

Dental Fluorosis Status in School Children in G.Konduru and Reddigudem Mandals, Krishna District

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ABSTRACT

Dental fluorosis is a known adverse effect of fluoride overuse. enamel or dental fluorosis is a condition caused by excessive intake of fluoride over period of time. The most common symptom of dental fluorosis is a chalk-like discoloration of teeth with white spots or lines on tooth enamel. The study was carried out in the G.konduru and reddigudem mandals ,Krishna district ,Ap. during year of 2017-2018.this study aimed to determine the prevalence of dental fluorosis and aware the school going children age of 5-15 years .in methodology the DEAN'S index was used.

Keywords : Dental fluorosis,school going children,awareness,deans index.

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I. INTRODUCTION:

It is well documented that dental fluorosis is one of the dental public health apprehension in many global populations especially those with high levels of fluoride in drinking water. Dental fluorosis (DF) is a global disease is not new to India, the reason being the shortage of good quality portable water and consumption of fluoride (F) enriched water by people both in the rural and urban areas **Tabari ED,et.al,(2000)**. Dental fluorosis also called "mottled enamel" occurs when the fluoride level in drinking water is marginally above 1.0 mg/l. Dental fluorosis develops in children born and brought up in endemic areas of fluorosis **Thylstrup,et.al,(1979)**. Dental fluorosis symptoms include white opacities, faint yellow to brown stains, pitting and chipped off teeth, black discoloration of enamel, hypoplasia and delayed eruption **Petersen PE(2003)**. Mostly it is prevalent in Hilly areas where natural existence of fluoride is dominant **Wedepohl KH(1974)**. Prevalence of dental fluorosis seems to be rising in fluoridated as well as non-fluoridated communities **Clark DC(1994)**. Though the goal was achieved but it was reported that severity of dental fluorosis increased **HEALTH UDO(2011)**. G.konduru population also suffers from menace of fluorosis as abundance of well water is still consumed in remote parts of the country **ANHOBEIRA HA,et.al,(2015),KHAN N,et.al,(2001)**. The increased risk of dental fluorosis is possibly because of exposure to fluoride above optimum level, and further use of fluoride containing anti cariogenic agents that include, tooth paste, mouth wash, fluoride containing chewing gum, and diet enriched with fluoride such as consumption of fish as well as

frequency of tea intake. These can be seriously considered as primary determinants that may be a risk factor for dental fluorosis **Roveri N,et.al,(2009)**. To the best of our knowledge in G.konduru there are some studies that determine dental fluorosis prevalence, severity and some also measure the concentration of fluoride present in well water, that earlier was the primary source of drinking water but these studies are insufficient to come to reach any conclusion and none includes the measurement of topical use of fluoride, in addition none indicated the consumption of fluoride containing diet **Akpata E,et.al,(1997),aldosari AN,et.al,(2010)**. DF in varying degree has been reported in drinking water with various concentrations,levels. **nandrs(1972), teotia.SP,et.al,(1984), dissendorf.M,(1986),HARIKUMAR.R,et.al,(2007),ray SK,et.al,(1981),choubisa SL,et.al,(1996)**. Dental fluorosis symptoms include white opacities, faint yellow to brown stains, pitting and chipped off teeth, black discoloration of enamel, hypoplasia and delayed eruption **choubisa SL(1997)**. In few studies prevalence of dental fluorosis is reported over all but not region/city wise.

II. MATERIAL & METHODS:

The present survey was carried out in 2 mandals G.konduru and Reddigudem mandals .in g.konduru mandal we selected 4 fluoride effected areas of kottubadipalem, pinapaka, kowluru, g.konduru. Reddigudem mandal we selected 4 villages narukulapadu, p.naguluru, munchinapalli, reddigudem. Krishna district is an administrative district in the Coastal Andhra region of the Indian state of Andhra Pradesh. Machilipatnam is

the administrative headquarters and Vijayawada is the most populated city in the district. It has an area of 8,727 km² (3,370 sq mi) and had a population of 45,29,009 as per 2011 census of India. It is bounded by West Godavari on the east, Bay of Bengal on the South, Guntur and Suryapet districts in the west and a portion of it also borders with the state of Telangana. 50 mandals in Krishna district under 4 revenue division. Krishna District is formed from District of Rajahmundry in 1859, Guntur district was separated from Krishna in 1904 to form Krishna district which was further divided in 1925, to Krishna and West Godavari districts. Krishna district is the most developed district in Andhra Pradesh.

I have identified some villages in Krishna district, out of 50 mandals. In Krishna district 2 mandals (sub district unit) viz G.konduru and reddigudem were selected purposively based on the report of rural water supply and sanitation department of Krishna.

Classification of the dental fluorosis severity degrees according to DEAN's fluorosis Index:

Questionable. The enamel represents the usual translucent semivitriform (glass-like) type of structure. The surface is smooth, glossy and usually of pale creamy white color

Very Mild. Small, opaque, paper white areas scattered irregularly over the tooth but not involving as much as approximately 25% of the tooth surface. Frequently included in this classification are teeth showing no more than about 1 – 2mm of white opacity at the tip of the summit of the cusps, of the bicuspid or second molars.

Mild. The white opaque areas in the enamel of the teeth are more extensive but do involve as much as 50% of the tooth.

Moderate. All enamel surfaces of the teeth are affected and surfaces subject to attrition show wear. Brown stain is frequently a disfiguring feature

Severe. All enamel surfaces are affected and hypoplasia is so marked that the general form of the tooth may be affected. The major diagnostic sign of this classification is discrete or confluent pitting. Brown stains are widespread and teeth often present a corroded-like appearance.

Dean's fluorosis index was first published in 1934 by H. Trendley Dean. The index underwent two changes, appearing in its final form in 1942. An individual's fluorosis score is based on the most severe form of fluorosis found on two or more teeth. Score 0 is considered normal when the enamel represents the usual translucent semivitriform structure. The surface is smooth and

glossy. Score 1 represents when the enamel discloses slight aberrations from the translucency of normal enamel, ranging from few white flecks to white spots. Score 2 represents small, opaque white area irregularly scattered over tooth but not involving as much as 25% of tooth surface. Score 3 shows white opaque areas in enamel of tooth but do involve as 50% of teeth. Score 4 has all enamel surfaces that are affected and attrition. Brown staining is also present. Score 5 shows hypoplasia and discrete pitting. There is brown staining and corrode like area.

III. QUESTIONNAIRE:

Keeping in view of the scope and objectives of the study, interview schedule was prepared. A structurally well prepared and pre tested questionnaire was developed after perusal of the available literature. Thus, the final interview schedule consists of all the relevant items such as profile characteristics, etc., for measuring the variables included in the study. After pre-testing the questionnaire at the proposed study area, necessary modifications were incorporated. The finalized questionnaire which was used in the interview schedule for obtaining the primary data is appended herewith. Name, Age, sex, Habitat, Education, No. of family members, occupation, sources of drinking water, amount of water consumed, type of toothpaste, residence, how many times brushing per day, have you ever considered teeth whitening, how often do you make dental visit, consumption of tea and sea fish per day etc.,

Severity of the dental fluorosis was assessed by deans index with the help of dentist and total samples are tested and classified according to the severity of dental fluorosis. The classification was divided questionable, very mild, mild, moderate and severe. The study involves collection of both primary and secondary data. The primary data was collected from the selected victims of dental fluorosis with the help of duly pre-tested questionnaire. The secondary data was regard to reports of the rural water supply and sanitation department Krishna in the study area.

IV. RESULT:

G. konduru and Reddigudem mandals of Krishna district, Andhra Pradesh India seems to be threaten area of fluoride in dental fluorosis total 8 fluoride effected villages has been find out with the help of rural water supply and sanitation department Krishna district and water samples had been taken for the analysis of water fluoride content. Water samples from different bore wells of 8 villages which showed a High range of 1.4 to 3.14 ppm by DEAN's method. Among 8 villages 8 are showing high levels of fluoride. Almost all the

selected villages are above than the permissible level of 1 ppm according to WHO(1984).The mild type is (20%),and sever type is lower(8%), Questionable type is (27%), Very mild is (11%),Moderate is(34%). Particularly,pinapaka(3.14ppm),kottubadipalem(2.0ppm)and,kowluru(2.24ppm),munchinapalli(3.14),reddigudem(2.20) in G.konduru and Reddigudem

mandals have excess levels of fluoride in Drinking water.

We find mean standard deviation of the total children of the sample and the mean value is and the standard deviation is the data was presented in percentage to understand the nature of the level of knowledge about the diseases of dental fluorosis.

Table:1 Systematic representation of the sample

S.NO	NAME OF THE VILLAGE	BOYS	GIRLS
1	KATTUDIPALEM	26	19
2	PINAPAKA	27	25
3	KOWLURU	23	15
4	G.KONDURU	32	29
TOTAL		108	88

Detailed information and classification of the samples according to boys and girls are represented in the table:1.the total number of the villages are 4, number of the boys are 108 are (58%) and girls are 88(42%).

Table: 2. Classification of effected children in the region

S.No	Name of the villages	Questionable		Very Mild		Mild		Moderate		Severe	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1	KATTUDIPALEM	6	4	3	2	5	4	9	6	3	3
2	PINAPAKA	6	6	3	5	7	6	8	7	3	1
3	KOWLURU	4	4	4	2	5	3	8	5	2	1
4	G.KONDURU	8	7	4	6	6	6	10	7	4	3

The responds of every village of the region are classified according to deans index and gender represented in the table: 2.The above table

represents about effected children in the region of G.kondur mandal. Total 4 villages childrens were observed according to deans index

Table: 3.Classification of effected children in the age

TYPE	7-9 YEARS		10-12 YEARS		13-15 YEARS		TOTAL	PERCENTAGE
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS		
QUESTIONABLE	8	6	10	7	6	8	45	27%
VERY MILD	5	6	4	5	5	4	29	11%
MILD	7	8	8	7	8	4	42	20%
MODERATE	10	11	12	8	13	6	60	34%
SEVERE	4	2	3	3	5	3	20	8%
TOTAL	34	33	37	30	37	25	196	

The information represented based on the age view and it is tabulated as above table:3. Based on the age it was divided into two types. Those are 7-9, 10-12 years and 13-15 yrs. Boys and girls data

are represented separately. The percentage was calculated and recorded in the table. The mild type is (20%),and sever type is lower(8%), Questionable

type is (27%), Very mild is (11%), Moderate is (34%).

Figure1: Graphical representation of effected Children of Dental Fluorosis in G.Konduru Mandal

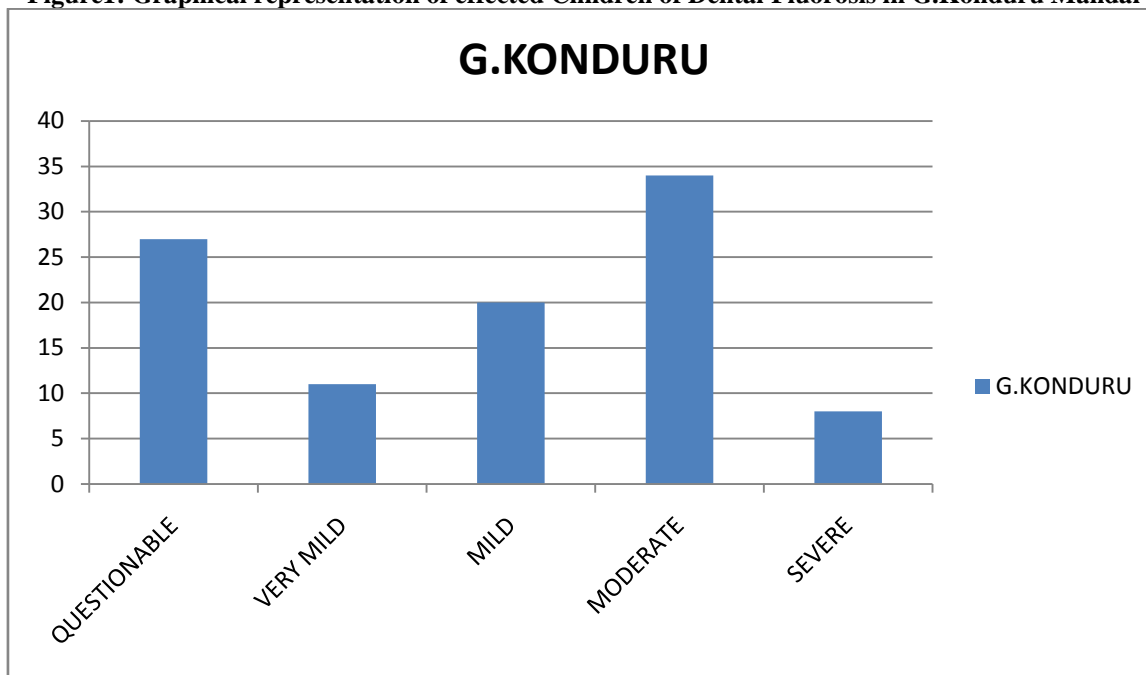


Table:1 Systematic representation of the sample

REDDIGUDEM

S.NO	NAME OF THE VILLAGE	BOYS	GIRLS
1	Munchinapalli	25	35
2	P.Naguluru	20	25
3	Narukulla Padu	23	27
4	Reddi gudem	30	20
TOTAL		98	107

Detailed information and classification of the samples according to boys and girls are represented in the table:1. The total number of the villages are 4, number of the boys are 98 are (58%) and girls are 107(42%).

Table: 2. Classification of effected children in the region

S.No	Name of the villages	Questionable		Very Mild		Mild		Moderate		Severe	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1	munchinapalli	6	8	3	7	5	6	9	11	2	3
2	p.naguluru	4	5	1	2	2	5	10	11	3	2
3	narukulapadu	6	5	3	2	4	6	8	12	2	2
4	reddigudem	8	4	4	2	7	4	9	7	2	3

The responds of every village of the region are classified according to deans index and gender represented in the table:2. The above table

represents about effected children in the region of Reddigudem mandal. Total 4 villages childrens were observed according to deans index.

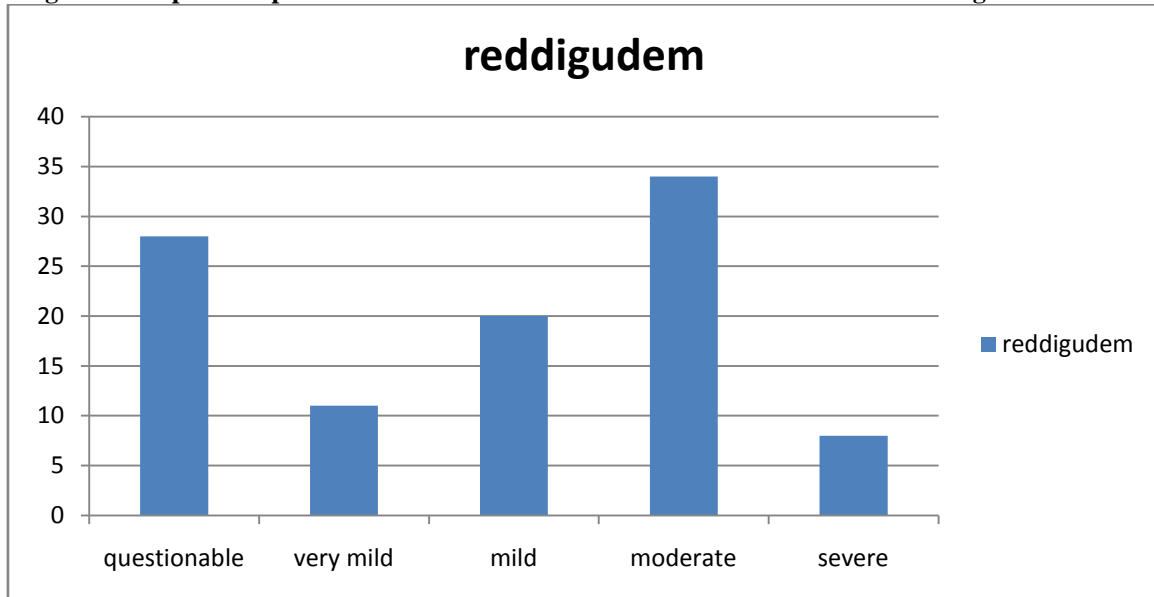
Table: 3. Classification of effected children in the age

TYPE	7-9 YEARS		10-12 YEARS		13-15 YEARS		TOTAL	PERCENTAGE
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS		
QUESTIONABLE	8	6	7	7	9	9	46	25%
VERY MILD	4	4	3	3	4	6	24	12%
MILD	6	7	5	6	7	8	39	18%
MODERATE	10	12	12	14	14	15	77	36%
SEVERE	2	4	3	3	4	3	19	9%
TOTAL	30	33	30	33	38	41		

The information represented based on the age view and it is tabulated as above table:3. Based on the age it was divided into two types. Those are 7-9, 10-12 years and 13-15 yrs. Boys and girls data are represented separately. The percentage was

calculated and recorded in the table. The mild type is (18%), and sever type is lower(9%), Questionable type is (25%), Very mild is (12%), Moderate is(36%).

Figure2: Graphical representation of effected Children of Dental Fluorosis in Reddigudem Mandal



Accurate of enamel fluorosis



Fig.1: dental fluorosis (Deans grading) (A)Questionable (Grade1), (B)Very mild(grade2), (C)Mild(Grade3), (D) Moderate (Grade 4), (E)Sever(Grade 5).

V. CONCLUSION:

The present study gives us an insight into the problem of dental fluorosis among high school children in a rural area of G.konduru mandal, Krishna district, where fluorosis is a public health problem of 'slight significance'. To overcome the severity of dental fluorosis, defluorinated drinking water is to be supplied to the

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affected area and also to educate the people to use safe sources of water for drinking. Training camps should be arranged in schools to screen, treat and educate school children, Teachers and Parents. Further studies are also needed to find out any other reasons and to solve the problem.

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