



## KNOWLEDGE, ATTITUDE AND PRACTICES OF SCHOOL TEACHERS TOWARDS ORAL HEALTH IN MANIPUR, INDIA

### Dental Science

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### ABSTRACT

**Introduction:** Schools provide an effective platform for promoting oral health as they reach over 1 billion children worldwide. Education of school children on oral health is most important because healthy oral habits are developed early in life. The teachers, by virtue of being trained persons and because of their proximity to the children have a determining role in disseminating knowledge on oral health. **Aims:** To assess Knowledge, Attitude and Practices regarding oral health among school teachers in Manipur. **Materials and Method:** A total of 143 school teachers working in 3 government and 3 private schools were included in this study. A pre-tested questionnaire having 31 questions pertaining to Knowledge, Attitude, Practices along with demographic details were distributed to the teachers and then collected after 30 mins. The data was analyzed using the Statistical Package for Social Science version 22.0. Chi square test was done in order to test for group difference among the variables. **Results:** The participants' oral hygiene habits were found to be regular and also showed good knowledge on oral health along with recognizing its importance. They did incorporate the importance of oral health in educating children. But, not all teachers are involved effectively. **Conclusion:** Therefore, the teachers should be trained comprehensively regarding importance of oral health and creating awareness on oral health promotion for their students in combination with health care personnel.

### KEYWORDS

oral health, knowledge, attitude, practices, school teachers

### INTRODUCTION

Despite great achievements in oral health globally, problems still remain in many communities all over the world, particularly among under-privileged groups in developed and developing countries.<sup>1</sup> The significant role of socio-behavioral and environmental factors in oral disease and health is evidenced in an extensive number of epidemiological surveys.<sup>2</sup>

In India, The National Oral Health Survey was able to cover 19 states and union territories and the details were listed separately in their report. It was originally planned to cover all states and union territories in India.<sup>3</sup> However, this could not be achieved as some of the state authorities, such as North Eastern States, had expressed their inability to participate due to lack of dental colleges in their states, manpower and other resources and Manipur is one such state.<sup>3</sup>

Due to scarcity of oral health status information,<sup>4</sup> oral health programmes in the state has not been implemented on a large scale. There is a demanding need for planning and evaluating oral health promotional programs. Moreover, there is paucity of literature regarding data of oral health awareness, attitude and knowledge among the people in Manipur. Due to this lacuna, there is an increasing need to assess the status of oral health.

As a preliminary level, assessing the knowledge, attitude and practice on oral health is mandatory to plan for promoting oral health programs in the state. As, children are one of the most vulnerable victims of oral diseases, programs aimed at improving the school dental health are of

great importance for promoting oral health of the community.<sup>5</sup> This could be achieved through oral health education. School teachers can play a foremost task in imparting knowledge of the causes and prevention of common oral diseases.<sup>6</sup> But this could be achieved only when the teachers have a concrete knowledge, a good attitude and practice on oral health. Teachers are considered as role models to transmit values of life. Children can be reached at a time when their health habits are forming including those who may not have access to other sources of health information.<sup>7</sup> Thus, this study was conducted with an aim to assess the knowledge, attitude and practice of oral health among school teachers in rural and urban areas of Manipur.

### MATERIALS AND METHODS:

A cross sectional study was conducted among 3 government and 3 private school teachers in Manipur. A sample size of 143 school teachers were randomly selected from government and private schools in Manipur after taking consent from the respected school head master / principal and from the individuals. This study was approved by the Institutional Review Board and Ethical Committee of Lenora Institute Of Dental Sciences, Rajanagaram. A cluster of six schools were selected. Only those teachers who gave the consent were included in the study. There were 44 government and 99 private school teachers who were included in the study.

A pre- tested questionnaire consisting of 31 closed ended questionnaire were distributed among the school teachers wherein a brief explanation about the questionnaire were given. The participants were informed about the importance of answering honestly. The

questionnaire were divided into five sections, the first part consisted of demographic details of the subjects, the questions in the second part were to assess the knowledge regarding oral health, the third part consisted of questions to assess the attitude of the individuals towards oral health, the fourth part of questionnaire were regarding their oral health practice and the fifth part was about the general information on the school curriculum. After half an hour the questionnaire were collected from the subjects.

**STATISTICAL METHOD:**

Statistical analysis was done using SPSS software (IBM Corp. released 2013.IBM SPSS statistics for windows, Version 22.0. Armonk, NY : IBM Corp) .Categorical data was analysed using Chi square test and p value ≤0.05 was considered as significant

**RESULTS:**

All the subjects responded completely to the questionnaire. There were 143 participants, 44 government school teachers and 99 private school teachers.

TABLE 1 describes about the knowledge of teachers on oral health. 95.5% government school teachers and 96% private school teachers knew that oral health got a role with general health. 75% of the

government and 68.7% private school teachers knew that their toothpaste content fluoride . Only 20.5% government school teachers and 21.2% private teachers did not have any knowledge about the fluoride content of toothpaste .Private school teachers(91.9%) had more knowledge regarding irregular brushing of teeth and oof dental health problems than government school teachers(72.7%). The result was statistically significant with a p value of 0.000. Regarding the causes of dental problems, 65.9% government and 78.8% private school teachers knew the reason for occurrence of dental problems. Coming to prevention part, 78.8% private school teachers knew how to prevent dental problems which was more than government school teachers (54.5%). But this result was statistically not significant. All the government school teachers included in the study knew that clean mouth can prevent tooth decay where in 97% teachers in private school had the knowledge. 95.5% government and 92.9% private school teachers knew dentist can polish the teeth. Teachers in both the type of schools were less aware of dental floss . Among government school teachers only 36.4% knew about floss, the remaining teachers were unaware. Only 44.4% of the private school teachers knew about dental floss. 86.4% government and 86.9% private school teachers knew the advantages of regular cleaning of teeth. Therefore, in regard to knowledge both the government and private school teachers had adequate knowledge about oral health.

**TABLE 1 Knowledge of teachers on oral health**

K1 Has oral health got any role with general health							
Schools	Yes(%)	No (%)	Don't Know	Chi Square	P Value		
Government	42 (95.5)	2 (4.5)	0 (0.0)	0.645	0.724		
Private	95 (96.0)	3 (3.0)	1(1.0)				
K2.What does irregular tooth brushing cause?							
Schools	Decay (%)	Gum disease (%)	Bad breath(%)	Stains on teeth(%)	All of the above(%)	Chi Square	P Value
Government	2 (4.5)	0 ( 0.0)	5 ( 11.4)	5 ( 11.4)	32 ( 72.7)	23.254	0.000
Private	2( 2.0)	5 (5.1)	1 (1.0)	0 (0.0)	91( 91.9)		
K3. Why do we get dental problems?							
Schools	Eating Sweets and Sticky Foods(%)	Not brushing properly (%)	Not rinsing the mouth after meals (%)	Not regularly visiting a dentist (%)	All of the above(%)	Chi Square	P Value
Government	4 (9.1)	9(20.5)	0( 0.0)	2(4.5)	29(65.9)	7.723	0.102
Private	2 ( 2.0)	12 (12.1)	4 (4.0)	3 (3.0)	78 (78.8)		
K4 How can we prevent dental problems?							
Schools	Avoid Sweet and Sticky Foods(%)	Brushing properly (%)	Mouth rinsing after meals (%)	Regularly visiting a dentist(%)	All of the above(%)	Chi Square	P Value
Government	3(6.8)	8(18.2)	3(6.8)	6(13.6)	24(54.5)	8.535	0.074
Private	1(1.0)	11(11.1)	2(2.0)	12(12.1)	73(73.7)		

K5 Do you know a clean mouth can prevent tooth decay?							
Schools	Yes (%)	No (%)	Chi Square	P Value			
Government	44 (100.0)	0 (0.0)	1.362	0.243			
K6 Do you know that a dentist can clean and polish the tooth?							
Schools	Yes(%)	No (%)	Chi Square	P Value			
Government	42 (95.5)	2(4.5)	0.329	0.566			
Private	92(92.9)	7(7.1)					
K7 Does your toothpaste contain fluoride?							
Schools	Yes (%)	No (%)	Don't Know(%)	Chi Square	P Value		
Government	33 (75.0)	2 (4.5)	9 (20.5)	1.301	0.522		
Private	68 (68.7)	10(10.1)	21(21.2)				
K8. Do you know what floss is?							
Schools	Yes (%)	No(%)	Chi Square	P Value			
Government	16 (36.4)	28 (63.6)	0.817	0.366			
Private	44 (44.4)	55 (55.6)					
K9 Regular cleaning of mouth can prevent?							
Schools	Bleeding from gums (%)	Loosening of gums (%)	Loss of teeth (%)	Bad smell (%)	All of the above (%)	Chi Square	P Value
Government	1(2.3)	0(0.0)	0(0.0)	5(11.4)	38(86.4)	1.283	0.864
Private	1(1.0)	1(1.0)	1(1.0)	10(10.1)	86(86.9)		

TABLE 2 Describes about the attitude of school teachers towards oral health. Almost all the teachers irrespective of the type of school felt that a healthy mouth is individuals responsibility. Coming to visiting a dentist , 86.4% of the government school teachers had visited dentist which was quite more than the private school teachers (65.75%). This difference was statistically significant with a p value of 0.011. The main reason for visiting dentist being pain( 26.3%, government school and 32.3% private school teachers) 93.9% of the private school teachers felt that regular visit to dentist required to maintain oral health whereas among government school teachers felt the need for for regular dental visit. The difference between the two groups was statistically significant with a p value of 0.010

**TABLE 2 Attitudes of teachers on oral health**

A1 Do you think maintaining a healthy mouth is individual responsibility?				
Schools	Yes(%)	No(%)	Chi Square	P Value
Government	43 (97.7)	1 (2.0)	0.064	0.800
Private	96 (97.0)	3 (3.0)		
A2 Have you visited a dentist before?				
Schools	Yes(%)	No(%)	Chi Square	P Value
Government	38(86.4)	6(13.6)	6.483	0.011
Private	65 (65.7)	34(34.3)		

A3 If yes then for what reason ?										
	Decay (%)	Pain (%)	Filling (%)	Extraction (%)	Routine check (%)	Filling and extraction (%)	Pain and filling (%)	Decay pain extraction (%)	Pain filling extraction (%)	All the above (%)
Government	5 (13.2)	10 (26.3)	7 (18.4)	7 (18.4)	3 (7.9)	3 (7.9)	0 (0.0)	1 (2.6)	0 (0.0)	2 (5.3)
Private	13 (20.0)	21 (32.3)	16 (24.6)	9 (13.8)	1 (1.5)	2 (3.1)	1 (1.5)	1 (1.5)	1 (1.5)	0 (0.0)
Chi Square	12.191									
P Value	2.73									

A4 Do u think it is required to visit a dentist periodically to maintain the oral health				
Schools	Yes(%)	No(%)	Chi Square	P Value
Government	35(79.5)	9(20.5)	6.722	0.010
Private	93(93.9)	6(6.16)		

TABLE 3 describes about the practice of oral health among school teachers. Almost all the government school teachers and private school teachers uses tooth paste and brush where a very small population 2% of the private school teachers used tooth powder and brush. About 75% of the government and 73.7% of the private school teachers brushes twice daily. Most of the school teachers uses both horizontal and vertical brushing technique (59.1% government school teachers, 69.7% private school teachers). Majority of the teachers changes their brushes once in three months ( among government school teachers 68.2% and 65.7% among private school teachers). More number of teachers uses paste half length bristle 56.8% in government teachers and 52.5% among private school teachers. Less percentage of teachers uses the right amount of paste . Among government school teachers only 9.1% of them and 14.1% among private school teachers uses pea size paste.56.8% of government teachers does not press the paste on the bristle which was more among private school teachers 69.7%). All the school teachers irrespective of their type of school cleans their tongue regularly.61.4% government teachers and 64.6% private school teachers had knowledge about oral hygiene aids. 81.8% government teachers and 90.9% private school teachers rinses mouth regularly after meals. 90.9% of the government school teachers uses tongue cleaner for cleaning the tongue while the remaining percentage of them uses brush for cleaning their tongue whereas all the private school teachers uses tongue cleaner only for cleaning their tongue. This difference was statistically significant with a p value of 0.002 . Those subjects who knew any other oral aids uses mouth washes commonly (55.6% government and 71.4% private school) and uses dental floss the least (3.7% government and 3.2% private school teachers).

**TABLE 3 Practices of teachers on oral health**

P1 How do you clean your teeth?						
Schools	Tooth brush and tooth paste(%)	Toothbrush and tooth powder(%)	Chi Square	P Value		
Government	44(100.0)	0(0.0)	0.901	0.342		
Private	97(98.0)	2(2.0)				
P2 How often do you brush your teeth?						
Schools	Once (%)	Twice(%)	More than twice(%)	After every meal(%)	Chi Square	P Value
Government	10(22.7)	33(75.0)	0(0.0)	1(2.3)	0.990	0.804
Private	21(21.2)	73(73.7)	2(2.0)	3(3.0)		
P3 How do you brush your teeth?						
Schools	Use horizontal strokes (%)	Use vertical strokes (%)	Use both horizontal and vertical strokes (%)	Circular(%)	Chi Square	P Value
Government	2(4.54)	7(15.9)	26(59.1)	9(20.5)	5.728	0.220
Private	6(6.1)	13(13.1)	69(69.7)	11(11.1)		

P4 How often do you change your brush?						
Schools	Once in 3 months (%)	Once in 6 months (%)	Yearly once (%)	When bristles get frayed up (%)	Chi Square	P Value
Government	30(68.2)	8(18.2)	1(2.3)	5(11.4)	2.801	0.423
Private	65(65.7)	12(12.1)	1(1.0)	21(21.2)		
P5 What amount of paste do you apply on your brush?						
Schools	Full length bristles (%)	Half length bristles (%)	Pea sized amount(%)	Chi Square	P Value	
Government	15(34.1)	25(56.8)	4(9.1)	0.727	0.695	
Private	33(33.3)	52(52.5)	14(14.1)			
P6 Do u press the paste in between the bristles ?						
Schools	Yes(%)	No(%)	Chi Square	P Value		
Government	19(43.2)	25(56.8)	2.243	0.134		
Private	30(30.3)	69(69.7)				
P7 Do you rinse your mouth after meals?						
Schools	Yes(%)	No(%)	Sometimes(%)	Chi Square	P Value	
Government	36(81.8)	1(2.3)	7(15.9)	2.413	0.299	
Private	90(90.9)	1(1.0)	8(8.1)			
P8 Do u clean your tongue ?						
Schools	Yes(%)	No(%)				
Government	44(100.0)	0(0.0)				
Private	99(100)	0(0.0)				
P9 How do you clean your tongue?						
Schools	Tongue cleaner (%)	Toothbrush(%)	Chi Square	P Value		
Government	40(90.9)	4(9.1)	9.259	0.002		
Private	99(100.0)	0(0.0%)				
P10 Do you know any other oral hygiene aids?						
Schools	Yes(%)	No(%)	Chi Square	P Value		
Government	27(61.4)	17(38.6)	0.142	0.706		
Private	64(64.6)	35(35.4)				

P 11 If you know any oral hygiene aids, then, which one do you use?					
Schools	Mouth wash (%)	Dental floss (%)	Tooth picks (%)	Chi Square	P Value
Government	15(55.6)	1(3.7)	11(40.7)	6.451	0.092
Private	45(71.4)	2(3.2)	16(25.3)		

TABLE 4 shows the general information on oral health in school curriculum. 54.5% of the government school teachers accepted that there are topics related to teeth and mouth in the school curriculum whereas it was more among private school teachers 74.7% who told that there were topics about oral health in school curriculum. This difference was statistically significant with a p value of 0.016. Very less number of individuals told that they have been trained to give oral health education (20.5% among government school teachers and 30.3% among private school teachers). Most of the teachers agreed that they have not been trained to give any oral health education. But attempts have been made to teach them by teachers in government schools(65.9%) and by private school teachers( 70.7%). Government and private school teachers gave health education in regard to dietary habits (58.6% government school teachers and 33.8% private school teachers). Most of the education was given through oral health talk (62.1% and 59.1% ; government and private teachers respectively).62.1% of government school teachers had the opinion that children responded favourably to the education while in 59% of the private school teachers had the same opinion. All the teachers in both government and private school is of the opinion that oral health education benefitted their school children.

**TABLE 4 General information on oral health in school curriculum**

G1 Are the topics related to teeth and mouth in the present school curriculum?					
Schools	Yes(%)	No(%)	Chi Square	P Value	
Government	24(54.5)	20(45.5)	5.765	0.016	
Private	74(74.7)	25(25.3)			

  

G2 Have you been trained to give education on topics related to teeth and mouth to school children?					
Schools	Yes(%)	No(%)	Chi Square	P Value	
Government	9(20.5)	35(79.5)	1.490	0.222	
Private	30(30.3%)	69(69.7)			

  

G3 Have you made an attempt to give education related to teeth and mouth to your student?					
Schools	Yes(%)	No(%)	Chi Square	P Value	
Government	29(65.9)	15(34.1)	0.329	0.566	
Private	70(70.7)	29(29.3)			

  

G4 if yes ,what kind of oral health education have you given to your school children?						
Schools	About teeth types, functions, structure, and eruption (%)	About brushing good dietary habits, Injurious oral habits (%)	Education about tooth decay gum diseases, irregular teeth, their causes, treatment and prevention(%)	All of the above(%)	Chi Square	P Value
Government	3(10.3)	7(24.1)	2(6.9)	17(58.6)	6.732	0.241
Private	15(21.1)	28(33.8)	4(5.6)	24(33.8)		

G5 What methods are you employing to give oral education to school children?					
Schools	Oral health talk (%)	Models,charts and Poster (%)	All of the above(%)	Chi Square	P Value
Government	18(62.1)	3(10.3)	8(27.6)	0.113	0.945
Private	42(59.0)	7(9.9)	22(31.0)		
G6 How have your students responded to oral health education ?					
Schools	Favourable(%)	Unfavourable(%)	Chi Square	P Value	
Government	29(100.0)	0(0.0)	0.834	0.361	
Private	69(97.2)	2(2.8)			

## DISCUSSION:

There have been many knowledge, attitude and practice studies conducted on oral health throughout India, but very less studies have been done in the state of Manipur. It is therefore a need to conduct such studies in the state. As teacher with good oral health status and a positive attitude towards oral health is a corner stone in creating awareness about oral health amongst school children who are the future generations it is indeed essential to assess them so that further oral health promotional programs can be implemented. Inclusion about oral health in the school curriculum can also bring about certain positive improvements in the oral health of the community. Moreover, the National Oral Health Policy emphasizes the need to train and equip school teachers with knowledge and resources regarding prevention of oral diseases by means of training programs.<sup>8</sup> Also studies done by Sajjad S and Rehman M<sup>9</sup> at Rawalpindi city in Pakistan, revealed that there was a difference in the attitude of school teachers among Government and private schools. Therefore, the present study was conducted to assess knowledge, attitude, practice and about the general information included in the school curriculum among school teachers of Manipur.

Both the government and private school teachers felt that oral health has some role over general health which was in accordance with a study done by Maganur PC et al.<sup>10</sup> Private school teachers had more knowledge regarding irregular brushing of teeth and oral problems than government school teachers which was statistically significant. This may be due to the reason that parents in Private school have higher expectations from the schools and hence to cope the expectations the private school teachers knowledge may be updated. Both the government and private school teachers knew certain causes of dental caries and how to prevent dental problems. They also knew dentist can polish the teeth and advantages of regular cleaning of mouth. More people in both government and private school teachers were unaware of what dental floss is (66.6% in government and 55.6% in private) which was similar to a study done by Maganur PC et al.<sup>10</sup> where in about 54% were unaware of floss. These results indicate that improvement in knowledge toward the use of dental floss is needed, as floss helps to remove plaque and other debris interdental. Intervention to increase the knowledge and subsequent use of flossing is essential.

Most of the government and private school teachers felt that maintaining healthy mouth is an individual responsibility (97.7% government and 97% private school teachers) which was similar to a study done by Pratap KV and Mahalakshmi M<sup>11</sup> where were 98% of the teachers felt that maintaining oral health is individual responsibility. Number of government school teachers who visited dentist accounts for 86.4% which was much more than private school teachers wherein only 65.7% of them visited dental clinic. This difference was statistically significant with a p value of 0.01. Similarly in a study done by Pratap KV and Mahalakshmi M<sup>11</sup> revealed that public school teachers visited more frequently than private school teachers. This may be due to the reason that government school teachers might get many opportunities like free treatment schemes than private school teachers. Hence utilization of the dental services being provided was more among government school teachers. On contrary to this study, a study done by Sukhabogi et al<sup>12</sup> revealed that majority of the teachers

in private school visited dentist more regularly than the government school teachers. While in this study, only a very few of them has visited for routine check up and was more among government schools.

Majority of the teachers in this study brushes twice daily irrespective of the school while there was difference in the frequency of brushing in a study done by Pratap KV and Mahalakshmi M<sup>11</sup> where private school teachers were more than government school teachers. Also in a study done by Dawani N, Afaq A and Bilal Sobia<sup>13</sup> more number of teachers brushes twice a day. Most of the participants who knew about other oral hygiene aids. Mouth wash the most commonly used and dental floss was the least used in both government and private school teachers. This was in accordance with a study done by Mary AV et al<sup>14</sup> where only 4.2% of the school teachers were only flossing Majority of the participants changes their tooth brush every 3 months which was in accordance with other studies. Most of the teachers uses horizontal and vertical strokes of brushing in this study which was in accordance to a study done by Pratap KV and Mahalakshmi M<sup>11</sup>

74.7% of the private school teachers mentioned that topics regarding teeth and mouth were present in curriculum while only 54.5% of the government school teachers accepted it. There was a statistically significant difference. There is a need for the higher authorities of the school to include oral health in their policy and thereby include in the curriculum. Teacher training programs have not been conducted to a satisfactory level in both government and private school teachers hence, there is need for such programs in the future. A good attempt has been made by the teaches of both the type of schools to teach children about the oral health and the result was felt favorable by majority of them. Almost all the teachers participated in the program felt oral health education benefitted their children.

## LIMITATION:

Further studies with more number of schools needs to be conducted including the remaining districts of Manipur.

## CONCLUSION:

There is a fair knowledge, good attitude and satisfactory practice towards oral health among the teachers but their implementation in training the students is very poor. Including oral health in school curriculum will be of great benefit. Teachers should be well trained to bring about the change in the oral health status of the community. Evidence based reinforcement programs should be introduced to further reduce the gap between knowledge, attitude and practice.

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