

Evaluation of Knowledge, Attitude, Practice And Barriers Regarding Topical Fluoride Application Among Dentist of (Purba Mednipur) West Bengal

¹Dr. Sanjukta Saha, Post-graduate trainee, Haldia Institute of Dental Sciences & Research, Haldia

²Dr. Bibhas Dey, Professor, Haldia Institute of Dental Sciences & Research, Haldia

³Dr. Amitabha Chakraborty, HOD & Professor, Haldia Institute of Dental Sciences & Research, Haldia

⁴Dr. Sinjana Jana, Reader, Haldia Institute of Dental Sciences & Research, Haldia

Corresponding Author: Dr. Sanjukta Saha, Post-graduate trainee, Haldia Institute of Dental Sciences & Research, Haldia

Citation of this Article: Dr. Sanjukta Saha, Dr. Bibhas Dey, Dr. Amitabha Chakraborty, Dr. Sinjana Jana, “Evaluation of Knowledge, Attitude, Practice And Barriers Regarding Topical Fluoride Application Among Dentist of (Purba Mednipur) West Bengal”, IJDSIR- February - 2021, Vol. – 4, Issue - 1, P. No. 181 – 187.

Copyright: © 2021, Dr. Sanjukta Saha, et al. This is an open access journal and article distributed under the terms of the creative commons attribution noncommercial License. Which allows others to remix, tweak, and build upon the work non commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Dentist knowledge, attitude on application of topical fluoride may influence their practice and contribute to oral health of individual and community.

AIMS - To study the knowledge, practice and barrier's perceived by dentist of (Purba Mednipur) West Bengal on application of topical fluoride through a questionnaire survey.

Material's And Methods: A self-administered questionnaire survey was conducted among dentist of West Bengal via an 11 item pretested questionnaire which assessed the knowledge, attitude, practice and barriers related to topical fluoride application.

Result: 74 dentist, mainly post graduate trainee (56.8%) with maximum 10 years of practice (30%) participated in the study. Only 44.60% knew the correct time of start of fluoride application. 68.90% knew the correct frequency of fluoride application. 66.20% knew the requirement of

prophylaxis before fluoride application. Though 94.60% preferred prevention over restoration only 21.60 used it frequently and only 8.10 used topical fluoride always in caries active child. 56.2% cited that the unwillingness of patients to pay as primary barrier perceived in incorporation of topical fluoride in regular practice.

Conclusion: Dentist had average knowledge and positive attitude towards fluoride application but it was underutilized in practice.

Keywords: Topical fluoride, use, application, knowledge, West Bengal.

Introduction

Dental caries is a major health problem in most industrialized countries and is thought to affect 60-90% of school aged children [1]. In India, prevalence of dental caries is 50.84% - 62.41% which indicates it to be a major public health problem posing a great challenge to community and dental professionals [2].

The treatment of oral disease using traditional methods is costly and it is currently fourth most expensive disease to treat in industrialized countries. Over a period of time, management of dental caries has evolved from a conventional to a more evidence based approach [1]. Intervention at primary level is found to be helpful in reducing this problem. Primary prevention can be through community fluoridated water supplies, professional fluoride treatments and pit and fissure sealants etc.[3] Fluoride has already established its vital role in preventive dentistry and use of fluoride in the form of toothpastes, mouth rinses, varnishes and gels have been extensively documented and discussed [4].

According to the Centre for Disease Control “the laboratory and epidemiologic research that has led to the better understanding of how fluoride prevents dental caries indicates that fluoride’s predominant effect is post-eruptive and topical and that the effect depends on fluoride being in the right amount in the right place at the right time. Fluoride works primarily after teeth have erupted, especially when small amounts are maintained constantly in the mouth especially in saliva and plaque”. This is in contrast to the previously accepted belief that the main benefit of fluoride is pre-eruptive and systemic [5].

Dentists are the prime source of health information for their patients and can transfer evidence-based information to the public. Moreover, they play an important role in implementation of community programs [6]. There is need of a better understanding of practice pattern in order to execute a successful preventive practice as well as will help in targeting the continuing education by professional dental associations and encouraging evidence-based utilization of different preventive therapies [7].

Given the changing state of knowledge and clinical recommendations relating to the use of fluoride products

and prevention in general, the extent of dentist’s knowledge and clinical practice is still uncertain since very few studies have been conducted in India to assess the same. Thus a study was carried out to assess the level of knowledge of dentists about systemic and topical effects of fluorides and their practice and attitude towards its use and barriers perceived by them while practicing preventive dentistry by using fluoride products.

Materials and Method

A cross-sectional survey was conducted among the dentists of Purba Mednipur (West Bengal) in January 2020. Ethical approval for the study was taken from Ethics Committee of Haldia Institute of Dental Sciences and Research, West Bengal, India.

A questionnaire was prepared from the previous similar studies on different population and a pilot study was conducted among 10 dentist to check the validity of the questionnaire which was not included in the final study.

11-item questionnaire were mailed to the dentists. Out of 100 mailed-out questionnaires 74 (74%) were received back completely filled.

Description of the questionnaire was explained in the mail itself by the researcher and willingness to fill the questionnaire indicated consent. The link to the Google form website (www.google.co.in/forms) was attached with the mail. All the questions were kept anonymous.

Questionnaire Structure: A self-made questionnaire was designed in a manner through which Knowledge, Attitude, Practice and Barriers perceived by the practitioners on topical fluoride application can be studied. Questionnaire comprised of four sections based on the similar studies was used for this survey [1, 6, 8-11].

The questionnaire included 3 questions for demographic data, 5 questions on knowledge, 6 questions to assess practice and attitude of dentists and 5 questions to assess

the barrier faced by dentist in practicing preventive dentistry by using topical fluoride.

The first section of the questionnaire consisted of demographic information including age, gender, qualification and year in practise of the practitioner and which speciality they belong to.

Questions related to knowledge were designed from the American Academy of Paediatric Dentistry (AAPD) guidelines [12]. The questions related to preventive practice of the dentist and attitude were taken from previous surveys on similar topics.

To validate the questionnaire a pilot study was conducted among 10 dentists, none of whom participated in the final data collection, any modification suggested in the question were recorded for final questionnaire formation.

Knowledge based questions for Dentists: The questions asked in this section helped us to understand the knowledge of dentists regarding the recommended time, frequency fluoride application, mechanism of action and requirement of prophylaxis before topical fluoride application, recommendation with regard to use of fluoridated toothpaste and risk in fluorosis due to use of topical fluoride.

Practice and attitude based questions for Dentists: This section evaluated the frequency of topical fluoride application done by dentist, type of topical fluoride used their preference for practicing preventive dentistry and their level of assessment about systemic fluoride level before topical fluoride application.

Barriers perceived related questions for Dentists: Last section evaluated the barriers faced by dentist while practicing preventive dentistry. The questions of this section helped in understanding weather the barriers perceived were patient related, dentist related or profession related.

Statistical Analysis: Data was entered in Microsoft Excel 2013 for descriptive statistics.

Result

74 dentists completed the questionnaire and were included in the study. Out of the 74 respondents 31.1% were general dentist, 56.8% were post graduate trainee and 13.5% were specialist, of which 30.5% were Paediatric dentist (PGT and MDS) and the remaining were from other specialities.

Figure 1: shows the distribution of speciality dentist.

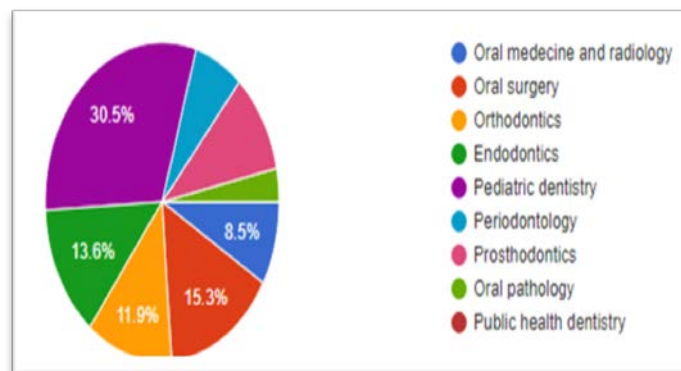


Figure 1

Figure 2: shows the number of years of experience of the participated dentists.

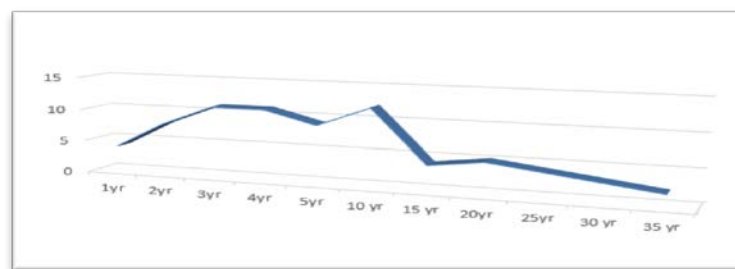


Figure 2

Knowledge of dentist – dentists were asked 5 questions for evaluation of knowledge

Figure 3: Recommended time of fluoride application

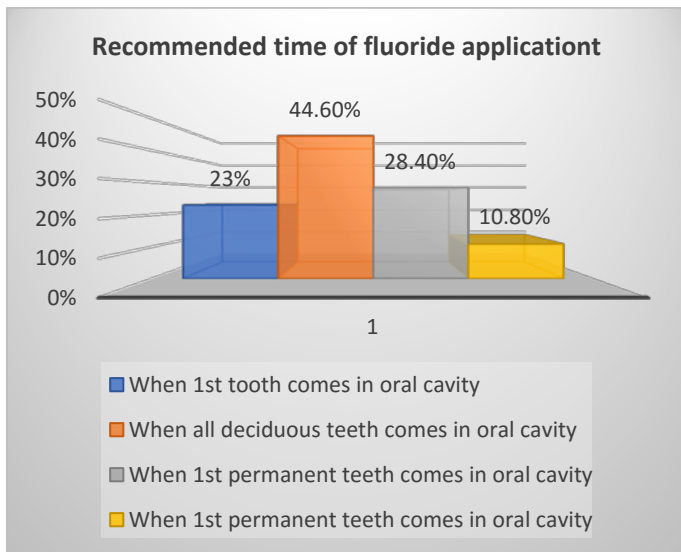


Figure 3

Figure 4: Frequency of fluoride application

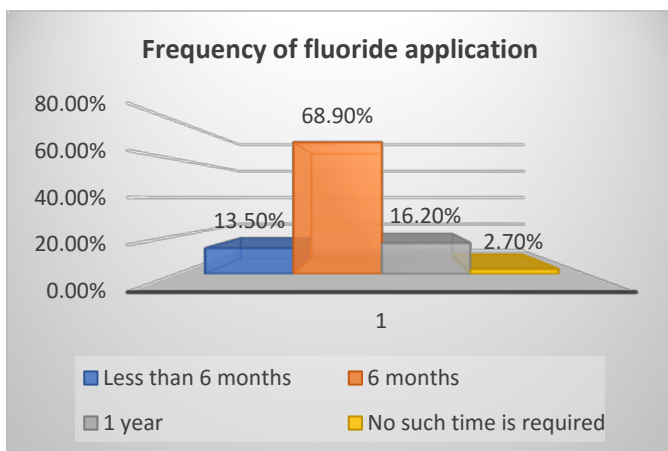


Figure 4

Figure 5: Do you think oral prophylaxis is required before topical fluoride application?

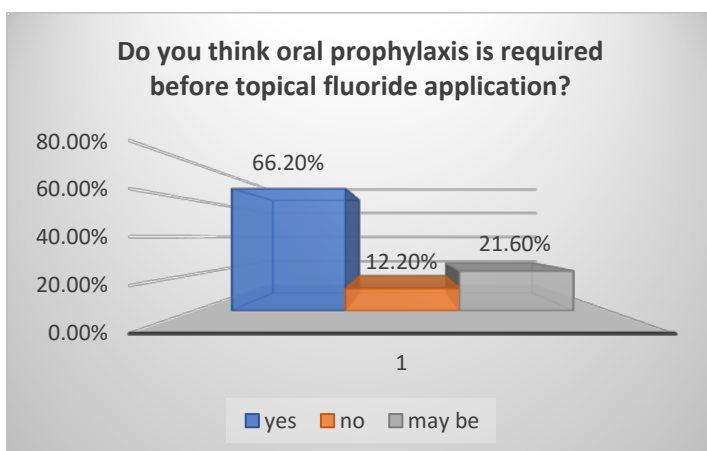


Figure 5

Practice and attitude of dentist – dentist were asked 3 questions to evaluate their attitude towards preventive practice and use of topical fluoride

Figure 6:- How do you like to treat a patient?

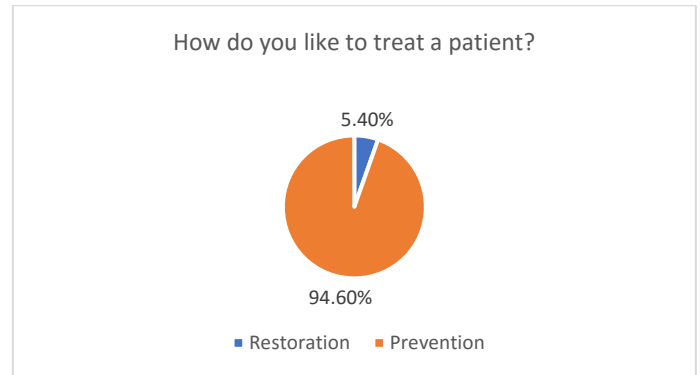


Figure 6

Figure 7: How frequently you use topical fluoride

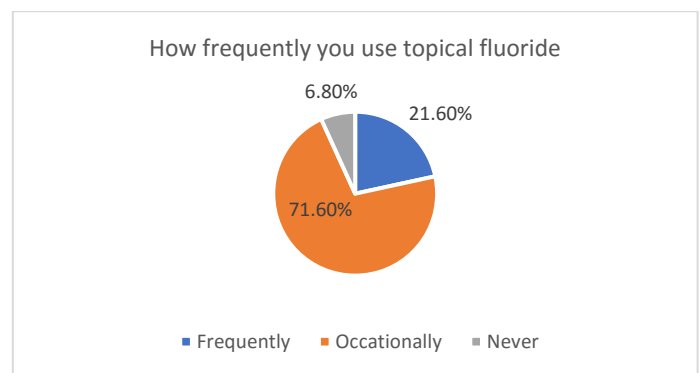


Figure 7

Figure 8: How frequently you use topical fluoride in caries active child

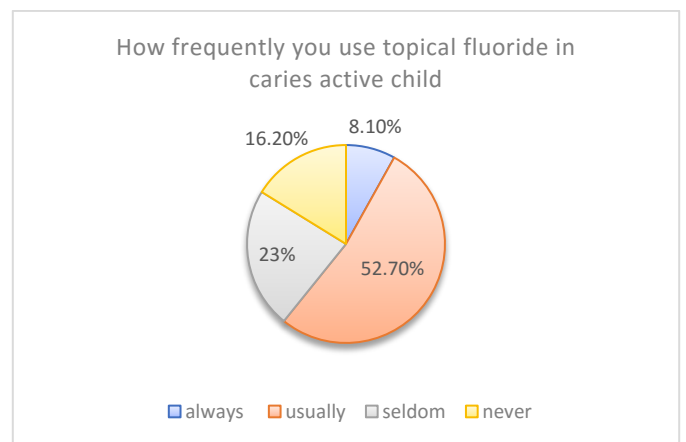


Figure 8

Barriers perceived by the dentist – dentist were asked 3 questions to find what comes in the way of practicing preventive dentistry with the use of topical fluoride.

Table 1:- Barriers perceived by the dentist – dentist were asked 3 questions to find what comes in the way of practicing preventive dentistry with the use of topical fluoride.

	Question	Yes	No	Not sure
1	Willingness of the patient to pay	56.2%	19.2%	24.7%
2	The conviction that dentistry relies on treatment and not on prevention	23.3%	39.7%	37%
3	Use of fluoride not taught well in the under graduate course	34.2 %	50.7%	15.1%

Discussion

This study gives us a preview of current status of the knowledge of the dentists about preventive measures using topical fluorides. It also provides us a perception regarding the attitude of the dentists towards the use of topical fluorides in their practice.

Out of the 100 questionnaires mailed among the dentists, 74 dentists completed the questionnaire and were included in the study. Out of the 74 respondents 31.1% were General dentist, 68.9% were Specialist dentists (postgraduate trainee), of which 30.5% were paediatric dentist (Figure-1) and the remaining were from other specialities. The average work experience was 12 years (Figure- 2). In the present study, highest percentage of

responding dentists having less than 5 years of practice and fewer dentists in the experienced groups similar to the study by Ramaya R et al [13], most of response were from post graduates and paediatric dentistry background (30.5%) indicating the increase in number of freshly graduates and post graduates and their willingness to participate in such surveys.

When questioned about the recommended time of fluoride application (Figure-3), 23% dentists said it correctly (ie. When the first teeth erupts). 68.9% were aware about the evidence based clinical recommendation on frequency of topical fluoride application (6 months) (Figure-4) as given by American Dental Association Council on Scientific Affairs [14]. Prior to a professional topical fluoride application, it was recommended that teeth be cleaned for removal of surface integuments, which might interfere with fluoride uptake and reduce the clinical effectiveness of the procedure. 66.20% of dentist were aware about the need for prophylaxis before topical fluoride application (Figure-5). However in vivo& in vitro studies (Klimex et al 1982, Ripa 1984)[15,16] have demonstrated that fluoride uptake is not reduced if teeth remain uncleaned, though the recommendation to clean the teeth at least by brushing is still there for better uptake of fluoride. The general knowledge on topical fluoride among the Purba Mednipur dentist seemed to be average similar to Ramaya R et. al [13] study, Sharma A et. al [1] study and Bansal et al [9] study.

A huge gap was also found in what dentist knew and what they practiced. Though 94.6 preferred preventive treatment (Figure-6) over restorative, only 21.6 practiced it by using topical fluoride frequently in their regular practice (Figure-7). The need for using topical fluoride is maximum in caries active child, still only 8.1% always applied fluoride in caries active children whereas 52.7% usually used it (Figure-8), the findings were in consistence

with Khami et, al.[15] study and Pakdaman et, al.[16] study

If one categorized the barriers (Table-1) as patient-related, dentist-related and profession-related, then our study results revealed that the dentists judged themselves and factors related to their profession as being the least responsible, but the patients as being the most responsible for the limited use of preventive measures. Similar results were reported by Ghasemi H et al [17] in a study conducted among Iranian dentists and Ramaya R et. al [13] in Vadodara.

As a preventive measure fluorides are one of the best ways to prevent the initiation and progression of dental caries. Current research indicates good knowledge about topical fluoride, positive attitude towards them but underutilization in practice.

For most observational studies presence of bias on different levels is a challenge. "Social desirability bias" can be a reason as to why a relatively high number of dentists agreed to participate in the study when invited. Dentists may have over-reported the global "good behavior" questions to give answers in a socially acceptable direction and present a favorable image of themselves [18]. "Information bias" might be present, as questions could have been misinterpreted, under or over-reported, although the pilot indicated that face validity seemed to be satisfactory [19, 20].

Limitation of our study is that only dentists of Purba Mednipur were included and therefore the generalizability of the study's results may be questionable. A large scale study with regional distribution should be carried out to achieve more specific and conclusive results, which will give a clearer picture.

Thus to conclude, despite the belief in topical fluoride effectiveness, certain barriers were apparent to its application.

Conclusion

Thus from the findings in this study we can conclude that Despite of the universal recommendation of topical fluoride application for preventing dental caries, it has failed to become an integral part of Dental practice.

Majority of the surveyed dentists were aware of the preventive measure and showed favourable attitudes towards, the practice of fluoride application was found to be unsatisfactory.

It also reflects the generalized attitude of dentist which focuses more on corrective treatments rather than the preventive ones.

Patient's unwillingness to invest for preventive care pose a challenge to carry out adequate preventive treatment by dentist.

References

1. Sharma A, Chopra R, Sachdeva S, Sachdev V. Knowledge attitude and practice of Indian dentists on topical application in children. J Dent Specialities. 2017;5(1):36-9.
2. Mehta A. Trends in dental caries in Indian children for the past 25 years. Indian J Dent Res 2018;29:323-8
3. Kitchens DH. The economics of pit and fissure sealants in preventive dentistry: A review. J Contemp Dent Pract. 2005;6(3):95-103.
4. Marinho VCC. Evidence-based effectiveness of topical fluorides. Adv Dent Res. 2008;20:3-7.
5. Recommendations for using fluoride to prevent and control dental caries in the United States. Centers for Disease Control and Prevention. MMWR Recomm Rep. 2001;50 (RR-14):1-42.
6. Pakdaman A, Yarahmadi Z, Kharazifard MJ. Self-reported knowledge and attitude of dentists towards prescription of fluoride. Journal of dentistry (Tehran, Iran). 2015 Aug;12(8):550.

7. Riley JL, Richman JS, Rindal DB, Fellows JL, Qvist, Gilbert GH, et al. Use of caries prevention agents in children: Findings from the dental practice-based research network. *Oral Health Prev Dent.* 2010;8(4):351–59.
8. Akbar AA, Al-Sumait N, Al-Yahya H, Sabti MY, Qudeimat MA. Knowledge, attitude, and barriers to fluoride application as a preventive measure among oral health care providers. *International journal of dentistry.* 2018;2018.
9. Bansal R, Bolin KA, Abdellatif HM, Shulman JD. Knowledge, Attitude and use of Fluorides among Dentists in Texas. *J Contemp Dent Pract* 2012;13(3):375-379.
10. Patil RU, Sahu A, Kambalimath HV, Panchakshari BK, Jain M. Knowledge, attitude and practice among dental practitioners pertaining to preventive measures in paediatric patients. *Journal of clinical and diagnostic research: JCDR.* 2016 Dec;10(12):ZC71.
11. CG A. Knowledge, Attitude and Practice of Preventive Dentistry Among Private Dental Practitioners in Vadodara, India. *Journal of Oral Health & Community Dentistry.* 2015 Apr 1;9(2).
12. American Academy of Pediatric Dentistry (2014). Guidelines on fluoride therapy.
13. Ramya R, Ajithkrishnan C, Thanveer K. Knowledge, attitude and practice of preventive dentistry among private dental practitioners in Vadodara, India. *J Oral Health Comm Dent* 2015;9(2):69-80.
14. American Dental Association Council on Scientific Affairs. Professionally applied topical fluoride: evidence-based clinical recommendations. *J Am Dent Assoc.* 2006;137(8):1151- 1159.
15. Khami MR, Virtanen JI, Jafarian M, Murtomaa H. Prevention-oriented practice of Iranian senior dental students. *Eur J Dent Educ.* 2007 Feb;11(1):48-53.
16. Afsaneh Pakdaman, Zahra Yarahmadi, Mohammad Jayad Kharazifard. Self-Reported knowlwdge and attitude of dentist towards prescription of fluoride. *Journal of dentistry, Tehran University of Medical Sciences.* 2015 Aug; 12(8):550-556.
17. Ghasemi H, Murtomaa H, Torabzadeh H, Vehkalahti MM. Knowledge of and attitude towards preventive dental care among Iranian dentists. *Eur J Dent* 2007;1:222-9.
18. Van de Mortel TF. Faking it: social desirability response bias in self-report research. *Aust J Adv Nurs.* 2008;25(4):40–8.
19. Sjostrom O, Holst D, Lind SO. Validity of a questionnaire survey: the role of non-response and incorrect answers. *Acta Odontol Scand.* 1999;57(5):242–6.
20. Helöe LA. Comparison of dental health data obtained from questionnaires, interviews and clinical examination. *Scand J Dent Res.* 1972;80(6):495.