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RESEARCH ARTICLE

Oral Health Knowledge among Primary and Middle School Teachers in Chennai, India

Dr.Latha Nirmal¹, Dr.Varghese Chacko², Dr.A. Ponnudurai³, Dr.Vishnurekha⁴

1.Department of Pedodontics and Preventive Dentistry Faculty of Dental Sciences Sri Ramachandra University Chennai-600 116

2.Associate Professor Department of Paedodontics and Preventive Dentistry Manipal College of Dental Sciences-Mangalore, Manipal University Mangalore-575001 Karnataka India

3. Professor and Head Department of Pedodontics and Preventive Dentistry Sree Balaji Dental College and Hospital Velacheri Main Road,Pallikaranai. Chennai.600 100 Tamil Nadu, India

4. Professor and Head Department of Pedodontics and Preventive Dentistry Meenakshi Ammal Dental College. Maduravoyal ,Alapakkam Main Road Chennai- 600 095 Tamil Nadu, India

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*Corresponding Author

Dr. Varghese Chacko

Abstract

Aim: To assess the knowledge of primary & middle school teachers with respect to oral health. **Materials and Methods:** This was a cross sectional study among primary & middle school teachers in Chennai, India. A total of 301 teachers from 23 schools in Porur, Chennai participated in the study. The research tool was a questionnaire with 20 questions pertaining to source of oral health information, importance of primary teeth, oral habits, diet & caries, oral hygiene practices, Fluorides, periodontal disease & dental visits. **Results:** 77% of the teachers had no formal training on oral health. Mass media was the most popular source of oral health information.69.4% of teachers indicated that primary teeth were as important as permanent teeth. Most of the teachers rightly indicated that deleterious oral habits could lead to protrusion of teeth and sugar containing foods could cause dental caries. 77.7% of teachers chose tooth brush & paste as the best method for maintaining oral hygiene. However most of the teachers were not aware of the presence of additional oral hygiene aids or the benefits of fluorides.60.8% of the teachers reported that one should have a dental checkup done at least once a year. **Conclusion:** Most of the teachers were found to have good knowledge with respect to oral hygiene practices, role of sugar in dental caries, importance of primary teeth & harmful effects of oral habits. However teacher's knowledge was found to be lacking with respect to role of fluorides, additional oral hygiene aids & sugar substitutes.

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INTRODUCTION

Dental Caries continues to be a significant public health problem in children in developing countries like India. In the WHO Index age of 5-6 years caries prevalence has been shown to be as high as 70.2%.¹ Children's oral health is influenced by various factors including biological, social, family, community and cultural variables.² The decline in caries prevalence observed in industrialized countries in the past few decades has been attributed to the effective implementation of public health measures including school based programs, improvements in lifestyle and living conditions, utilization of dental services and self-oral care practices.³⁻⁵ WHO has recommended the incorporation of non-dental health personnel for the provision of preventive oral health care in the fight against preventable dental diseases in developing countries.⁶

Schools have long been recognized as an important environment for imparting health education, as children are often eager to learn and acquire new skills. Also children are at high risk for development of dental health problems. School based Oral Health Care programs have shown promising results in various countries including China,⁷ Brazil,⁸ Indonesia⁹ and Madagascar¹⁰. As teachers play a major role in school dental health programs, it is important that they have the right knowledge, skills and motivation to provide the necessary dental health education to their pupils. However studies done in developed as well as developing countries like Kuwait¹¹, Romania¹², Kenya¹³, and Tanzania¹⁴ have questioned the suitability of teachers as providers of dental health education due to their lack of knowledge on oral Health.

Studies done in India to evaluate the knowledge of school teachers on oral health have shown that results varied depending on the area surveyed. A study done in Kurnool, Andhra Pradesh showed that teachers had poor knowledge on oral health¹⁵, while a study done in Udaipur¹⁶, Rajasthan, concluded that teachers had acceptable knowledge, attitude and behavior with respect to oral health. For teachers to influence their students in a positive manner with respect to oral health, the first and most basic requirement is that the teachers should have the right information with respect to basic oral health including, the importance of oral health, oral hygiene measures, role of diet & fluoride in caries & significance of regular dental checkups¹⁷. Thus this study was designed with the aim of determining the knowledge of primary & middle school teachers with respect to oral health.

AIM

The aim of this study was to determine knowledge of primary and middle school teachers on oral health

OBJECTIVES

The objectives of this study were to determine primary and middle school teachers knowledge on basic oral health including

1. Significance of Primary teeth
2. Deleterious Oral Habits
3. Role of diet & fluoride on dental caries
4. Oral Hygiene Measures
5. Importance of regular dental visits

METHODOLOGY

The study was a cross sectional survey among primary and middle school teachers of both public and private schools in Porur sector of Chennai City. A total of 23 schools were surveyed in the area. The inclusion criteria for the study included teachers who were willing to participate in the study and who could read and write English. Institutional Ethics Committee clearance was obtained before proceeding with the study. A total of 334 teachers were approached for the study of which 301 consented to be part of the study. The research tool was a questionnaire (in English) of 20 questions which were either multiple choice questions or questions requiring a response of yes or no. The questionnaire was developed by the authors after going through relevant literature. Keeping in mind the aim of the study, only those items were included, which were considered to be relevant by all the authors. The questionnaire was pre-tested by conducting a pilot study on a group of 25 teachers.

The first part of the questionnaire contained questions regarding demographic data of the participants. The following sections contained questions pertaining to the awareness of the presence of 2 sets of dentition and importance of primary dentition, diet and dental caries, oral hygiene aids, fluoride, periodontal disease, dental checkups and source of information for oral health.

Prior permission was obtained from the school authorities to conduct the survey at a particular date and time. The teachers were requested to gather in a classroom and the purpose of the survey was explained. The questionnaire was distributed to all teachers willing to participate and requisition was made to attempt all questions and mark the one best response which they thought was most appropriate. They were not allowed to discuss the answers with their fellow teachers/peers and were assured that strict privacy would be maintained with the answers. The questions were answered in the presence of the examiners and completed in 10-15 minutes. At the end of the survey, correct answers were told, and doubts relating to oral hygiene and diseases were addressed.

After the investigations, data were coded and entered in Statistical Package for the Social Science- SPSS for windows in Version 11.5, and the results tabulated. The data was analyzed using descriptive statistics.

Results

Demographic Characteristics

A total of 301 teachers participated in the study, of which, the majority were female (274). The mean age of the study population was 35 years with a mean teaching experience of 8.5 years.

Table 1: Response to Questionnaire

Question	Options	Number	Percentage
1 Have you attended a school health training program?	Yes	69	22.9
	No	232	77.1
2 Would you be interested in attending one when held in your school	Yes	286	95
	No	15	5
3 Are you aware of two sets of teeth?	Yes	276	91.7
	No	25	8.3
4 Do you consider primary teeth as important as permanent teeth?	Yes	203	67.4
	No	98	32.6
5 Source of Oral Health Information	Dental College/ Clinic	61	20.3
	Magazine & Books	40	13.3
	Mass Media	165	54.8
	Neighbours/Family Friends	35	11.6
6 Frequent intake of food & drinks sweetened with sugar increases risk of developing caries	Yes	254	84.4
	No	47	15.6
7 Brushing should be done to	Have clean bright teeth	114	37.9
	Get rid of foul breath	35	11.6
	Prevent tooth decay	122	40.5
	Feel fresh	30	10
8 Best way to clean teeth is by using	Tooth brush with tooth paste	234	77.7
	Tooth brush with tooth powder	14	4.7
	Finger with charcoal powder/ash	3	1
	Neem sticks	50	16.6
9 Some tooth paste contains fluorides	Yes	200	66.4
	No	101	33.6
10 If yes, the reason for adding fluorides	Makes teeth whiter	58	19.3
	Protects teeth from decay	101	33.6

		Improves taste	17	5.6
		Don't know	125	41.5
11	A tooth brush has to be changed every	6 months	77	25.6
		3 months	201	66.8
		5 months	15	5
		12 months	8	2.7
12	How much time should be spent on brushing?	2-3mins	100	33
		3-5mins	135	44
		5-10mins	63	20
		>10mins	3	1
13	Are there any other aids in cleaning teeth?	Floss	29	9.6
		Tooth pick	52	17.3
		Don't Know	220	73.1
14	Bleeding of gums may be a sign of	Presence of decayed teeth	121	40.2
		Improper Brushing	94	31.2
		I don't know	86	28.6
15	Bad breath could be a sign of	Presence of decayed tooth	65	21.6
		Bleeding gums	69	22.9
		Improper brushing	167	55.5
17	Are you familiar with thumb sucking or finger sucking habits?	Yes	216	71.8
		No	85	28.2
18	If yes what are the problems it can lead to	Protrusion of teeth	185	61.5
		Inability to close lips	23	7.6
		Spacing between teeth	20	6.6
		Change in shape of face	24	8.0
		I don't know	49	16.3

Source of Oral Health Information (Table 1)

Majority of teachers (77%) who participated in our survey had no formal training with respect to dental health. However most of them (95%) expressed their desire to participate in such programs if conducted in their school premises. The major source of oral health information was the mass-media 54.8%, while the other sources were dental college/clinic (20.3%), magazines and books (13.3%), friends, neighbors and family (11.6%).

Knowledge on Primary Dentition & Thumb Sucking Habit (Table 1)

91.7% of the teachers surveyed were aware of the presence of two sets of dentition, and 67.4% of them considered primary teeth to be as important as the permanent teeth. Majority of the teachers (71.8%) were familiar with the presence of thumb or digit sucking, and 61.5% of them were aware that it could lead to protrusion of teeth.

Knowledge on Diet & Dental Caries (Table 1 & Figure 1)

Almost all the teachers were aware that sweetened foods (84.4%), beverages (67.1%), sugar (80.1%), Indian sweets (80.7%) play a role in tooth decay. 80.7% of the teachers stated kamarkut, a sweet indigenous to Chennai produced from saccharine to be cariogenic Rice (76.4%) and rotis (79.1%) were marked as not caries producing.

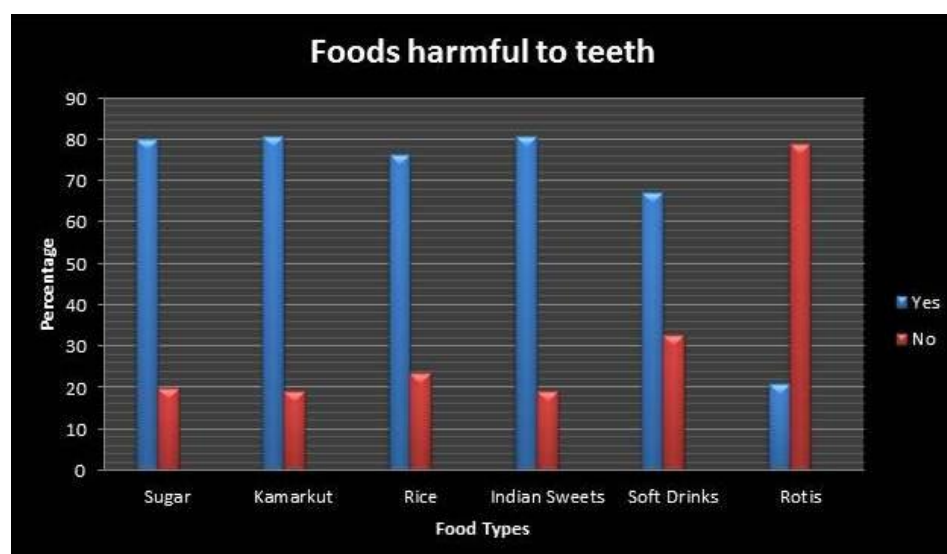


Figure 1: Teachers opinion on foods harmful to teeth

Knowledge on Oral Hygiene Measures (Table 1)

Majority of the respondents (77.7%) reported toothbrush and paste to be the best way to clean teeth, followed by the use of neem sticks (16.6). While 40.5% of them felt that brushing should be carried out mainly to prevent tooth decay, 37.9% felt that brushing should be done to maintain clean bright teeth. 66.4% of the teachers surveyed knew the presence of fluoridated toothpaste and 33.6% knew that fluoride helped to prevent dental caries. The knowledge on presence of oral hygiene aids other than toothbrush and paste was poor with 73.1% of the teachers reporting that they did not know of any other aids for maintaining oral hygiene. Only 9.6% were aware of the presence of Dental Floss as an oral hygiene aid. Most of the teachers (66.8%) opted for changing the toothbrush once in every three months and the duration of brushing varied from 2-3 minutes to more than 10 minutes. Many considered (55.5%) improper brushing to be the main cause of bad breath and 40.2% of them felt that bleeding gums to be a sign of decayed teeth.

Dental Visits (Table 1)

Majority of the teachers (60.8%) reported that one should visit a dentist at least once a year

DISCUSSION

School teachers have been recognized as important agents for health education in the fight against preventable diseases¹⁸. To serve as effective oral health educators, teachers need to receive appropriate training for the task and also should have a positive attitude and behavior towards oral health. However most of the participants (77%) in our survey reported that they did not receive any formal training with respect to oral health. This is similar to the findings as reported by Ibrahim et al in Tanzania¹⁹. However most of the respondents (95%) indicated that they were willing to participate in such training, thus displaying a positive attitude towards dental health education. This is similar to the observations made in other developing countries like Kuwait¹¹ & Romania¹².

In the present study, mass-media was ranked as the most popular source of oral health knowledge. This is in contrast to the findings of Pai et al in Karnataka, India¹⁹, Lang et al in Michigan²⁰, & Ehizele A et al in Nigeria²¹, where dental personnel were reported to be the major source of oral health information. Even though the mass media might not be able to motivate behavioral change as reported by various authors²², it is definitely an important source of information in a developing country like India, where the ratio between dental personnel and the population, is considerably less. Further, television advertisements which are in the regional language can reach the people more effectively.

With respect to oral hygiene, toothbrush & tooth paste were reported as the best aids to maintain oral hygiene. This is similar to the findings of Kumar et al¹⁶ and Manjunath et al¹⁵ where most of the teachers reported that they used tooth brush and paste to maintain oral hygiene thus indicating that teachers in these surveys also believed that tooth brush and paste were the best way of maintaining oral hygiene. However most of the teachers (73.1%) in our survey were not aware of the presence of other oral hygiene aids. This is in contrast to the findings of Manjunath et al¹⁵ where 60.4% of the teachers surveyed reported that use of dental floss helped prevent periodontal disease. There is general agreement that tooth brushing alone, even when well performed is ineffective in removing plaque from between the teeth. Flossing daily has shown to significantly reduce interdental plaque accumulation and subsequently improve oral hygiene and incidence of periodontal diseases²³. With respect to the knowledge on role of fluorides in caries prevention, the teachers in our study were found to have a poorer knowledge as compared to teachers in other parts of India. 41.2% of the teachers in our survey reported not knowing the reason for addition of fluorides to tooth pastes. This in contrast to the findings of Manjunath et al¹⁵ who surveyed teachers in Kurnool, Andhra Pradesh and Kumar et al¹⁶ who surveyed teachers in Udaipur Rajasthan. 47.2 % of the teachers surveyed in Kurnool and 74% of teachers in Udaipur reported to know the role of fluorides in prevention of dental decay. 66% of teachers in our survey reported that toothbrushes have to be changed every 3 months & 44 % reported 3-5 minutes as the time that should be spent on brushing. These results mirror the findings of Manjunath et al¹⁵ where 39.4% of the teachers reported to changing their brush once in 3 months and 44.6% of teachers reported to brush for more than 2minutes. The most common reason (40%) for brushing was cited as “to prevent tooth decay” followed by “to have clean, bright teeth” (37.9%).

With respect to signs of oral disease, most of the teachers (40.2%) in our study reported bleeding gums to be a sign of decayed teeth thus showing a lack of knowledge of the possibility of gingival & periodontal disease. This is in contrast to the findings of Manjunath et al¹⁵ where 60.6 % of the teachers correctly indicated that bleeding gums are a sign of gingival disease. 55.5 % of the teachers in our survey were aware that bad breath could be due to improper brushing.

Most of the teachers agreed that sweets, fruit drinks and beverages containing sugar are harmful to teeth. This high level of awareness on the role of sugars in caries is similar to the findings of Peterson et al⁷. This is however in contrast to the findings of Kumar et al¹⁶ in Udaipur where only half the subjects surveyed reported that improper consumption of sugars could lead to decay. 80.7% of the subjects in our survey also reported to consider “kamarkut”, a local sweet made of saccharine to be cariogenic. This shows a lack of complete knowledge on the type of sugar responsible for dental caries. This also shows a lack of awareness of the presence of sugar substitutes.

Most of the teachers in our study were aware of the presence of 2 sets of teeth i.e primary & permanent and most of them rightly indicated that primary teeth were as important as permanent teeth. Majority of the teachers in our survey (71.8%) also reported to be aware of oral habits in children and 61.6% of them also rightly indicated that persistence of such habits could lead to protrusion of teeth. 60.8% of the teachers in our study reported that one should visit a dentist at least once a year.

Based on the results of our study, it was encouraging to note that even though most of the teachers in our survey were not exposed to any formal training on oral health, they had adequate knowledge on many aspects of oral health including presence of two sets of dentition, importance of primary teeth, harmful effects of oral habits, oral hygiene measures & role of sugars in dental caries. However their knowledge on certain important aspects, such as the role of fluorides in caries prevention, presence of sugar substitutes, oral hygiene aids other than toothbrush & paste were lacking. To overcome the shortcomings in teachers' knowledge on these significant aspects, it is essential for dental professionals to play a proactive role in planning teaching content with respect to oral health and also in proper training of school teachers, thus enabling teachers to be more effective in their role as oral health educators.

References

1. Saravanan S, Kalyani V, Vijayarani M P, Jayakodi P et al. Caries prevalence and treatment needs of rural school children in Chidambaram Taluk, Tamil Nadu, South India. *Indian J Dent Res* 2008 19:186-90
2. Mouradian WE, Huebner CE, Ramos-Gomez F et al. Beyond access: the role of family and community in children's oral health. *J Dent Educ.* 2007 71:619-31.
3. Bratthall D, Hansel-Petersson G, Sundberg H. Reasons for the caries decline: what do experts believe? *European Journal of Oral Sciences* 1996 104: 416–422.
4. Wang N, Källestaal C, Petersen PE et al. Caries preventive services for children and adolescents in Denmark, Iceland, Norway and Sweden. *Community Dentistry and Oral Epidemiology* 1998 26: 263–271.
5. Petersen PE. Challenges to improvement of oral health in the 21st century—the approach of the WHO Global Oral Health Programme. *Int Dent J* 2004 54.S6: 329-343.
6. Chitke UM, Brand AA, Gilbert L. Suitability of teachers as oral health educators. *J Dent Assoc S Afr* 1990 45: 429-432.
7. Petersen PE, Bin P, Baojun T et al. Effect of a school-based oral health education programme in Wuhan City, Peoples Republic of China. *Int Dent J* 2004 54: 33-41.
8. Sri Wendari AH, Lambri SE, van Palenstein Helderman WH. Effectiveness of primary school-based oral health education in West Java, Indonesia. *Int Dent J* 2002 52:137-143
9. Buischi YAP, Axelsson P, Oliveria LB et al. Effect of two preventive programs on oral health knowledge and habits among Brazilian school children. *Community Dent Oral Epidemiol* 1994 22: 41-46
10. Petersen PE, Razanamihaja N. Carbamide-containing polyol chewing gum and prevention of dental caries in Madagascar. *Int Dent J* 1999 49:41-47
11. Petersen PE, Hadi R, Al-Zaabi FS et al. Dental knowledge, attitudes, and behaviour among Kuwaiti mothers and schoolteachers. *Journal of Pedodontics* 1990 14: 158–164.
12. Petersen PE, Danila I, Samoila A. Oral health behaviour situation of grade 1 children, mothers, and schoolteachers in Romania. *Acta Odontologica Scandinavica* 1995 53: 363–368.
13. Stephen S. Teachers as dental health educational educators. *Odontol Trop* 1984 VII: 205-207.
14. Nyandindi U, Palin- Palokas T, Milen A et al. Participation, willingness and abilities of school teachers in oral health education in Tanzania. *Community Dent Health* 1994 11:101-104
15. Manjunath G, Kumar NN. Oral Health Knowledge, Attitude and Practices among school teachers in Kurnool – Andhra Pradesh. *J Oral Health Comm Dent* 2013 7:17-23.

16. Kumar S, Kulkarni S, Jain S et al. Oral Health Knowledge, attitude & behavior of elementary school teachers in India. *RGO- Rev Gaucha Odontol.,Porto Alegre*, 2012 60:19-25.
17. Conrado, C. A., Maciel, S. M., & Oliveira, M. R. A school-based oral health educational program: the experience of Maringa-PR, Brazil. *Journal of Applied Oral Science* 2004 12: 27-33.
18. Goel, P, V. Shetty. Knowledge, attitude and practice of dental caries and periodontal disease prevention among primary school teachers in Udupi municipality. *Journal of the Indian Society of Pedodontics and Preventive Dentistry* 1997 15:124-129.
19. Pai V, Sequeira PS, Rao A, M. Kundabala. Dental Awareness among Kannada & English medium Primary School teachers in Mangalore City. *Indian Association of Public Health Dentistry* 2006 7.7 .7-12.
20. Lang P, Woodfolk MW, Faja BW. Oral health knowledge and attitude of elementary teachers in Michigan. *J Public Health Dent* 1989 49:44-50.
21. Ehizele, A., J. Chiwuzie, and A. Ofili. Oral health knowledge, attitude and practices among Nigerian primary school teachers. *International journal of dental hygiene* 2011 9: 254-260.
- 22.Griffiths W, Knutson AI. The role of mass media in public health. *Am J Public Health Nations Health* 1960 50:515-23.
- 23.Sambunjak D, Nickerson JW, Poklepovic T et al. Flossing for the management of periodontal diseases and dental caries in adults. *Cochrane Database of Systematic Reviews* 2011 12. Art. No.: CD008829. DOI: 10.1002/14651858.CD008829.pub2.