

Knowledge, Attitude and Practice of School Teachers towards Oral Health in Patna, Bihar

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Citation of this Article: Dr. Deep Sundar, Dr. Suma B S, Dr. Nirmala Kumari, “Knowledge, Attitude and Practice of School Teachers towards Oral Health in Patna, Bihar”, IJDSIR- May - 2022, Vol. – 5, Issue - 3, P. No. 575 – 586.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: The school is an important avenue for promoting oral health most especially in developing countries with low resources. However, the success of any school based preventive oral health programme is dependent on the teachers about whom there is little information on their present state of oral health awareness and practices.

Aim: To assess the oral health knowledge, attitude, practices of school teachers in Patna, Bihar.

Methods: A cross-sectional study was conducted on 150 school teachers of middle school teachers of government and private schools in Patna, Bihar. A structured questionnaire was given to evaluate the knowledge, attitude and practice of school teachers on oral health. Chi-square test was used to determine any statistical significance.

Result: About 52% of the participant were females, 50% were 30-40 years old, 52.7% had bachelor’s degree and 40.7% were having >5-10 years of teaching experience. A total of 141 subjects knew that not brushing properly can cause dental problems, out of which 94.9% were having bachelor’s degree and it was statistically significant ($p < 0.05$). Majority of school teachers showed positive attitude towards oral health. There was a significant association between practices and educational qualification.

Conclusion: Current study results suggests that, school teachers had acceptable knowledge regarding the oral health. Efforts should be encouraged to educate school teachers about modern preventive dentistry and the potential for oral health promotion among school children. The school teachers have to be updated about oral health information by the dental professionals.

Keywords: Attitude, Knowledge, Practice, Teachers

Introduction

Oral health is an integral part of the general health. Oral cavity being the gateway for the human body, any impairment of oral health can manifest not only in the oral cavity but also elsewhere in the body.¹ As an essential aspect of general health, oral health can be defined as ‘a standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general well-being’.²

Oral disease can be considered a public health problem due to its high prevalence and significant social impact.³ As prevention is better than cure, preventive measures are being implemented among various sectors of the society.¹ Teachers having good oral health knowledge can play an important role in the implementation of various school based oral health education and preventive programmes, which aim at improving oral health behaviour and status of child population.⁴

Children spend considerable amount of time in school, especially during the age when their habits are being formed and school provide an effective platform for promoting oral health because they reach over 1 billion children worldwide. So, education of school children on oral health is important because healthy oral habits are developed early in life.⁵

The WHO, Global Data Bank (WHO 1995), shows that children up to 12 years, in more than 15% of the countries in the world have an average of 4.5 decayed, missing, or filled teeth per child. The WHO Information Series on School Health states that more than 50 million hours annually are lost from school due to oral diseases. Children spend more than half of their time in schools and teachers play a pivotal role in the overall

development of the child academically, socially, and psychologically. The teachers are the role models who motivate children toward healthy lifestyle, including oral health care.⁶

The responsibility of training these children is by far the most difficult, making it imperative to select teachers with special qualifications and training. There is increasing recognition in both the scientific and social community, of the tremendous influence which a school teacher has not only in encouraging good health habits, but also in promoting overall development. It is now established that school teachers have an internationally recognized potential role in school-based dental education and considerable importance has therefore been attributed to their dental knowledge.⁷

Teacher is the keystone of the arch of dental health education.¹ Teachers need to have a sound knowledge regarding constructive oral habits to train their students.⁸ It is now established that school teachers have an internationally recognized potential role in school – based dental education, and considerable importance has, therefore, been attributed to their dental knowledge.⁵ For teachers to be good oral health educators, they should have correct oral health knowledge, be motivated, have positive attitude towards oral health and be good examples by performing optimal oral health practices.⁹

Therefore, the present study has been undertaken to determine the oral health related knowledge, attitudes and practices of school teachers in Patna, Bihar.

Objectives of the study is

- To assess the specific knowledge of school teachers regarding oral health.
- To explore the attitude and practice of school teachers towards oral health.

- To determine a possible relationship between teacher's knowledge, attitude, practices and oral health.

Materials and Methods

A descriptive cross-sectional study was conducted over a period of 2 months from November 2021 – December 2021 among school teachers of Patna, Bihar. The proposed study was reviewed by Ethical committee of Buddha Institute of Dental Sciences and Hospital, Patna and the required clearance was obtained. Only middle school teachers of government and private schools were considered for this study. 150 school teachers were selected for the study by stratified random sampling. Informed consent was obtained from each participant involved in the study. Each participant was briefed about purpose of the study. All the participants were approached by the examiner and the data was collected using a close ended questionnaire. The questionnaire used were checked for clarity, validity and content before distributing to the participant, which was done under the supervision of professor, Department of Public Health Dentistry, Buddha Institute of Dental Sciences and Hospital, Patna. The questionnaire consisted of 4 major sections: demographic details, questions based on knowledge, attitude and practice related to oral health.

Statistical Analysis

Data was entered in MS excel sheet and analysed using graph pad (version 5). The recorded values were represented as number (n) and percentage. Chi square test was applied to analyse the association between two parameters and level of significance i.e., “p” value of less than 0.05 was considered as significant.

Result

The present study was conducted among 150 school teachers among whom 78 (52%) were females and 72 (48%) were males. Majority of the study subjects, 75 (50%) were in the age group of 30-40 years followed by

54(36%) and 21(14%) who belonged to the age group of 41 – 50 years and 51 – 60 years respectively. Based on educational qualification, majority of the subjects 79 (52.7%) had bachelor's degree followed by those with master's degree 49 (32.7%); whereas only 22 (14.7%) of the subjects had education up to intermediate level. Among the total study subjects 123(82%) were married, 26(17.3%) were single and 1(0.7%) was divorced. A total of 77(51.3%) of the subjects were working as teachers in government schools and rest 73(48.7%) were private school teachers. A majority of 61(40.7%) subjects had a teaching experience of > 5 – 10 years followed by 53(35.3%) with an experience of more than 10 years. Only 36(24%) of the subjects had experience of ≤5 years. (Table 1)

In the present study, majority of the subjects 107 were aware of the fact that oral health has a role in general health among whom majority of the subject 61(77.2%) were bachelors, 29(59.2%) were master and rest 17(77.3%) were intermediate. Also 130 subjects had knowledge regarding eating sweets and ice cream can cause dental problems among whom majority of subject 69(87.3%) were bachelors, 40(81.6%) were master and rest 21(95.5%) were intermediate. A total of 141 subjects knew that not brushing properly can cause dental problems, out of which 75(94.9%) were bachelors, 48(98%) were master and rest 18(81.8%) were intermediate and this result was found to be statistically significant (p=0.03). Total 128 subjects were aware that not rinsing the mouth can cause dental problems among whom 68(86.1%) were bachelors, 42(85.7%) were master and rest 18(81.8%) were intermediate. A majority of 137 subjects had knowledge that irregular tooth brushing causes decay, bad breath and dirty teeth, out of the total respondents 76(96.2%) were bachelors, 43(87.8%) were master and rest

18(81.8%) were intermediate. Out of total 150 subjects only 77 were aware that their toothpaste contains fluoride among whom 37(46.8%) were bachelors, 28(57.1%) were master and rest 12(54.5%) were intermediate. (Table 2)

In the present study, an overall majority of subjects 144 [21(95.5%) were intermediate, 77(97.5%) were bachelors and 46(93.9%) master] used toothbrush for cleaning their teeth, followed by 5 [1(4.5%) were intermediate, 1(1.3%) were bachelors and 3(6.1%) were master] and 1(1.3%) female subjects who used neem sticks and finger respectively. A majority of the subject 122 used toothpaste for cleaning their teeth among whom 19(86.4%) were intermediate, 63(79.7%) were bachelors and 40(81.6%) were master; while the rest 28 of the subjects used toothpowder out of which 3(13.6%) were intermediate, 16(20.3%) were bachelors and 9(18.4%) were master. Regarding the frequency of tooth brushing an overall majority of 79 subjects cleaned their teeth once daily among whom 11(50%) were intermediate, 43(54.4%) were bachelors and 25(51%) were master. It was also found that 68 of the subjects cleaned their teeth twice a day out of which 10(45.5%) were intermediate, 36(45.6%) were bachelors and 22(44.9%) were master. Interestingly, only 1(4.5%) were intermediate and 2(4.1%) were master who clean their teeth more than twice daily and after every meal respectively. In this study majority 59 of the subjects changed their tooth brush once in 6 months among whom 6(27.3%) were intermediate and 27(34.2%) were bachelors and 26(53.1%) were master and the result was statistically significant ($p=0.04$). 34 of the subjects changed their tooth brush one in a year, among whom 6(27.3%) were intermediate, 20(25.3%) were bachelors and 8(16.3%) were master. It was also found that 26 subjects [4(18.2%) were intermediate, 15(19%) were

bachelors and 7(14.3%) were master] changed their toothbrush when the bristle get frayed up while 16 subjects [1(4.5%) were intermediate, 13(16.5%) were bachelors and 2(4.1%) were master] did not know exactly regarding the same. Only 15 of the subjects changed their toothbrush once in 3 months, among whom 5(22.7%) were intermediate, 4(5.1%) were bachelors and 6(12.2%) were master. In the present study, only 35 of the subjects were correctly applying pea-sized amount of paste on toothbrush, among whom 6(27.3%) were intermediate 16(20.3%) were bachelors and 13(26.5%) were master. While the rest 66 [8(36.4%) were intermediate, 41(51.9%) were bachelors and 17(34.7%) were master] and 49 [8(36.4%) were intermediate, 22(27.8%) were bachelors and 19(38.8%) master] of the subjects used to apply half-length and full length amount of paste on the toothbrush respectively. An overall majority of 101 subjects rinse their mouth after meal out of which 16 (72.7%) were intermediate, 56 (70.9%) were bachelors and 29(59.2%) were male. 39 [4 (18.2%) were intermediate, 71(89.9%) were bachelors and 42(85.7%) were master] subjects sometimes rinse their mouth after meal, whereas rest of the 10 [2 (9.1%) were intermediate, 7 (8.9%) were bachelors and 1 (2%) master] subjects never rinse their mouth after meal. In this study a total of 132 subjects cleans their tongue among whom 19 (86.4%) were intermediate, 71(89.9%) were bachelors and 42(85.7%) were master. (Graph 14. 15) Among these 98 [16 (72.7%) were intermediate, 54(68.4%) were bachelors and 28 (57.1%) master] subjects uses tongue cleaner, followed by 26 [4(18.2%) were intermediate, 10 (12.7%) were bachelors and 12 (24.5%) were master] and 24 [2 (9.1%) were intermediate, 14 (17.7%) were bachelors and 8 (16.3%) were master] subjects who uses finger and toothbrush for the same respectively. In the present study, only 31 of

the subjects were aware of other oral hygiene aids were bachelors and 13 (26.5%) were master. (Table 3) among whom 3 (13.6%) were intermediate, 15 (19%)

Table 1: Demographic profile of the study population

Variables	Frequency
Gender	
Male	72(48)
Female	78(52)
Age group (in years)	
30-40	75(50)
41-50	54(36)
51-60	21(14)
Educational Qualification	
Intermediate	22(14.7)
Bachelors	79(52.7)
Master	49(32.7)
Marital status	
Married	123(82)
Single	26(17.3)
Divorced	1(0.7)
Type of school	
Government	77(51.3)
Private	73(48.7)
Year of teaching experience	
≤5	36(24)
>5-10	61(40.7)
>10	53(35.3)

Table 2: Comparison of knowledge among the study subjects according to educational qualification

Question	Intermediate		Bachelors		Master		Chi Square Value	p value
	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)		
Q1) Has oral health got any role in general health?	17 (77.3)	5 (22.7)	61 (77.2)	18 (22.8)	29 (59.2)	20 (40.8)	5.25	0.07
Q2) Eating	21	1	69	10	40	9	2.58	0.27

sweets and ice creams can cause dental problems?	(95.5)	(4.5)	(87.3)	(12.7)	(81.6)	(18.4)		
Q3) Not brushing properly can cause dental problems?	18 (81.8)	4 (18.2)	75 (94.9)	4 (5.1)	48 (98)	1 (2)	7.27	0.03*
Q4) Not rinsing the mouth can cause dental problems?	18 (81.8)	4 (18.2)	68 (86.1)	11 (13.9)	42 (85.7)	7 (14.3)	0.26	0.88
Q5) Does irregular tooth brushing causes decay, bad breath and dirty teeth?	18 (81.8)	4 (18.2)	76 (96.2)	3 (3.8)	43 (87.8)	6 (12.2)	5.68	0.06
Q6) Does your toothpaste contains fluoride?	12 (54.5)	10 (45.5)	37 (46.8)	42 (53.2)	28 (57.1)	21 (42.9)	1.39	0.49

*: statistically significant

Table 3: Comparison of practices among the study subjects according to educational qualification

Question	Intermediate	Bachelors	Master	Total %	Chi Square value	p value
	N %	N %	N %			
Q10) How do you clean your teeth?						
Cleaning Aids used:						

Toothbrush	21 95.5	77 97.5	46 93.9	144 96	3.19	0.53
Neem sticks	1 4.5	1 1.3	3 6.1	5 3.3		
Finger	0 0	1 1.3	0 0	1 0.6		
Types of material used:						
Toothpaste	19 86.4	63 79.7	40 81.6	122 81.3	0.50	0.78
Toothpowder	3 13.6	16 20.3	9 18.4	28 18.6		
Q11) How often you clean your teeth?						
Once daily	11 50	43 54.4	25 51	79 52.6	10.05	0.12
Twice daily	10 45.5	36 45.6	22 44.9	68 45.3		
More than twice daily	1 4.5	0 0	0 0	1 0.6		
After every meal	0 0	0 0	2 4.1	2 1.3		
Q12) How often do you change your brush?						
Once in 3 months	5 22.7	4 5.1	6 12.2	15 10	16.39	0.04*
Once in 6 months	6 27.3	27 34.2	26 53.1	59 39.3		
Yearly Once	6 27.3	20 25.3	8 16.3	34 22.6		
When bristles get frayed up	4 18.2	15 19	7 14.3	26 17.3		
Do not know exactly	1 4.5	13 16.5	2 4.1	16 10.6		
Q13) What amount of paste do you apply on your brush?						

Full length of bristles	8 36.4	22 27.8	19 38.8	49 32.6	11.08	0.09
Half-length of bristles	8 36.4	41 51.9	17 34.7	66 44		
Pea-sized amount	6 27.3	16 20.3	13 26.5	35 23.3		
Q14) Do you rinse your mouth after meals?						
Yes	16 72.7	56 70.9	29 59.2	101 67.3	7.66	0.11
No	2 9.1	7 8.9	1 2	10 6.6		
Sometimes	4 18.2	16 20.3	19 38.8	39 26		
Q15) Do you clean your tongue?	19 86.4	71 89.9	42 85.7	132 88	3.19	0.53
Q16) How do you clean your tongue?						
Tongue cleaner	16 72.7	54 68.4	28 57.1	98 65.3	4.54	0.60
Fingers	4 18.2	10 12.7	12 24.5	26 17.3		
Toothbrush	2 9.1	14 17.7	8 16.3	24 16		
Any others specify	0 0	1 1.3	1 2	2 1.3		
Q17) Do you know any other oral hygiene aids?	3 13.6	15 19	13 26.5	31 20.6	7.52	0.11

*: statistically significant

Discussion

Pre-primary and primary school have a great potential for influencing the health behaviour of the child. During this period, the child goes through active developmental stages⁵. School teachers are traditionally being considered as potentially important primary agents of socialization, with the capability of influencing the

future knowledge, attitude and behaviour of schoolchildren¹. Schools have tremendous capacity to be supportive of programs involving preventive dentistry for children. It was found that teachers traditionally have educated children regarding oral health and often participated in school-based prevention programs⁵.

In the present study a total of 150 school teachers participated, of which 78 (52%) were females and 72 (48%) were males. The numbers of female and male subjects are quite comparable and the collective reason behind this could be gender equality and female reservations in school teaching jobs. This finding is in accordance with other studies conducted by Paramjeet et al⁴ (54.21% were female and 45.79% were male) and Iqbal et al¹⁰ (57.4% were female and 42.6% were male) where majority of the study subjects were female i.e., 54.21% and 57.4% respectively.

In the present study among the total study subject 75 (50%) were in the age group of 30-40 years followed by 54(36%) and 21(14%) who belonged to the age group of 41 – 50 years and 51 – 60 years respectively. This finding is similar to the study done by on wudi et al¹⁰ where majority of subject were 31-40 years (37.2%) old. Our finding in the present study shows that majority of subjects 79 (52.7%) had bachelor's degree followed by those with master's degree 49 (32.7%); whereas only 22 (14.7%) of the subjects had education upto intermediate level and this finding is in accordance with the study done by Ankita et al⁷, where majority of the subject (61.2%) were having bachelor degree followed by 12.3% and 21.1% subjects having master and intermediate degree respectively. In India, a Bachelor of Education (BEd) is a course offered for those interested in pursuing career in teaching. The BEd degree is mandatory for teaching in schools.⁸

In the present study among the total study subjects 123(82%) were married, 26(17.3%) were single and only 1(0.7%) was divorced and this finding is in accordance with the study done by Ankita et al & Kunal et al⁷ were 81.2% were married and 18.8% were unmarried.

In the present study among the total study subjects 77(51.3%) were working as teacher in

government school and rest 73(48.7%) were private school teacher & this finding is in accordance with the study done by Mohammad Sami et al¹¹ were 52% were working as teachers in government school and 48% were private school teachers.

Our finding in the present study shows that majority of subjects 61(40.7%) were having teaching experience of 5 – 10 years followed by 53(35.3%) with an experience of more than 10 years and only 36(24%) of the subjects were having teaching experience of ≤ 5 years. This finding is similar to the study done by Mohammad Sami et al¹¹ were 33% were having teaching experience of 5 – 10 years, 25% with an experience of more than 10 years and 25% were having teaching experience of ≤ 5 years.

Knowledge

In this study, findings revealed that the school teachers had fair knowledge regarding various issues pertaining to oral health. In spite of being well informed a few knowledge gaps were identified. In the present study majority of the subjects (71.3%) knew the fact that oral health does have a role in general health; this result is in contrast to that of the study conducted in Davangere⁵ where almost all of the subjects were aware of this fact. It was observed that gender had no significant impact on the knowledge of school teachers towards oral health. Male and female teachers were equally well informed that eating sweets and ice cream, not brushing properly and not rinsing the mouth can cause dental problems. They were also aware of the fact that irregular tooth brushing causes decay, bad breath and dirty teeth.

Knowledge about the oral health and educational qualification was found to be significantly associated and subjects with bachelors and masters degree were more aware of the fact that not brushing properly can cause dental problems as compared to the subjects who had only intermediate degree. No significant association

was observed when oral health knowledge was compared with years of teaching experience of school teachers. In the present study nearly 51.3% of the subjects knew that their toothpaste contains fluoride; this is in accordance with the findings if study conducted by Maganur PC et al⁵ were (56.7%) of the subjects knew that their toothpaste contains fluoride.

Attitude

Majority of school teachers showed positive attitude towards oral health. Most of them thought that maintaining a healthy mouth is individual responsibility and it is required to visit a dentist periodically to maintain the oral health. In our study 48.6% of the teachers visited a dentist before. This was not in concurrence with the study conducted by Maganur PC et al⁵ where 81.3% of the teachers visited dentist before. High cost of dental treatment could be a reason. Teachers may also be very busy in their work schedule can be the cause. Although the attitude of school teachers was favourable, no significant association was observed when compared with their gender, educational qualification and teaching experience.

Practices

Knowledge and practice in brushing teeth, changing toothbrush, and amount of toothpaste to be used were quite satisfactory. All the teachers used toothbrush and toothpaste to clean their teeth. Around 52.6% of teachers brushed their teeth once daily, 45.3% do brush twice daily. The results are similar to the study conducted by Mohammed Sultan et al¹² where 54.3% of the teachers brushes once daily and 34.5% of the teachers brushes twice daily. There was a significant association between practices and educational qualification were subjects with bachelors and masters degree changes there brush once in 6 months as compared to the subjects who had only intermediate degree. Although the oral health

practice of school teachers was favourable, no significant association was observed when compared with their gender and teaching experience.

Recommendations

1. To create awareness among teachers regarding oral hygiene so that they stimulate the development of resources to make dental care available to all children.
2. When conducting school dental health programs, dental professionals should also plan out a separate lecture/demonstration of oral hygiene measures to school teachers so as to increase their awareness about oral hygiene.
3. Guidelines for teachers in monitoring and supervising tooth brushing drills should be developed.
4. Incorporation of a chapter on oral hygiene in the school curriculum would be helpful, so that the children are taught about the importance of oral hygiene at an early age.
5. Workshops are recommended to improve their existing knowledge.
6. Educational resources and aids, such a video tapes, games and instructional pamphlets should be devised, applied and evaluated.
7. Further studies with large sample size should be conducted further.

Conclusion

The life of an individual is influenced by various factors including the condition of health, education, occupation, and socioeconomic status. Oral health is an integral part of the general health. Oral cavity being the gateway for the human body, any impairment of oral health can manifest not only in the oral cavity but also elsewhere in the body. As Prevention is better than cure, preventive measures are being implemented among various sectors of the society. In order to control the growing burden of oral diseases, a number of developing countries recently

introduced school-based oral health education and preventive programmes which aim at improving oral health behaviour and status of the child population. Classroom teachers are the most effective instructors for school-based oral health education and can incorporate simple, accurate elements of oral health education into routine teaching activities. School teachers in India constitute one of the biggest organized forces. They shape the future of the country and prepare the young ones for life. Thus, they should remain as role models for the children. Teachers cannot assist in developing well-informed students, if they themselves remain misinformed. Thus, increasing the oral health knowledge of the schoolteachers provides an opportunity to educate an important segment of the public that has access to a large population of young people. In the present study, school teachers had acceptable knowledge regarding the oral health. All of the teachers, irrespective of their experience, had highly acceptable scores for attitudes and fairly acceptable scores for practice towards oral health. Efforts should be encouraged to educate school teachers about modern preventive dentistry and the potential for oral health promotion among school children. The school teachers have to be updated about oral health information by the dental professionals.

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