

Knowledge, Attitude and Practice Towards Dental Care of Fluorosis Among the Dental Professionals in Vidarbha Region of Maharashtra: A Questionnaire Study

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ABSTRACT

Background: Dentists have a unique potential of preparing a future generation ready to accept the preventive services. To keep the clinical practice in pace with the advancing dental sciences, the practitioner's knowledge and skills toward preventive care options need to improve.

Materials and Methods: A cross-sectional study conducted among dental professionals in vidarbha region of maharashtra. Knowledge, attitude and practice toward preventive prosthodontic dental care were assessed using a pretested, structured and validated questionnaire that was administrated to 50 dental professionals.

Results: 66% of the respondent dentists were known of the fact that they are practicing under high fluoridated concentrated area. 76 % believed that dental fluorosis represents a clinical problem that could come next in public health concern. 62 % of respondent dentists believed in the prevention strategies like application of fluoride toothpaste, fluoride rinses, topical fluoride supplements.

Conclusion: Dentists' knowledge of and attitudes toward prevention should be improved and updated to enable and encourage them to provide their patients with preventive care. Greater effort should be made by the professional organization and governmental agencies to inform patients of the benefits of sealants.

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

INTRODUCTION

Excessive, long term consumption of fluoride (> 1ppm) during the developmental period of teeth results in Dental fluorosis (Moller et al 1970) or mottled enamel (Akpata and Jacso 1976) or opacities (Murray et al 1984) which appears as symmetrically distributed barely noticeable white flecks to confluent pits in enamel and unsightly dark brown stains. Fluoride (F) is probably an essential

element (less than 1ppm F/ liter) for both animals and humans.

Water is the main source of fluoride and other minerals. Severity of fluorosis depends on amount of consumption of high fluoride water. 80% of domestic needs in rural India are met by groundwater. The global burden of disease due to

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fluoride in drinking water was estimated by Fewtrell et al in 2006 that in India, about 1,81,97,000 are affected with dental fluorosis and 78,89,000 are affected with skeletal fluorosis. Dental fluorosis is endemic in 150,000 villages in India [1]

Oral health is not only important to your appearance and sense of well-being, but also to your overall health. The preventive approach in dental practice has been cited as a reason for caries decline in recent decades, and as a predominant part of the service-mix of dental practices in the future.[2] The re-orientation of oral health services toward prevention and health promotion is one of WHO's priority action areas for the continuous improvement of oral health. The knowledge, attitude and practice of dental professionals need to follow this reorientation.

Dentists have a unique potential of preparing a future generation ready to accept the preventive services. Although dentists generally seem to be knowledgeable of preventive matters, and have positive attitude toward prevention, deficiencies in their knowledge have been reported. Thus the present study was carried out to evaluate the knowledge attitude and practices toward preventive dental care.

Objectives

To evaluate the knowledge, attitude and practice towards dental care of fluorosis among the dental professionals in the vidarbha region of Maharashtra.

MATERIALS AND METHODS

The present study was conducted in vidarbha (Amravati- Melghat) region of Maharashtra-India. A list of dentists practicing in this region registered with Maharashtra State Dental Council of India was obtained. Among the total number of dentists practicing in this region 50 dental professionals were selected. The study population was randomly selected by a multistage random sampling methods. Dentists who are not willing to participate in the study and dentists who were unavailable even after three consecutive visits to their clinics/hospitals were excluded from the study.

A package containing an information brochure about the study, the questionnaire, and a plain language statement describing the study was hand-delivered by the first author to all potential participants (n = 50). An envelope was also included to facilitate responses. Participants were asked to complete the questionnaire in their own time and return it in a sealed envelope within 5 working days.

The questionnaire has 14 questions and consisted of three sections. In the first section, respondents were asked to provide knowledge and sociodemographic information regarding high fluoridated concentrated area. The second section included questions regarding attitude of the respondents towards preventive dental care. The third section of the questionnaire assessed participant's practice perception towards the preventive dental care.

Questionnaires were distributed to the dentists and filled questionnaires were collected. Only completely filled forms were considered for analysis.

Analysis

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

Questionnaire

KNOWLEDGE

1. Do you know you are practicing in high fluoridated concentrated area?
 - a. Yes
 - b. No
2. Source of information regarding this high fluoridated concentrated area?
 - a. Dental journals
 - b. Continuing dental Education
 - c. Brochures or Pamphlets
 - d. Internet
 - e. Newspaper
 - f. All of the above
3. What are the normal levels of fluoride in drinking water?
 - a. 1 mg of fluoride per litre

- b. 1.5 to 2 mg of fluoride per litre
- c. 3 to 6 mg of fluoride per litre

- 4. Factors involved in etiology of fluorosis in this area?
 - a. Drought conditions in the area
 - b. Deep groundwater sources
 - c. Intake of high fluoride concentrated water
 - d. All of the above

- 5. What are the treatment options you suggest to correct fluorosis?
 - a. Bleaching
 - b. Enamel micrabrasion
 - c. Ceramic and Composite veneers
 - d. Full coverage crown
 - e. Laminates
 - f. All of the above

ATTITUDE

- 6. Any awareness program to be carried out to understand fluorosis ?
 - a. Yes
 - b. No

- 7. Fluorosis represents a clinical problems that could come next in public health concern?
 - a. Yes
 - b. No

- 8. Level of confidence while diagnosing fluoresced teeth?
 - a. Very confident
 - b. Confident
 - c. Not confident
 - d. Not very confident

- 9. Restorative treatment should take precedence over prevention?
 - a. Yes
 - b. No

PRACTICE

- 10. Incidence of fluoresced teeth has increased over the period in your practice?
 - a. Yes
 - b. No

- 11. Frequency of noticing fluoresced teeth in your practice?
 - a. Daily
 - b. Weekly
 - c. Monthly
 - d. Yearly

- 12. Detection of fluoresced teeth in your practice ?
 - a. Yes
 - b. No

- 13. Which of the following do you most frequently notice in your practice?
 - a. Normal(enamel surface is smooth, glossy and appear white in colour)
 - b. Questionable(the enamel shows slight aberrations, occasional spots might be seen)
 - c. Very mild (opaque white areas)
 - d. Mild (white opacity of enamel is more extensive)
 - e. Moderate (shows brown stains)

- 14. Application of prevention strategies like fluoride toothpaste, fluoride rinses, professionally applied topical fluoride, fluoride supplements?
 - a. Yes
 - b. No

RESULTS

In the present study, we examined the knowledge of Dental Fluorosis among the dentists in the vidarbha (Amravati-Melghat) region of Maharashtra. The first section assessed the participant's knowledge regarding dental fluorosis. The second part assessed the participant's attitude towards preventive dental care. The third section of the questionnaire assessed participant's attitude towards preventive dental care.

Table 1, It was observed that as many as 66% of the respondent dentists were known of the fact that they are practicing under high fluoridated concentrated area. In the present study, the dentists indicated that the source of the information (44%) of the high fluoridated concentrated area was mainly through the internet. It was observed that 1.5 to 2 ppm (Parts per million) was the normal levels of fluoride in drinking water.[1] The etiological factors involved in the dental fluorosis in

this area involved was deep groundwater sources(48%) and high fluoride concentrated water (46%). It was observed that 28% of the dentists reported that ceramic and composite veneers can be the treatment options for the patients suffering from dental fluorosis. Only 10% of the dentists believed that bleaching, enamel microabrasion, ceramic and composite veneers, full coverage crowns and laminates can be selected as a treatment options for the patients. It was found out that many of the respondents 40% of the respondents lack knowledge regarding normal level of fluorides in drinking water. The findings from the study divulge that there is a comparatively less knowledge among the dentist practicing in high fluoridated concentrated area.

Table 2, The present study illustrated that 40% of the dentists showed the positive attitude and believed that the awareness programs should be conducted to improve the knowledge regarding dental fluorosis. 76 % believed that dental fluorosis

represents a clinical problem that could come next in public health concern. 36 % of the respondents are not very confident while diagnosing dental fluorosis. 76 % believed that preventive measures should be taken before commencing restorative treatment. The findings shows that the respondent have positive attitude towards dental care of dental fluorosis.

Table 3, 60% of the respondent dentists shows increased incidence of patients with dental fluorosis in their practice. 76 % of them shows monthly increasing of dental fluorosis patients. 82 % of the respondent dentists shows detection of fluoresced teeth in their practice, 36 % of them noticed moderate type of dental fluorosis and 62 % of respondent dentists believed in the prevention strategies like application of fluoride toothpaste, fluoride rinses, topical fluoride supplements. The finding shows that the practice towards preventive dental care is much better among the dental professionals.

Table 1: Distribution of subjects according to knowledge score.

Knowledge Score	No of subjects	Percentage
Do you know you are practicing in high fluoridated concentrated area?		
Yes	33	66
No	17	34
Source of information regarding this high fluoridated concentrated area?		
Dental journals	3	6
CDE	1	2
Brochures	1	2
Internet	22	44
Newspaper	14	28
All of the above	9	18
Normal levels of fluoride in drinking water?		
1 mg of fluoride per litre	9	18
1.5 to 2 mg of fluoride per litre	21	42
3 to 6 mg of fluoride per litre	20	40
Factors involved in etiology of fluorosis in this area?		
Drought conditions in this area	2	4

Deep groundwater sources	24	48
Intake of high fluoride concentrated water	23	46
All of the above	1	2
What are the treatment options you suggest to correct fluorosis?		
Bleaching	4	8
Enamel microabrasion	6	12
Ceramic and composite veneers	14	28
Full coverage crowns	13	26
Laminates	8	16
All of the above	5	10

Table 2: Distribution of subjects according to attitude score.

Attitude Score	No of subjects	Percentage
Any awareness program to be carried out to understand fluorosis?		
Yes	40	80
No	10	20
Fluorosis represents a clinical problem that could come next in public health concern?		
Yes	38	76
No	12	24
Level of confidence while diagnosing fluoresced teeth?		
Very confident	8	16
Confident	10	20
Not confident	14	28
Not very confident	18	36
Restorative treatment should take precedence over prevention?		
Yes	12	24
No	38	76

Table 3: Distribution of subjects according to Practice perception.

Practice Perception	No of subjects	Percentage
Incidence of fluoresced teeth has increased over the period in your practice?		
Yes	30	60
No	20	40
Frequency of noticing fluoresced teeth in your practice ?		
Daily	5	10
Weekly	5	10
Monthly	38	76
Yearly	2	4

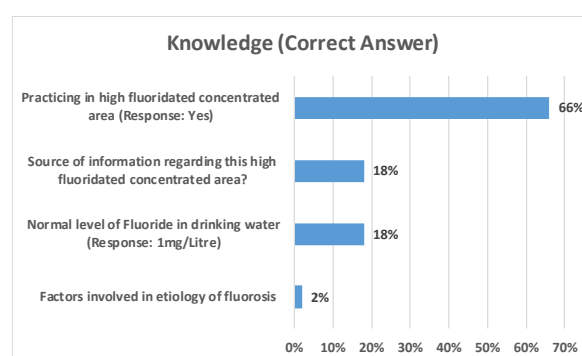
Detection of fluoresced teeth in your practice?		
Yes	41	82
No	9	18
Which of the following do you most frequently notice in your practice		
Normal	2	4
Questionable	4	8
Very mild	5	10
Mild	21	42
Moderate	18	36
Application of prevention strategies like fluoride toothpaste, fluoride rinses, professionally applied topical fluoride supplements?		
Yes	26	62
No	24	48

DISCUSSION

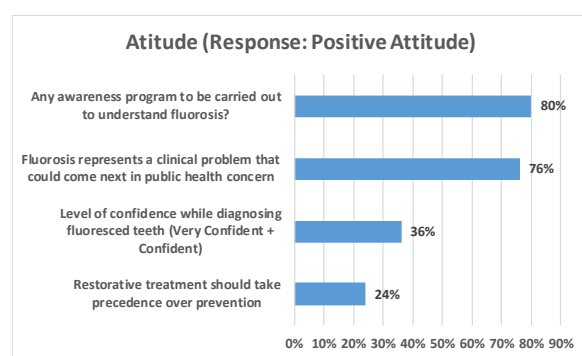
Fluoride (F) is probably an essential element (less than 1ppm F/ liter) for both animals and humans. Fluoride & Iodine is often called as a double edged sword. Because prolonged ingestion of fluorides through drinking water in excess of the daily requirement is associated with dental (1-2ppm F/liter) and skeletal fluorosis (2-6ppm F/liter) and inadequate intake with dental caries. Crippling skeletal Fluorosis develops when drinking water contains over 10ppmF/ liter. More than 90% of the rural Indian population uses groundwater for domestic purposes. Dental fluorosis is a not only a cosmetic problem that impairs social well being, and 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 role in the prevention and control of the disease through self-care and professional assistance.

As there is a paucity of literature regarding preventive dental care all over India[2], the present study was conducted to determine knowledge, attitude and practices of preventive dental care among dental professionals.

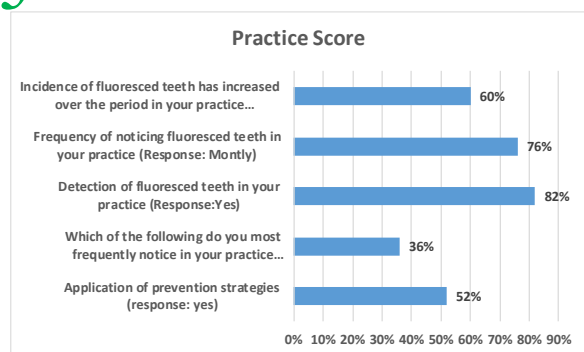
In the present study , 46% of the respondents have knowledge regarding high fluoride intake in the area and 48 % were known of the fact that the deep ground water sources are the reasons for the dental fluorosis in the area. This accurate knowledge enables dentists to make appropriate decision on their patient's oral health.(Graph 1)



Attitudes are influenced by beliefs and values, personal needs and behavior. Accordingly, dentist's attitude vary according to their background and professional factors. Results of the present study reveal that (80%) believed in conducting social awareness programs. (Graph 2)



62 % of respondent dentists were trained in the application of fluoride toothpaste, fluoride rinses, professionally applied topical fluoride supplements. This indicate that the practice towards preventive dental care is much better among the dental professionals towards preventive dental care.(Graph 3)



To overcome the deficiency in the level of knowledge amongst dental professionals, continuing dental education programs are the need of the hour. However, as is usually a natural characteristics of questionnaire surveys, some over representation may occur because responding dentists tend to be more interested in the topics of the questionnaire and thus more confident and knowledgeable. The data being self reported and the subjects may have responded in a socially desirable manner. Future studies are required to investigate the knowledge, attitudes and practice towards preventive dental care.

CONCLUSION

Based on the findings of this study, it can be concluded that the dental professionals have sufficient knowledge regarding the preventive and prosthodontic dental care, they also have the positive attitude toward this preventive dental aspects and lastly there is a significant application of prevention strategies in the practices of the dental professionals regarding the preventive and prosthodontic dental care. Dentists' knowledge and attitudes toward prevention should be improved and updated to enable and encourage them to provide their patients with effective treatment. Greater effort should be made by the professional organization and governmental agencies to inform patients of the benefits of the preventive and prosthodontic care.

CONFLICTS OF INTEREST

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

REFERENCES

1. Dr. Kavitha Nanjundan "Awareness, Knowledge and attitude towards dental fluorosis among the public living in Dharmapuri district, Tamilnadu, India after implementation of fluorosis mitigation project.". *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* February 2018;17(2):05-09. DOI: 10.9790/0853-1702160509
2. Premnath P, John J. Knowledge attitude and practice toward preventive dental care among dental professionals in Chennai. *J Educ Ethics Dent* 2015;5:20-4. DOI:10.4103/0974-7761.178023.
3. DaryaniKK,Poonacha KS, Deshpande AN,Dave BH, Khoja M, Patel KS. Knowledge, attitude, and practice regarding molar-incisor hypomineralization among postgraduates and faculty members of K.M. Shah Dental College and Hospital, Vadodara, Gujarat, India. *J Int Clin Dent Res Organ* 2019;11:26-31. DOI: 10.4103/jicdro.jicdro_5_19
4. J Kittu and V Aditi. "Knowledge, Attitude and Behavior Concerning Fluoridated Toothpaste and among Indian Adolescents". *Acta Scientific Dental Sciences* January 2018;2(1): 02-05.
5. Aqdar A. Akbar ,Noura Al-Sumait,Hanan Al-Yahya,Mohammad Y. Sabti ,Muawia A. Qudeimat. Knowledge, Attitude, and Barriers to Fluoride Application as a Preventive Measure among Oral Health Care Providers *International Journal of Dentistry* Volume 2018, Article ID 8908924, 8 pages. DOI:https://doi.org/10.1155/2018/8908924
6. Anchal Sharma, Radhika Chopra, Shobhit Sachdeva, Vinod Sachdev. Knowledge attitude and practice of Indian dentists on topical fluoride application in children. *J Dent Specialities*.2017;5(1):36-39. DOI: 10.18231/2393-9834.2017.0008.