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Research Article

TO STUDY THE IMPACT OF DIFFERENT SOCIO- EPIDEMIOLOGICAL FACTORS IN CASE OF DENTAL FLUOROSIS

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Abstract:

Aim: Fluorosis is an endemic disease that results from the introduction of high levels of fluoride from various sources. Climatic components and dependence on groundwater add to the danger of fluorosis in Multan. Despite this, epidemiological investigations of fluorosis in Multan are not very numerous. Points: (1) Assess the prevalence of dental fluorosis according to age in the examined population. (2) To decide on the extent of the study subjects showing signs of non-skeletal fluorosis (3) To study and reflect the impact of different socio-epidemiological factors in case of dental fluorosis among the examination population in high and ordinary fluoride areas.

Technique: Our current research was conducted Nishtar Institute of Dentistry Multan from February 2018 to January 2019. A cross-sectional study was conducted among the occupants of three arbitrarily selected towns. Dental fluorosis was evaluated by the examination of the dean. Non-skeletal appearances were evoked based on clinical highlights. Fluoride levels in drinking water sources were assessed by the ionic electrode strategy. Accurate chi-square and Fisher tests were used to see range distinction, and a P estimate of <0.06 was considered for evidence of notoriety.

Results: The prevalence of dental and non-skeletal fluorosis in the study clusters with high and low fluoride was 15.19%, 7.7%, 4.85%, 2.8%, individually. The prevalence of dental fluorosis was basically higher in youth and adolescents compared to adults ($P < 0.06$).

Conclusion: Dental fluorosis is a general medical problem that fundamentally influences the children and youth of Multan.

Keywords: Dean's index, fluoride, fluorosis, ion-electrode method, non-skeletal fluorosis

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INTRODUCTION:

Fluorine is an important component of the concern of the medical society because deficiency causes a defective arrangement of the varnish in the teeth and abundance causes dental, skeletal and non-skeletal fluorosis such as muscle deficiency [1], fatigue, lassitude, fragility, dyspepsia, male infertility, polyuria, polydipsia, repeated stillbirths, premature births, etc. Thus, it is fundamental to maintain the use of fluorine at an ideal level [2]. Pakistan has established the principles for fluoride levels in drinking water with an extremely attractive maximum of 1.0 mg/L and an allowable cut-off without exchange source of 1.6 mg/L [3]. Fluorosis affects 23 conditions in Pakistan. Multan a region inclined to the dry season, with its semi-arid atmosphere, dependence on groundwater for drinking and residential purposes, makes it vulnerable to being one of the 16 fluorosis endemic regions of Multan [4]. The written work on fluorosis in Multan is negligible and therefore the present review was repeated [5].

METHODOLOGY:

Our current research was conducted at Nishtar Institute of Dentistry Multan from February 2018 to January 2019. According to the report of fluoride estimation carried out regularly in Multan locality by the workplace of the official specialist. Multan was chosen as the essential inspection unit because it recorded the most remarkable number of cities, namely 83 with high fluoride level. Areas with fluoride levels >1.6 mg/L and <1.0 mg/L were

grouped together as high and typical water fluoride areas. From two randomly selected study groups with high levels of fluoride in water (Group 1) and typical levels of fluoride (Group 2) having a place with, Multan locality, a cross-sectional network-based study was conducted for a period of one year. Open wells were the main source in all the above towns. Moral freedom was obtained from the moral board of the institution. The size of the test was determined using the recipe $n = z^2(pq/L^2)$, where, $z = 1.99$ to 96% provisional certainty, $p =$ assessed ubiquity (32%), $q = 100 - p$, and $L =$ allowed blunder (11% of p). The absolute size of the example 897~920 was taken into account for the review. The door-to-door study was conducted to assess the frequency of dental fluorosis in all family members over the age of 9 years. Non-skeletal indications for fluorosis were studied based on the clinical history of dyspepsia with nausea, vomiting, stomach upset, arrest, diarrhea, muscle weakness, fatigue, lassitude, polyuria, polydipsia, recurrent preterm births, immobile births. The information was disaggregated using a standard measurable data set. The extent of fluorosis and the relationship between fluorosis and the selected risk factor were disaggregated using appropriate tests, i.e., chi-square and Fisher's test. Strategic relapse was used to find out the relationship between the indicator factors and the necessary variable as long as the balanced proportions of chance and their 96% certainty intervals were met. A P estimate of <0.06 was considered worthy of measurement.

Table 1: Baseline features of research population:

Particulars of the study	subject's High fluoride group (n=490)	Normal fluoride group (n=425)
Median age (IQR) in years	36 (23-48)	37 (18978-47)
Males	200 (44.9)	245 (55.1)
Females	217 (47.4)	241 (52.6)
General	20 (43.5)	26 (56.5)
Scheduled caste/scheduled tribe	26 (8.6)	277 (91.4)
Other backward castes	189 (34.1)	365 (65.9)
Use of aqua guard	2.07±0.50	1.94±0.55
Mean consumption of drinking water\$	417 (46.3)	484 (53.7)
Direct	0 (0.0)	2 (100.0)
Fluoridated tooth paste (%)	404 (51.7)	378 (48.3)
Unemployed (%)	140 (60.1)	93 (39.9)
Poor/very poor (%)	444 (53.4)	387 (46.6)

RESULTS:**Sociodemographic profile of the study participants**

The mean age of the members was 32 years with an interquartile range (IQR) from 19 to 47 years in the high fluoride cluster, and in the ordinary fluoride cluster the mean age was 34 years with an IQR from

23 to 46 years. Females were more numerous in the high fluoride (53.7%) and low fluoride (53.2%) groups. Among the various positions, the most remarkable was the one where 57.6 % of the members of the high fluoride group had a place with a planned stand/clan and 85.6 % of the ordinary fluoride group had a place with others in reversed

classes. Only 2 out of 487, i.e. 0.42 per cent of the members of the high fluoride group used water to be protected before drinking it. The average use of drinking water was virtually the same in both fluoride groups. The largest proportion of the uneducated group, 53.5%, attended a typical

fluoride meeting. A significant proportion, i.e. 61.2% of the unemployed and 54.5% of people with low financial status, had a place where fluoride collection was high.

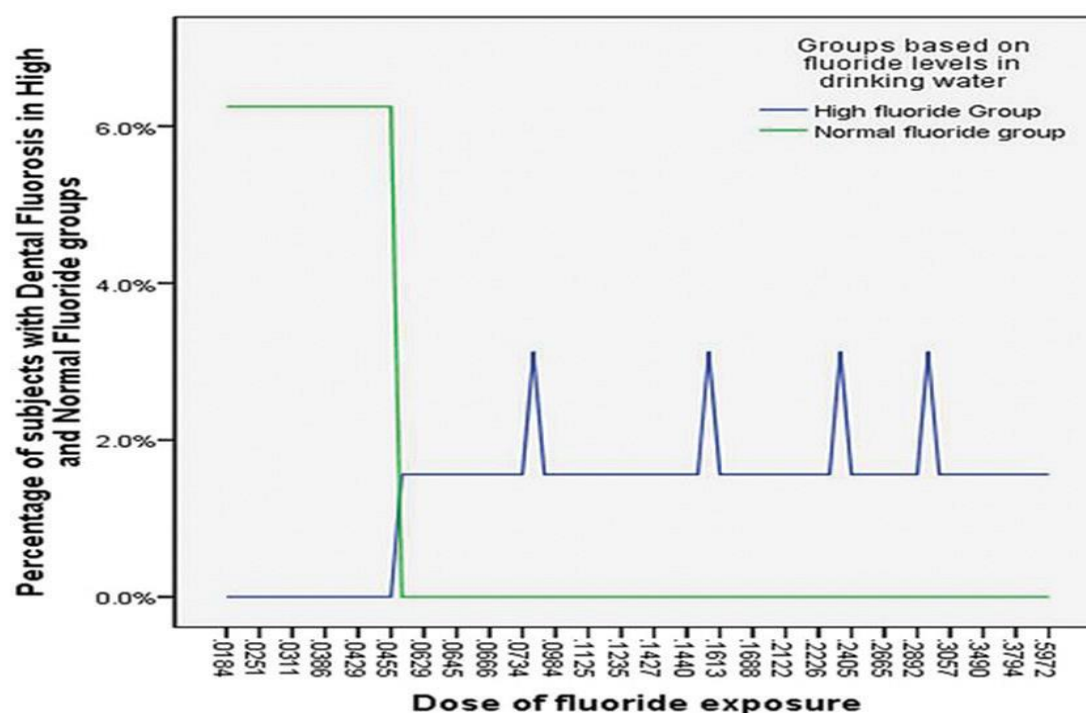


Figure 1: Dental fluorosis through dose of fluoride experience in both high and normal fluoride sets:

Permeability of dental fluorosis:

The prevalence of dental fluorosis in the study group with a high level of fluoride was 14.18% and in the examination group with a low level of fluoride was 4.85%. The explicit banality of age in the high and low fluoride groups decreased with increasing age [Table 2]. The prevalence of dental fluorosis in children and youth (9-21 years) was 32.84% and in adults (>21 years) was 2.34%. In youth and adolescents, the prevalence of dental fluorosis in the examination group with high and low fluoride clusters was 47.86% and 12.59%, respectively. In adults, the predominance of dental fluorosis in the high and low fluoride cluster group was 47.86% and 12.59%, respectively with high and typical fluoride clusters were 2.12% and 2.56%, separately.

Table 2: Age-precise occurrence of dental fluorosis in both high and standard fluoride sets:

Age (years)	Normal fluoride group (%)	Age-specific prevalence in high fluoride group (%)	Age-specific prevalence in normal fluoride group (%)	High fluoride group (%)
≤11	29 (48.34)	36 (100.0)	60 (100.0)	5 (13.89)
12-16	18 (52.94)	14 (100.0)	3 (21.42)	34 (100.0)
17-21	1 (0.36)	280 (100.0)	1 (0.38)	261 (100.0)
22-26	63 (100.0)	53 (100.0)	5 (7.94)	14 (26.42)
>27	2 (3.38)	59 (100.0)	2 (4.65)	43 (100.0)

Components related to dental fluorosis:

The dental fluorosis event in children and adolescents in the high fluoride group was essentially higher than in the other groups ($P < 0.06$). Among the study population with dental fluorosis, we found that there was a significant

association between high levels of fluoride in water and dental fluorosis, and that most of the individuals with dental fluorosis were male ($P < 0.06$).

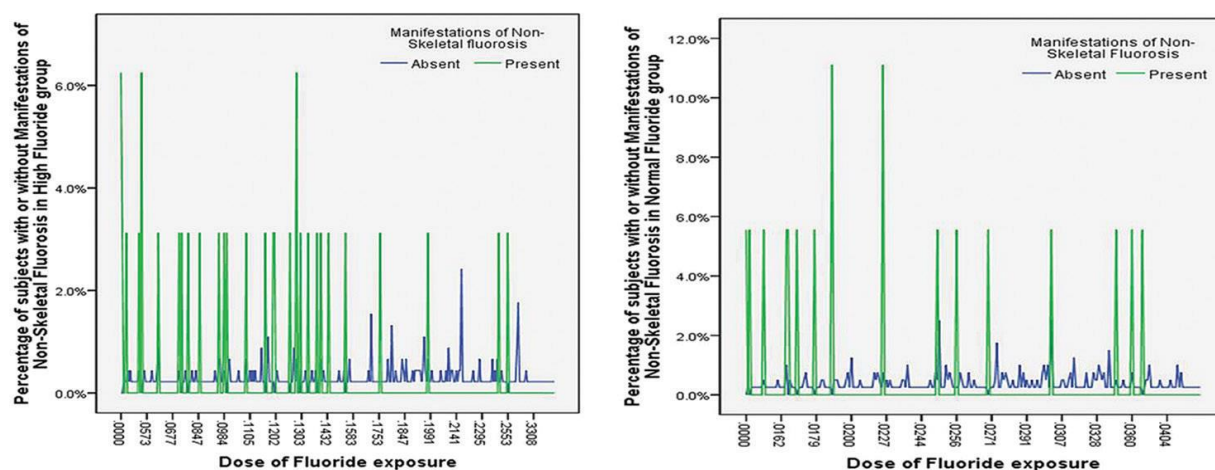


Figure 2: Medical manifestations of non-skeletal fluorosis among (a) High fluoride group. (b) Normal fluoride set:

Table 3: Association among several socioepidemiological logical issues through dental fluorosis in two areas by differential water fluoride levels:

Particulars	Normal fluoride group (%)	High fluoride group (%)	Total (%)	Adjusted OR (CI)
Adults	5 (55.55)	4 (44.45)	9 (100.0)	
Children and adolescents	12 (15.49)	60 (84.51)	73 (100.0)	7.06 (1.43-35.87)
Females	16 (93.75)	2 (6.25)	18 (100.0)	
Males	7 (36.85)	12 (63.15)	19 (100.0)	
Illiterates	1 (50.0)	1 (50.0)	2 (100.0)	
Literates	16 (19.23)	64 (80.77)	80 (100.0)	
Poor	37 (69.81)	16 (30.19)	53 (100.0)	
Middle (upper/lower)	0 (0.0)	27 (100.0)	27 (100.0)	
General category	3 (50.0)	3 (50.0)	6 (100.0)	
Scheduled caste/other backward castes	13 (17.57)	61 (82.43)	74 (100.0)	
Without fluoride	5 (41.66)	7 (58.34)	12 (100.0)	
With fluoride	11 (16.18)	57 (83.82)	68 (100.0)	

DISCUSSION:

Fluoride", a double-edged sword, causes dental fluorosis when spent in excess. Dental fluorosis has become a typical style issue for people living in endemic areas of fluorosis [6]. As indicated by Gopalakrishnan et al., the incidence of dental fluorosis among school children aged 12 to 17 years in the endemic region of Kerala was 38.3% and 4.2% in non-endemic regions; however, in our review, the ubiquity by age (12 to 16 years) of typical high fluoride clusters was 49.4% and 14.8% individually, which is generally higher [7]. The ubiquity of dental fluorosis in the endemic areas of Alappuzha and Palakkad in various age clusters was as follows : 11-12 years - 26.3% and 42.8%, 13-14 years - 37.9% and 39.7%, 16-18 years - 42.3% and 61%, and >16 years - 27.9% and 35.6%, individually

; in the non-endemic regions of Kollam and Thrissur, the age distribution was 11-12 years - 6.2% and 12.2%, 13-14 years - 6.5% and 4.0%, 15-16 years - 4.8% and 2.6%, and >16 years - 0.1% and 1.7%, individually ; in any case, in our survey, [8] the frequency rate by age among ≤ 12 years old in the high and ordinary fluoride clusters was 53.7% and 22.5%, and 12-16 years old in the high and ordinary fluoride clusters was 49.4% and 14.7%, individually, which is moderately higher. The distinction could be due to the diversity of age groups and examination settings [10].

A greater ubiquity of dental fluorosis has been observed in groups with high fluoride content, as opposed to typical fluoride. The pervasively of dental fluorosis is high at the introduction of weak

fluoride into the typical fluoride collection, however the presentation of fluoride through water is less around there. The explanation could be due to the ingestion of fluoride through the diet which requires further investigation, another additional obstacle. As already mentioned, in the wake of the change for the notable confounding factors, the danger of dental fluorosis was several times higher in young people and adolescents than in adults in the case of high fluoride concentration, and the comparative findings have already been discussed according to the findings of Gloger et al.

CONCLUSION:

Dental fluorosis is a general medical problem in youth and adolescents in Multan. Therefore, there is a serious need to treat this problem. This survey is a benchmark for general welfare physicians and the various divisions that are concerned about the current problem. The situation described also cautions against a real reflection on the need to undertake further interventions through inter-sectoral efforts, including a physician of primary consideration, i.e. the establishment of networked defluorination units, raising awareness of the current situation among the occupants of Multan.

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