. The difference was significant (P< 0.05). Grading was found as questionable in 458 males and 454 females, very mild in 12 males and 18 females, mild in 20 males and 25 females, moderate in 14 males and 16 females and severe in 6 males and 2 females. The prevalence was 10.1% in males and 11.8% in females. The difference was significant (P< 0.05). **Conclusion:** The prevalence of dental flourosis in males was 10.1% in males and 11.8% in females.
Key words: Dental fluorosis, Population, Village

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INTRODUCTION

Dental fluorosis is a hypo mineralization of enamel and dentine produced by chronic or excessive ingestion of fluoride during tooth development process. Fluoride plays an important role in preventive dentistry due to its superior cariostatic potential. However, superfluous intake of fluoride can lead to dental and skeletal fluorosis.[1]

Fluorosis is a disease caused by deposition of fluorides in the hard and soft tissues of the body. It is not merely caused by excess intake of fluoride, but also related to other attributes and variables which determine the onset of fluorosis in human population. Many studies have reported the endemicity of fluorosis in this geographic area where the fluoride content in drinking water is high. Various states have reported endemic fluorosis in India. About 62 million people, including 6 million children are at risk in India suffering from dental, skeletal and/or non skeletal flourosis.

It is generally believed that the hypo mineralization of affected enamel is mainly due to in-situ toxic effects of the fluoride on the ameloblasts in the enamel formation. Dental fluorosis is a result of alteration in the mineralization that takes place when fluoride interacts with mineralizing tissues. The most common method of diagnosis of dental fluorosis is by Dean's fluorosis index. The stages of index are questionable, very mild, mild, moderate and severe.[5] The present study was conducted to assess dental fluorosis among village population.

MATERIALS & METHODS

The present study was conducted in the department of Community Dentistry. It comprised of 1025 village population of both gender. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained from institutional ethical committee.

General information such as name, age, gender etc, was recorded. A thorough oral examination was done. The prevalence of dental flourosis was recorded by using Dean's fluorosis index which was recorded as 0- normal, 1- questionable, 2- very mild, 3- mild, 4- moderate, and 5- severe. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of subjects

Total- 1025		
Gender	**Males**	**Females**
Number	510	515

Table I, graph I shows that out of 1025 subjects, males were 510 and girls were 515.

Graph I Distribution of subjects

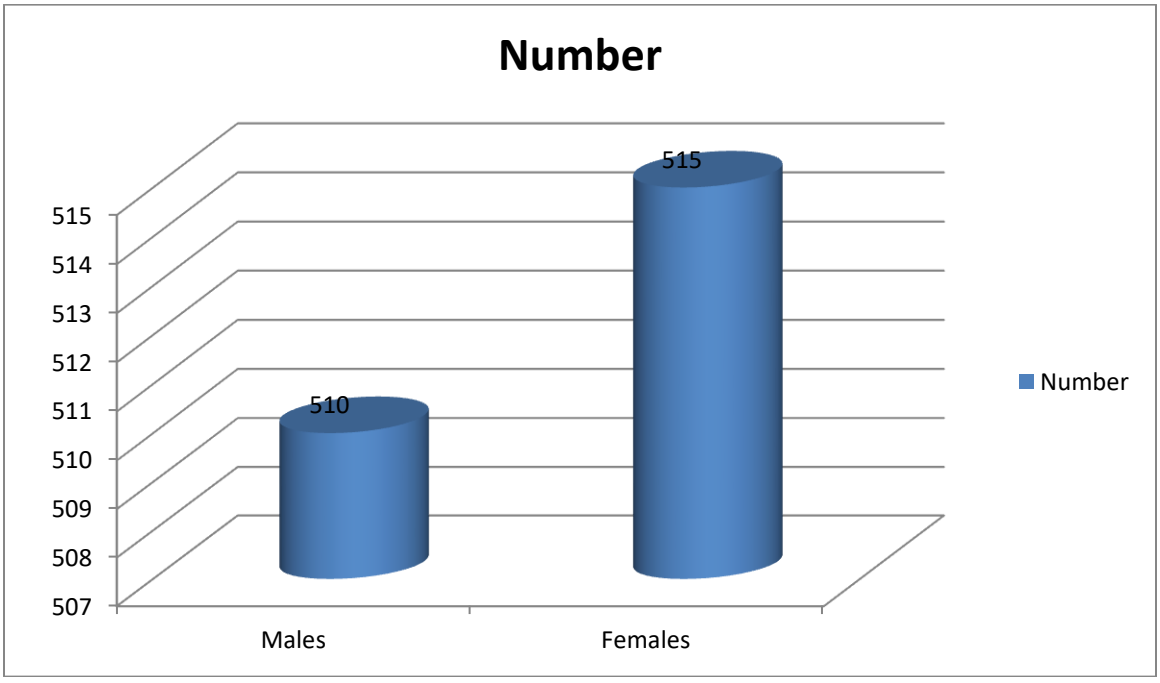
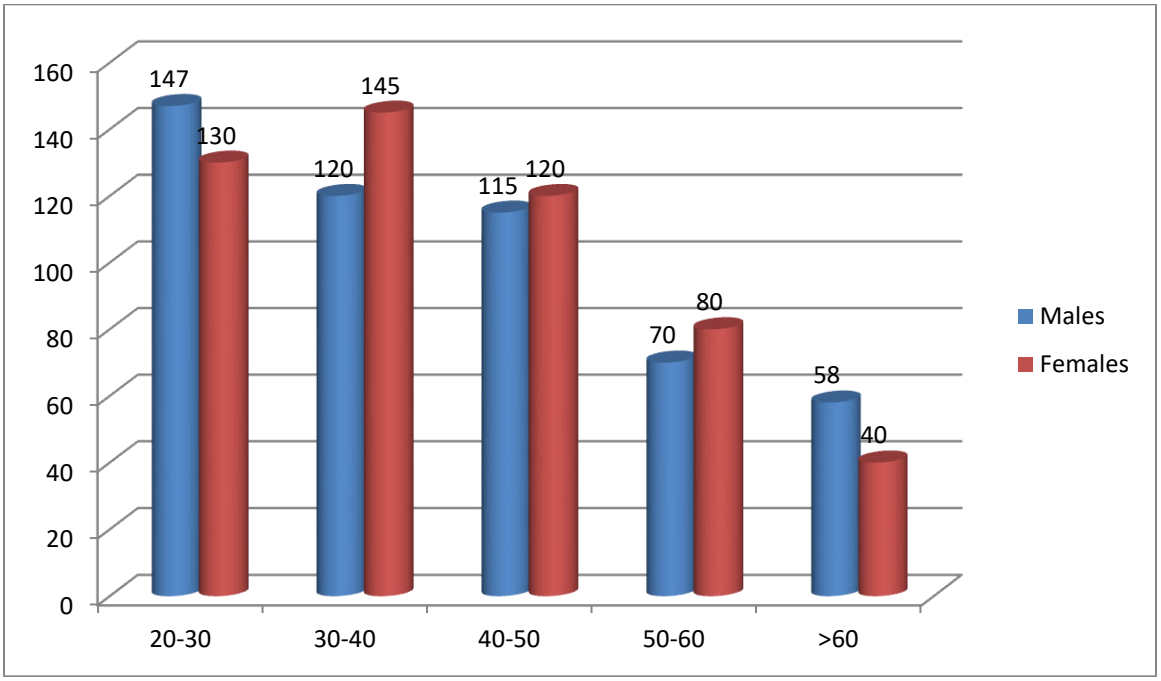


Table II Age wise distribution

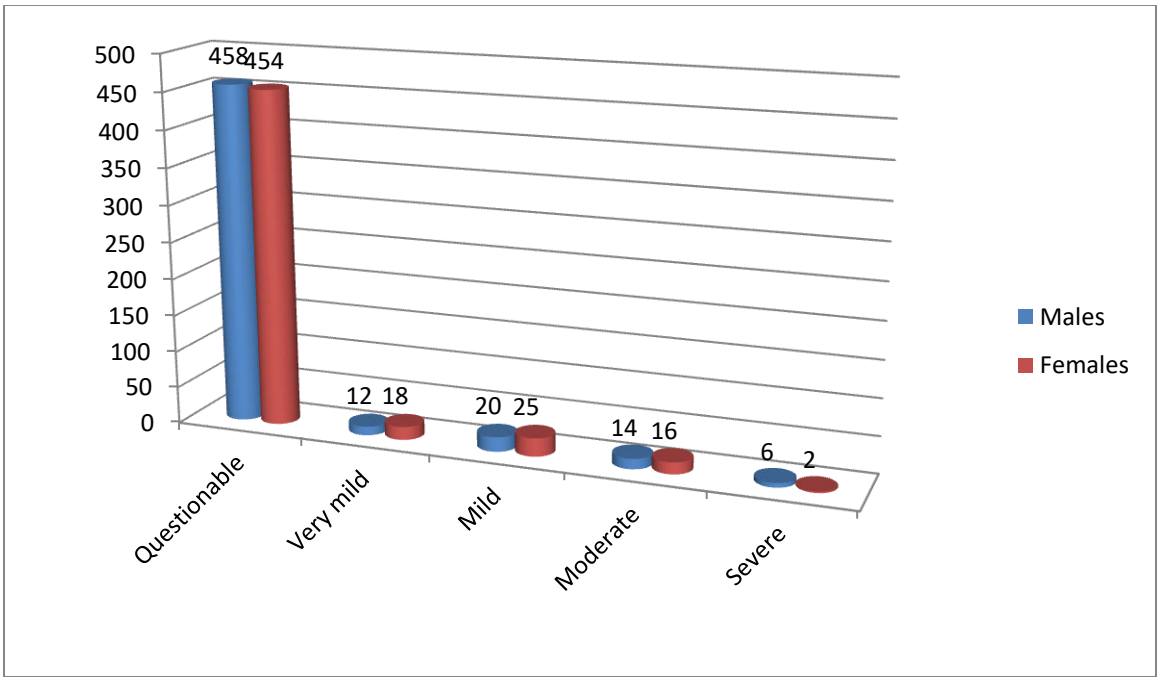
Age group (Years)	Males	Females	P value
20-30	147	130	0.05
30-40	120	145	
40-50	115	120	
50-60	70	80	
>60	58	40	

Table II, graph II shows that age group 20-30 years had 147 males and 130 females, 30-40 years had 120 males and 145 females, 40-50 years had 115 males and 120 females, 50-60 years had 70 males and 80 females and >60 years old were 58 males and 40 females. The difference was significant (P< 0.05).

Graph II Age wise distribution



Graph III Prevalence of Dental Flourosis based on grades of Dean's fluorosis index



Graph III shows that grading was found as questionable in 458 males and 454 females, very mild in 12 males and 18 females, mild in 20 males and 25 females, moderate in 14 males and 16 females and severe in 6 males and 2 females. The prevalence was 10.1% in males and 11.8% in females. The difference was significant (P< 0.05).

DISCUSSION

Fluoride (F-) is one of the very few chemicals that can leave significant effects on human health through drinking water. Different forms of F exposure have shown to affect systemic F content, thus increasing the risk of prone diseases. At low concentrations (<1.0 mg/L), drinking water F has positive effects on teeth such as preventing or decreasing the risk of dental caries, which is one of the main concerns of dentists.[7] Fluoride level of >1.5 mg/l in drinking water is considered to be hazardous to health and manifest in the form dental and skeletal fluorosis. The disease may occur in an individual at sub-clinical, chronic or acute levels of manifestation. Crippling skeletal fluorosis can occur when fluoride content of water is very high (>2-3 ppm) or even at very low (lower than 1 ppm even at 0.7 ppm).[8] The severity of fluorosis depends upon fluoride content of drinking water, daily intake of water, continuity and duration of exposure, and climatic conditions. Hence, it is necessary to explore the geographical distribution and present contamination level of water and accordingly developing a strategy for safe drinking water source.[9] The present study was conducted to assess dental fluorosis among village population.

In this study, out of 1025 subjects, males were 510 and girls were 515. Age group 20-30 years had 147 males and 130 females, 30-40 years had 120 males and 145 females, 40-50 years had 115 males and 120 females, 50-60 years had 70 males and 80 females and >60 years old were 58 males and 40 females. Gitte et al[10] found that prevalence of fluorosis was 23.10%. The prevalence of dental fluorosis was 12.6% that of skeletal fluorosis was 28.8%, and the combined prevalence of dental and skeletal fluorosis was 1.8%. Dental fluorosis was found to be very common in children and teenagers. Skeletal fluorosis was found to be more common in age group above 45 years, however, it was lower in the children's (6-12) irrespective of the gender. The fluoride level in surveyed ground water sources from various para ranged from 0.1 to 7.30 ppm.

We found that grading was found as questionable in 458 males and 454 females, very mild in 12 males and 18 females, mild in 20 males and 25 females, moderate in 14 males and 16 females and severe in 6 males and 2 females. The prevalence was 10.1% in males and 11.8% in females. The possible risk factors associated with dental fluorosis include living in regions with water supply fluoridation even at ideal concentrations, the use of fluoride supplements, fluoride levels in toothpaste, early age of toothpaste use for hygiene, a high frequency of oral hygiene with toothpaste and ingestion of toothpaste, early weaning, and a long period of consumption of infant formula.[11] In questionable, the enamel discloses slight aberrations from the translucency of normal enamel, ranging from a few white flecks to occasional white spots. In mild, the white opaque areas in the enamel of the teeth are more extensive but do involve as much as 50% of the tooth. In moderate, all enamel surfaces of the teeth are affected and surfaces subject to attrition show wear. Brown stain is frequently a disfiguring feature and in severe, all enamel surfaces are affected and hypoplasia is so marked that the general form of the tooth may be affected. Pitting, brown stains are widespread and teeth often present a corroded-like appearance.[12]

CONCLUSION

The prevalence of dental flourosis in males was 10.1% in males and 11.8% in females.

REFERENCES

1. Anuradha B, Laxmi GS, Sudhakar P, Malik V, Reddy KA, Reddy SN, et al. Prevalence of dental caries among 13 and 15-year-old school children in an endemic fluorosis area: A cross-sectional study. J Contemp Dent Pract 2011;12:447-50.
2. Dean HT. Classification of mottled enamel diagnosis. J Am Dent Assoc 1934; 21:1421-6.
3. Saravanan S, Kalyani C, Vijayarani M, Jayakodi P, Felix A, Nagarajan S, et al. Prevalence of dental fluorosis among primary school children in rural areas of Chidambaram Taluk, Cuddalore district, Tamil Nadu, India. Indian J Community Med 2008; 33:146-50.
4. Alvarez AJ , Rezende KMPC, Marocho SMS, Alves FBT, Celiberti P, Ciamponi AL, et al. Dental fluorosis: Exposure, prevention and management. J Clin Exp Dent 2009; 1:14-8.
5. Murray JJ, Rugg-Gunn AJ. Modes of action in reducing caries. In: Fluoride in Caries Prevention. Dental Practitioner's Handbook No. 20. 2nd ed. Boston: Wright PSG; 1982; 222-3.
6. Fejerskov O, Yanagisawa T, Tohda H, Larsen MJ, Josephsen K, Mosha HJ. Posteruptive changes in human dental flourosis- A histological and ultrastructural study. Proc Finn Dent Soc 1991; 87:607-19.
7. Almerich-Silla JM, Montiel-Company JM, Ruiz-Miravet A. Caries and dental fluorosis in a Western Saharan population of refugee children. Eur J Oral Sci 2008;116:512-7.
8. Mehta DN, Shah J. Reversal of dental fluorosis: A clinical study. J Nat Sci Biol Med 2013; 4:138-44.
9. Beltrán-Aguilar ED, Barker L, Dye BA. Prevalence and severity of dental fluorosis in the United States, 1999-2004. NCHS Data Brief 2010; 53:1-8.
10. Gitte SV, Sabat R, Kamble K. Epidemiological survey of fl uorosis in a village of Bastar division of Chhattisgarh state, India. Int J Med Public Health 2015;5:232-5.
11. Bhagyajyothi CS, Pushpanjali K. Perception and concerns about dental fluorosis as assessed by tooth surface index of fluorosis among high school children in an area of endemic fluorosis–Kaiwara. Oral Health Prev Dent. 2009; 7:33-8.
12. Burt BA. The changing patterns of systemic fluoride intake. J Dent Res 1992; 71:1228-37.