



## DENTAL FLUOROSIS FIRST SIGN OF FLUORIDE POISONING

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**ABSTRACT:** Ingestion of excess fluoride, most commonly in drinking-water, can cause fluorosis which affects the teeth and bones. Moderate amounts lead to dental effects, but long-term ingestion of large amounts can lead to potentially severe skeletal problems. Dental fluorosis is a change in the appearance of the tooth's enamel surface. The most common types do not affect the function of the tooth and don't cause pain. A Cross-sectional study was carried out on dental students of Visnagar. The results showed 67% of dental fluorosis. The dental effects of fluorosis develop much earlier than the skeletal effects in people exposed to large amounts of fluoride.

### • INTRODUCTION

Teeth are exposed to a variety of elements in daily life. Among the several factors that are known to bring about a change in the normal appearance of tooth color, fluoride is one of the common causal factor. Though the use of fluoride has been demonstrated to be one of the most successful measures in public-health history, excessive intake of fluoride leads to multiple effects on human-health.<sup>[1]</sup>

Fluorosis is a condition caused by an element known as fluorine. It is thirteenth most abundant element available in the earth's crust. Globally, fluorosis is endemic in at least 25 countries. In India nearly 19 state are endemically affected by fluoride.<sup>[2]</sup>

Endemic fluorosis is result from high-fluoridated concentration in ground water, which is a major public health problem in India. Gujarat water supply, sewage board has surveyed all the villages in Gujarat. Reported 15.8% of the villages having fluoride level more then 1.5 mg/liter. Hence an attempt is made to find out the prevalence of Dental Fluorosis.<sup>[3]</sup>

### • MATERIAL AND METHOD

Cross-sectional study was carried out from 23<sup>rd</sup> to 27<sup>th</sup> December 2015. Among the student of Narsinhbhai Patel Dental college and Hospital-Visnagar, Gujarat, India.

#### ○ Inclusion Criteria

✓ All The B.D.S. Students from 1<sup>st</sup> year to 4<sup>th</sup> year and interns were included. (n=281).

#### Exclusion Criteria

✓ Students having deposit on their teeth like Debris, Orthodontic appliances those students.

#### • Instruments used for Study

- Semi structured Questionnaire form was employed for collecting data.
- The Questionnaire form consists of Name, Demographic Data, Age and Sex.
- Dental examination was carried out in Natural Day Light.
- Dean's Index was used to grade the severity of Dental Fluorosis.
- All examination was carried out by a single investigator.

#### • Statistical Analysis

- Kruskal-Wallis Test.
- Mann-Whitney Test.
- SPSS Version 18.0.

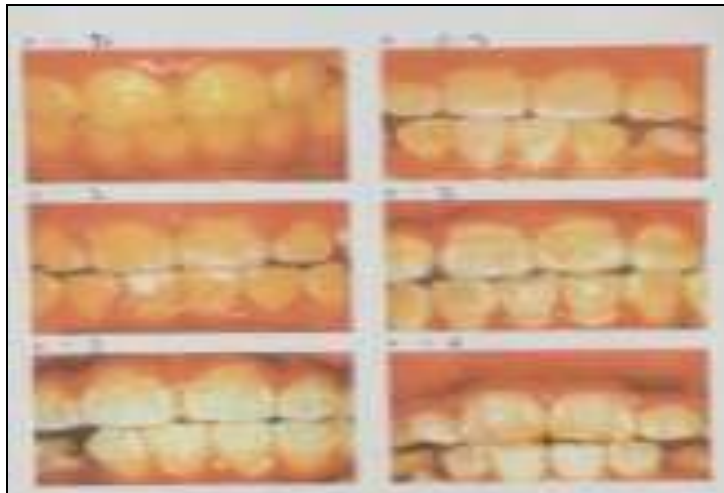
- RESULT**

**Table. 1 Zone wise Fluoride Severity.**

Zone of Gujarat	Mean	SD	Mean rank	P Value
Kutch	1.00	1.00	131.17	0.017
Saurashtra	0.66	0.96	120.94	
North Gujarat	1.08	0.94	154.22	
Middle Gujarat	1.00	0.93	138.40	
West Gujarat	1.12	1.00	137.96	
South Gujarat	0.29	0.97	96.00	

- Table. 2 Male and Female wise Fluoride.**

Gender	Mean	SD	Mean rank	P Value
Male	1.29	0.93	163.16	0.011
Female	0.87	0.93	134.71	



**Image. 1: Different stages of dental fluorosis.**



**Image. 2: Dental and skeletal fluorosis.**

- DISCUSSION**

The present cross-sectional study was conducted among dental student of different zone of Gujarat studying in NPDCH-Visnagar. The prevalence of dental fluorosis in the study population was 69.75%. Students from West Gujarat had high amount of fluorosis ( $1.12 \pm 1.00$ ) as compared to students from South Gujarat ( $0.29 \pm 0.97$ ). This difference may be due to the variation in the amount of fluoride ingested in different forms and exposure to fluoride in environment, other than drinking water. The

result of the present study is in line with the study conducted by PV Kotecha.<sup>[3]</sup> Were the prevalence was 59% and also these studies done by Sarvaiva in Udaipur were the study done among children and the prevalence was 69%.<sup>[1]</sup> There was a higher prevalence among girls compared to boys which was statistically significant. The possible reason for this could be due to poor nutritional status amongst girls. However, further studies are needed to be carried out to confirm the findings. This finding is

in accordance with the study done by Gopalakrishnan et al in Alapuzza district of Kerala.<sup>[5]</sup>

• **CONCLUSION**

“our findings showed that the risk of dental fluorosis was significantly higher in the areas showing more fluoride content in drinking water.”

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