

Basic School Teachers' Knowledge and Attitude about Tooth Decay and Practice towards Oral Health Education at Khartoum Province- Sudan

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ABSTRACT

Background: The important role of teachers in oral health education cannot be ignored, but most of teachers are not trained for this task and they have low abilities and willingness for it.

Objectives: This study aimed to assess knowledge about tooth decay and practice towards oral health education among basic school teachers. Also to determine their decayed, missed and filled tooth index (DMFT) and Oral hygiene index (OHI).

Subjects and Methods: Cross-sectional study among 184 basic school teachers, working in schools in Khartoum province. An interview questionnaire consisting of 15 questions covering their oral hygiene habits, basic knowledge about tooth decay, willingness to participate in school based oral health programs.

Results: showed that the mean DMFT index was 11.59 ± 5.09 . The oral hygiene condition was assessed via OHI-Simplified, 53.3% had good oral hygiene, 44% fair and 2.7% poor. Knowledge assessment revealed that 54.9% thought that dental caries is caused mainly by bacteria and sugars and 31.0% believed that tooth decay cannot be prevented. Significant association was found between teachers' age and their source of information about oral health ($p=0.036$). Regarding practice towards oral health 60.3% of the teachers claimed spending time promoting for oral health.

Conclusion: basic school teachers were generally well informed about tooth decay but some deficiencies were noticed.

Keywords: School teachers, Tooth decay, Oral Hygiene Index, Khartoum.

The role of education, particularly the early education is imperative, since it is easier to shape the behavior of individuals when they are relatively at a young age. Children spend almost up to seven hours at education facilities where they are constantly learning, even outside class rooms. They easily pick up knowledge, habits and skills. Therefore educators, school teachers in specific have the ability to not only shape but also change certain attitudes among their pupils along with the collaborated effort of the parents. Teachers by teaching about oral health care will not only be improving and promoting for oral health, but preventing the oral health problems as well. The important role of teachers in oral health education cannot be ignored, but most teachers are not

trained for this task and they have low abilities and willingness for it. Oral health education sessions conducted by teachers at school were observed to be deficient in content and in methods.¹

Teachers' knowledge about oral health and current methods of prevention is incomplete, and inaccurate in some instances.²

Several studies have shown that most teachers have positive attitude towards oral health education.^{3, 4, 5}. However, Safola⁶ reported that teachers had poor attitude towards oral health issues.

The main objective of this study is to assess the knowledge about tooth decay, practice and attitude towards oral health education of basic school teachers in Khartoum province with specific objectives to assess their oral hygiene index, DMFT index and severity of dental caries in relation to age and gender. Also it aimed at assessing the relation between teachers' DMFT and their source of information about oral health.

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Subjects and Methods

In the year 2008 the total number of basic schools in Khartoum province were 182 (both for boys and girls), where 3091 male and female teachers worked at ⁷. The province is divided by the educational authorities into five sections (west, east, south, north and center), in this study each section was treated as a strata. A descriptive, cross-sectional study with a total sample size of 184 male and female teachers randomly selected and calculated with a Confidence level 95%.

The schools were selected randomly using stratified cluster sampling, considering the sections of the city as strata. The sample size was further divided into 5 parts according to the proportion of teachers in each section of the city.

Investigators randomly selected three days a week at school day time for data collection. Selected teachers were clinically examined then interviewed for a questionnaire, with 15 different questions covering demographic and personal data, knowledge about tooth decay, practice of oral health education, attitude towards participation in school based oral health programs, and oral hygiene care methods. The questionnaire was tested before embarking on the study.

The WHO criteria⁸ for caries assessments were applied for clinical assessment. Oral hygiene index-simplified ⁹ was utilized to assess the oral hygiene. Clinical examination of the teachers took place at their rest room/office having the subjects seated in an upright chair under natural day light. In occurrence of

any uncertainty tooth was marked as sound. No radiographs were taken.

Each school's administration was informed before any visit was attempted, and permission was obtained. Teachers selected received a brief explanation about the study and had the free will to participate.

Data cleaning was carried out at site of collection. Examination sheet and questionnaires were reviewed for accuracy and completeness after each day of data collection. Statistical Package for Social Sciences (SPSS, version 17) for data analysis was utilized for all computational purposes. Analysis of variance (ANOVA) was used to determine the differences of DMFT for different age groups. Correlation between two variables was carried out using T. test for parametric and chi - square for non-parametric data.

Results

Assessment of teachers' knowledge about tooth decay revealed the following: 101(54.9%) of cases answered sugar and bacteria are the main causes of tooth decay, 47(25.5%) who answered hereditary and environmental causes, and finally 36(19.6%) answered wrong brushing technique and gum diseases. 88(47.8%) thought that brushing does not prevent tooth decay, and 57(31.0%) believed that tooth decay cannot be prevented. The majority of cases 154(83.7%) did not know what a fissure sealant is, and half of cases 101(54.9%) did not know that fluoride can prevent tooth decay (Table 1).

Table 1: Basic school teacher's knowledge about the role of brushing, fissure sealants and fluoride in prevention of dental caries

Knowledge about	Yes	No	Total
Brushing can prevent tooth decay.	96 (52.2%)	88 (47.8%)	
Dental caries is preventable disease.	127 (69%)	57 (31.0%)	
fissure sealants	30 (16.3%)	154 (83.7%)	184 (100%)
Use of fluoride for caries prevention	83 (45.1%)	101 (54.9%)	

Concerning their practice of oral health education towards their pupils, 60.3% of the teachers claimed spending time promoting for oral health. As for their attitude towards oral health education teachers showed a very

positive attitude (94%) towards participating in school based oral health programs. As seen in Figure (1) the oral hygiene for the school teachers was assessed using OHI-S and was found not as predicted.

Table 2 showed the descriptive statistics of age of the teachers and their caries experience. 59.8% of the population was over 41 years, and only 6.0% are younger than 30 years of age. The mean D decayed was 6.39, the mean M (missing) value was 4.55, and the mean F (filled) value was 0.76. The mean DMFT was 11.59 ± 5.09 . The lowest mean DMFT was in the ≤ 30 years age group (9.18), while the highest mean was found in the age group of > 41 years (12.05).

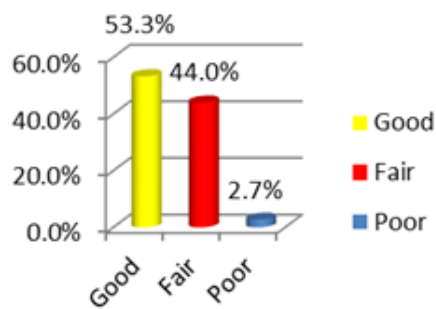


Figure 1: oral hygiene condition of the school teachers as percentages assessed by OHI-S.

Table 2: Decayed, missed and filled teeth (DMFT) of basic school teachers in relation to their age

Age Groups	≤ 30	31-35	36-40	≥ 41	Total
	n= 11 (6%)	n= 18 (9.8%)	n= 45 (24.5%)	n= 110(59.8%)	N= 184(100.0%)
	Means(SD)	Means(SD)	Means(SD)	Means(SD)	Means(SD)
Decay	6.64 (4.43)	7.61 (3.55)	6.33 (3.31)	6.19 (3.67)	6.39 (0.27)
Missing	2.09 (1.70)	2.72 (1.64)	4.07 (3.55)	5.29 (4.35)	4.55 (0.29)
Filled	0.45 (1.04)	1.11 (2.68)	0.71 (1.70)	0.75 (1.56)	0.76 (0.13)
DMFT	9.18 (5.12)	11.44 (4.12)	11.11 (4.80)	12.05 (5.33)	11.59 (5.09)

ANOVA test showed: P -values= 0.005(for missing), there is a significantly different DMFT between the age groups ≤ 30 years vs. ≥ 41 years. The other P -values= 0.488(for decayed), 0.765 (for filled) and 0.288(for DMFT).

Figure (2) showed that majority of teachers 70 (38.0%) watch television to attain oral health knowledge. Table (3) illustrated the relation between teachers' DMFT and their source of information about oral health, P -value = 0.025, there is a significantly different of DMFT between the groups. Those who read from books have the lowest mean DMFT =9.51 while those who get their information from the dental office have the highest mean DMFT =12.86.

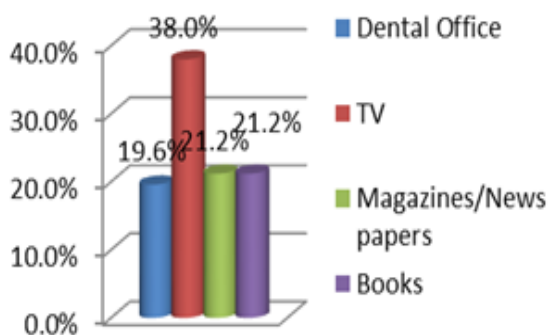


Fig 2: Source of information about oral health obtained by Sudanese basic school teachers.

Table 3: DMFT of school teachers in relation to their source of information about oralhealth

Source of Information	DMFT	
	n (%)	Means(SD)
Dental Office	36(19.6)	12.86(6.16)
TV	70(38.0)	11.83(4.61)
Magazines/Newspapers	39(21.2)	12.08(4.74)
Books	39(21.2)	9.51(4.77)
Total	184(100)	11.59(5.10)

P -value= 0.02

Discussion

This study was conducted only in Khartoum province and did not include the whole state, since the large number of teachers working in the province can reflect or represent the total school teachers' population.

Almost half of the teachers thought that brushing doesn't prevent tooth decay, and tooth decay itself cannot be prevented. Their

knowledge about the anti-bacterial and preventive role of fluoride is deficient, unlike Sgan-Cohen³ who reported that only 31.5% who didn't acknowledge the role of fluoride. All of that may be due to lack of oral health education among them. DMFT levels and oral hygiene when compared to a similar study in Saudi Arabia¹⁰ were less; this may be due to different dietary habits between the two populations. Remarkable difference was observed when comparing oral hygiene; only 2.7% in this result had poor oral hygiene while 15.8% had poor oral hygiene in Khan et al., study¹⁰.

Results from the literature^{2,3,11} Stated that the most frequently cited source of information by basic school teachers about dental health was dentist's office followed by magazines and books. In our study most teachers' first-rated television programs as their source of information for dental health. This is given reason by the easy access to television and also its availability unlike magazines, books and newspapers. The dental office was the least cited source, indicating low dental visits among the school teachers. One of the many reasons for such different results is the geographical, socio-economical, and cultural diversity, proposing that the populations they studied were more aware about their oral health and felt the need to receive treatment that is why they ranked the dental office as their main source of information.

Interestingly, teachers with the highest DMFT had their information from the dental office. This could be explained by the fact that having a high DMFT is the reason why they visit the dentist in the first place.

Teachers' attitude towards oral health education should be emphasized due to the great influence they have on their pupils. Almost all teachers responded positively towards participation in school based oral health programs, similar results were obtained by others^{4, 5, 12}. However some^{3, 6} reported that teachers were less motivated towards school based oral health programs and had poor attitude towards oral health issues respectively.

Regarding practice of oral health education with the pupils, most of the school teachers claimed that they discuss oral health problems with the students. This contradict to a lower percentage that reported by Khan¹⁰ and Wyne¹³.

Conclusion

Basic school teachers have average knowledge about tooth decay and some deficiencies were observed. They had Low DMFT levels, most of them had good oral hygiene (OHI-S), and they showed positive attitude towards oral health education.

Recommendation

School based oral health programs are to be conducted by dental health workers to teach proper oral health care, such as mechanism of brushing, diet modification and preventive measures about dental caries for both teachers and their pupils.

Acknowledgement

We specially appreciate the valuable contribution of University of Medical Sciences and Technology for supporting this study.

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