

Knowledge, Attitude and Esthetic Perceptions about Dental Fluorosis Amongst the Rural Populations in Vidarbha (Melghat) Region of Maharashtra: A Questionnaire Study

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ABSTRACT

Background: Fluorosis has attained an alarming dimension all over the world. It has been identified as an endemic disease among which Maharashtra is facing serious health problems. This study is aimed to determine the knowledge about fluorosis among the rural population examined during oral health screening camps, and correlate the perception of dental fluorosis and to assess opinions about the appearance of dental fluorosis with the psychological health of the rural population.

Materials and Methods: A questionnaire was used for the assessment of knowledge, attitude, and esthetic perceptions toward dental fluorosis among the rural population of Melghat region of Maharashtra. A cross-sectional study was conducted in melghat where patients who were screened positive for dental fluorosis were selected.

Results: The present study revealed that only 16% of study populations were aware of the term dental fluorosis. The study participants had a positive attitude towards the prosthodontic treatment of dental fluorosis as 90 % of them were ready to take the treatment if provided and 70% responded that they do not find their teeth to be esthetic.

Conclusion: Dental fluorosis is not only a cosmetic problem that impairs social well-being but also affects oral health-related quality of life.

Keywords: Attitude, Dental Fluorosis, Questionnaire, Dental Care.

INTRODUCTION

Fluorosis is a crippling and painful disease caused by excess intake of fluoride. Fluorosis may be classified into dental fluorosis and skeletal fluorosis. Dental fluorosis in teeth exhibits the first sign of fluoride toxicity in the form of "mottled enamel." The data suggest that 15 states in India are fluoride

endemic areas which contain increased levels of fluoride in drinking water about >1.5 ppm. Around 62 million people in India are suffering from dental fluorosis, skeletal fluorosis, and nonskeletal fluorosis. Of 62 million, 16 million children below the age of 14 years have been severely affected.

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Groundwater is considered as the major source of drinking water in most of the part of India.

Esthetics changes in permanent dentition are the greatest concern in dental fluorosis, which are more prone to occur in children who are excessively exposed to fluoride between 20 and 30 months of age. It is also important to remind that the critical period to fluoride overexposure is between 1 and 4 years old, and the child would not be at risk around 8 years old.

Fluorosis has attained an alarming dimension all over the world. Dental fluorosis is the first visible sign indicating that much fluoride has poisoned the whole body. Besides the health hazards, there are other adverse effects of dental fluorosis such as high costs of other medical and dental problems and the effect on the victims and their loss of time.[1]

Therefore, there is a need for improving levels of awareness among people about the harmful effects of excessive fluorides in the body. Rare knowledge of the causes of dental fluorosis may be considered one of the associated risk factors which increase dental fluorosis problem because it will be reflected on people practice and attitude.

Dental fluorosis has negative effect on appearance. In addition, it negatively affects the public perception which will be reflected in the public manner with people who suffer from this problem generally and children especially. There are no information to assess the awareness about the risk of having excessive fluoride, the methods that minimize and prevent this problem and the public perception of dental fluorosis among the population of Melghat- Amravati, Maharashtra

Objectives

1. To examine the knowledge towards Dental Care Of Fluorosis Among The Dental Professionals in the Melghat- Amravati Region Of Maharashtra.
2. To examine the attitude towards Dental Care Of Fluorosis Among The Dental Professionals in the Melghat- Amravati Region Of Maharashtra.
3. To examine the esthetic towards Dental Care Of Fluorosis Among The Dental Professionals in the Melghat- Amravati Region Of Maharashtra.

MATERIALS AND METHODS

A cross-sectional survey was carried out to assess the knowledge, attitude, and esthetic perceptions of dental fluorosis among the population of Melghat.

Eligible participants were randomly selected. All the individuals were broadly screened for dental fluorosis, and questionnaire forms were distributed to assess the perception of dental fluorosis. The questionnaire consisted of 25 questions in both English, Hindi and marathi language and was designed to obtain information about knowledge, attitude, and esthetic perceptions of dental fluorosis. Confidentiality of the participants was maintained.

Analysis

Data were analyzed using the Statistical Package for Social Sciences. Analyses were performed with descriptive statistics using frequency and percentage.

Questionnaire

QUESTIONNAIRE

Participants name:

Age:-

Sex:

How long have you been staying in this village?

1. Do you know you are suffering from yellowish discoloration of the teeth?
 - a. Yes
 - b. No
2. How long have you been suffering from this yellowish discoloration of the teeth(years)?
3. Do you know the reason behind the discoloration of the teeth?
 - a. Yes
 - b. No
4. If Q.3 is answered with yes, what are the reasons behind it?
 - a. Drought conditions
 - b. Deep groundwater
 - c. Both
 - d. Other
5. Do you know that this problem can be solved by a dental surgeon?
 - a. Yes
 - b. No

6. Have you ever been informed by a dental surgeon about the treatment of this condition?
 - a. Yes
 - b. No
7. Do you know the discoloration which you have is called as 'FLUOROSIS'?
 - a. Yes
 - b. No
8. Do you know any of the treatment ?
 - a. I don't know
 - b. Fluoride protecting mouthwash
 - c. Fluoride protecting varnish
 - d. Laminates
 - e. Any other
9. Do you know that fluorosis exceeding the normal limit can affect our systemic conditions?
 - a. Yes
 - b. No
10. Do you know fluorosis has an other effect on oral health?
 - a. Yes
 - b. No
11. How does this condition (discoloration) affects your relationship with other people?
 - a. Don't know
 - b. Doesn't affect
 - c. A little more
 - d. Very much
12. Do you think it is important or not for your village to have a dental surgeon?
 - a. Yes
 - b. No
13. Have you visited any dental hospital for the problem?
 - a. Yes
 - b. No
14. Do you think it is necessary to treat such disease?
 - a. Yes
 - b. No
15. Have you done any treatment for the disease?
 - a. Yes
 - b. No
16. If Q.15 is answered with YES then, Who encouraged you to do it?
 - a. villagers
 - b. Collaegue
 - c. Parents
 - d. Dentist
17. If you have any fluorides protecting solution do you use it?
 - a. Once
 - b. always
 - c. Mostly
 - d. Sometimes
 - e. Never
18. If Q.17 answered with never or sometimes is this because the fluoride protecting solution?
 - a. Is uncomfortable
 - b. Causes nausea
19. If you have never use it what are the reasons?
 - a. Too expensive
 - b. Appeared unnecessary
 - c. Appeared ugly
 - d. Seemed to be uncomfortable to wear
20. If you are provided with a treatment will you use it?
 - a. Yes
 - b. No
21. Is the appearance of your teeth appealing?
 - a. Yes
 - b. No
 - c. Do not know
22. Do you feel embarrassed by the appearance of your teeth?
 - a. Yes
 - b. No
 - c. Do not know
23. How much has the appearance of your teeth worried you?
 - a. Many times
 - b. Sometimes
 - c. always
 - d. never
24. How much has the appearance of your teeth hindered you from smiling freely?
 - a. Many times
 - b. Sometimes
 - c. always
 - d. never
25. Does the appearance of your teeth prevent you from attending social gatherings?
 - a. Many times
 - b. Sometimes
 - c. always
 - d. never

RESULTS

The questionnaire was distributed to 50 patients and are included in this study. Questionnaire perform was divided into three parts as follows: knowledge, attitude, and esthetic perceptions.

In Table 1, out of 50 patients, only 84% respondents are not aware of fluorosis and 347 (51.2%) respondents know about the treatment available for fluorosis. 24 % respondent received information about ill effects of excessive fluoride from the dental surgeon. Only 16 % responded that they have received information about ill effects from the dentists.

In Table 2, out of 50 patients, 76% responded that they have never consulted dentist regarding the appearance of their teeth and 90 % shows the willingness for treatment of their appearance of teeth if they are provided with the intervention programs.

In Table 3, out of 50 patients, 38% responded that they are worried about their appearance and do not find their teeth to be esthetic and 70% were embarrassed by the appearance of their teeth and because of that 56% respondents avoided attending social gatherings.

Table 1: Distribution of subjects according to knowledge score

Knowledge Score	No of subjects	Percentage
Do you know you are suffering from yellowish discoloration of the teeth?		
Yes	41	82
No	9	18
How long have you been suffering from this yellowish discoloration of the teeth?		
0-5	23	46
6-10	24	48
11-15	3	6
Do you know the reason behind the discoloration of the teeth?		
Yes	39	78
No	11	
If Q.3 is answered with yes, what are the reasons behind it?		
Drought conditions	5	10
Deep groundwater	17	34
Both	17	34
Other	11	22
Do you know that this problem can be solved by a dental surgeon?		
Yes	7	14
No	43	86
Have you ever been informed by a dental surgeon about the treatment of this condition?		
Yes	8	16
No	42	84
Do you know the discoloration which you have is called as 'FLUOROSIS'?		
Yes	8	16
No	42	84
Do you know any of the treatment ?		
I don't know	39	78
Fluoride protecting mouthwash	1	2
Fluoride protecting varnish	3	6
Laminates	7	14
Any Other	0	0
Do you know that fluorosis exceeding the normal limit can affect our systemic conditions?		
Yes	12	24
No	38	76
Do you know fluorosis has an other effect on oral health?		
Yes	2	4
No	48	96

Table 2: Distribution of subjects according to attitude score.

Knowledge Score	No of subjects	Percentage
How does this condition (discoloration) affects your relationship with other people?		
Don't know	13	26
Doesn't affect	16	32
A little more	8	16
Very much	13	26
Do you think it is important or not for your village to have a dental surgeon?		
Yes	39	78
No	11	22
Have you visited any dental hospital for the problem?		
Yes	12	24
No	38	76
Do you think it is necessary to treat such disease?		
Yes	24	46
No	26	52
Have you done any treatment for the disease?		
Yes	9	18
No	41	82
If Q.15 is answered with YES then, Who encouraged you to do it?		
Villagers	0	0
Colleague	7	14
Parents	1	2
Dentist	1	2
NA	41	82
If you have any fluorides protecting solution do you use it?		
Once	18	36
Always	12	24
Mostly	8	16
Sometimes	11	22
Never	1	2
If Q.17 answered with never or sometimes is this because the fluoride protecting solution?		
Is comfortable	10	20
Causes Nausea	4	8
NA	36	72
If you have never use it what are the reasons?		
Too Expensive	5	10
Appeared unnecessary	6	12
Appeared ugly	2	4
Seemed to be uncomfortable to wear	1	2
NA	36	72
If you are provided with a treatment will you use it?		
Yes	45	90
No	5	10

Table 3: Distribution of subjects according to esthetic perception.

Esthetic Perception	No of subjects	Percentage
Is the appearance of your teeth appealing?		
Yes	5	10
No	33	66
Do not know	12	24
Do you feel embarrassed by the appearance of your teeth?		
Yes	35	70
No	15	30
Do not know	0	0
How much has the appearance of your teeth worried you?		
Many times	19	38
Sometimes	14	28
Always	7	14
Never	10	20
How much has the appearance of your teeth hindered you from smiling freely?		
Many times	10	20
Sometimes	20	40
Always	7	14
Never	13	26
Does the appearance of your teeth prevent you from attending social gatherings?		
Many times	12	24
Sometimes	28	56
Always	5	10
Never	5	10

DISCUSSION

Fluoride (F) is probably an essential element (<1 ppm F/l) for both animals and humans. Fluoride and Iodine are often called as a double-edged sword. Because prolonged ingestion of fluorides through drinking water in excess of the daily requirement is associated with dental (1–2 ppm F/l) and skeletal fluorosis (2–6 ppm F/l)[2].

Melghat region of Amravati, Maharashtra is considered as the endemic area of fluorosis in India. It has resulted in the occurrence of dental fluorosis in younger and older age group. It has also affected the various sociological aspects of daily life, namely, esthetic appearance. Therefore, the present study was carried out to assess the knowledge, attitude, and esthetic perception about dental fluorosis in Melghat, Amravati region of Maharashtra.

The major findings

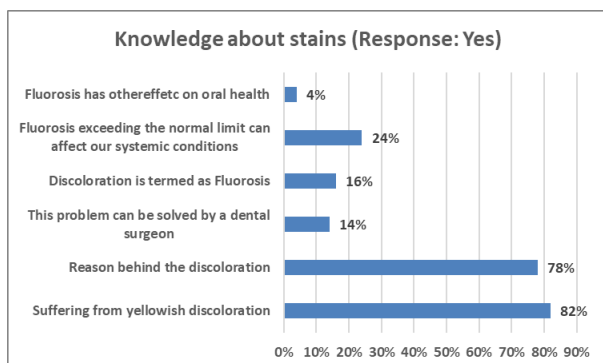
Of the total patients screened for the study, the main findings of this study [1]were:

1. There was a lack of knowledge about the term dental fluorosis as a major oral health problem among the population of Melghat.
2. There was a lack of knowledge among the population on what is the cause of dental fluorosis.
3. There is a positive attitude among the population toward taking active part in any treatment intervention initiation in the future by the dentists, which attempts in the prevention of dental fluorosis.

Knowledge around dental fluorosis (Graph 1)

In the present study, there is a lack in knowledge of the patients about the term dental fluorosis. Only 16% of the respondents are aware of the term fluorosis, and this ignorance could be the reason for the increase in the risk of exposure to dental fluorosis among the population of Melghat. 96% respondents does not know that treatment is available for the dental fluorosis. Among all,

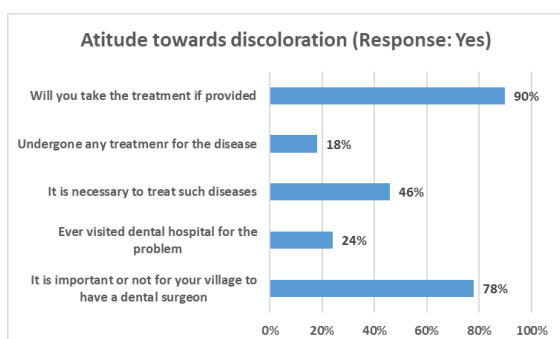
dentists as well as public health dentists are at the center of this problem and can help in the spreading awareness about ill effects of the excessive amount of fluorosis in water. Therefore, significantly contributing to society and preventing them from the harmful effects of dental and skeletal fluorosis.



Graph 1: Knowledge around dental fluorosis

Attitude perception towards dental fluorosis (Graph 2)

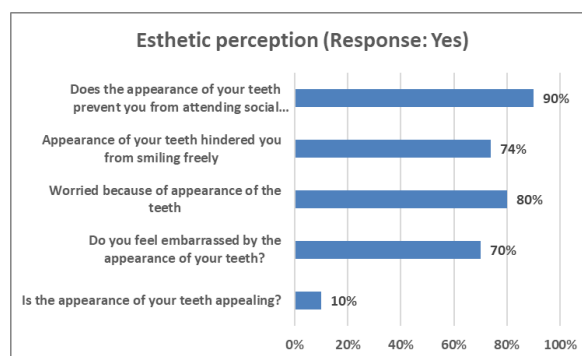
This study illustrated a negative public perception for dental fluorosis in Melghat- amravati as 76% of the people have not consulted any dental surgeon regarding the appearance of their teeth but in spite of the negative perception, 90 % of the respondents wanted the treatment to be done for their discolored teeth. Even though many studies have been conducted to investigate the perception of dental fluorosis around the world and the results of most of them were in consistency with the study done in Melghat region, but not much evidence is reported in studies to explore the public perception toward the role of government in the prevention of dental fluorosis.



Graph 2: Attitude perception towards dental fluorosis.

Aesthetic perception towards dental fluorosis (Graph 3)

This study found that most respondents 70% are embarrassed or worrisome about the appearance of their teeth. Feelings of distress, embarrassment, worry hindered respondents from smiling due to dental fluorosis and prevented them from attending social gatherings. Despite the severe impact of dental fluorosis on participants, awareness about the availability of the treatment procedures, only a small percentage consulted the dentist regarding the appearance of their teeth. This shows the negative attitude of participants toward their oral health. More studies should be undertaken to look at the general population's esthetic perceptions regarding dental fluorosis so that national and regional defluoridation programs can be formed.



Graph 3: Aesthetic perception towards dental fluorosis.

CONCLUSION

Dental fluorosis is a not only a cosmetic problem that impairs social well-being but also affects the oral health-related quality of life. The maintenance of oral health requires an informed public as well as self-awareness of the disease to motivate the sufferer into play a role in the prevention and control of the disease through self-care and professional assistance. The government also has a key role to play in control of fluorosis. Dentists, as well as public health dentists, are at the center of this problem. Dentists, who come across fluorosis patients in their routine clinical practices, can educate and motivate these people to adapt to practices regarding safe drinking water. Due to the high cost of the treatment, most of the people in developing country cannot afford the treatment cost, thus are reluctant to seek the treatment.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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