Teachers' knowledge about oral health and their interest in oral health education in Hail, Saudi Arabia

Dr. Mohammad Aljanakh, [(1)] Dr. Ammar Ahmed Siddiqui, [(2)] Dr. Asaad Javaid Mirza [(3)]

BDS, AEGD, [SSC-(Dent) Resto], Assistant Professor, Faculty of Dentistry, University of Hail, KSA [(1)]
BDS, MDPH, Lecturer, Faculty of Dentistry, University of Hail, KSA [(2)]
BDS, MCPS, MDS, Professor, Faculty of Dentistry, University of Hail, KSA [(3)]

Abstract

Objectives: To assess the dental health knowledge and the interest of secondary school teachers in imparting oral health education in Hail, Saudi Arabia

Methods: It was a questionnaire based cross-sectional survey of secondary school teachers in Hail, Saudi Arabia, carried out from November 2014 to January 2015. A validated self-administered questionnaire was used to determine teachers' oral health knowledge and their interest in participating in oral health education of school children. Data analysis was performed using SPSS version 20 statistical software.

Results: Two hundred and twenty three secondary school teachers responded to the survey. Results showed that about 80 to 90 % of teachers had sufficient knowledge of causes and prevention of dental caries and gingivitis. About 94% of teachers agreed that they can play an effective role in oral health promotion while 96% were found to be interested in performing additional duty as oral health promoter. A large majority (91.9 %) had the opinion that oral health education must be included in school curriculum.

Conclusion: Teachers in Hail region had adequate amount of knowledge regarding oral health, and they were interested to play their role in promoting oral health education. Based on the findings of this study, it is recommended to include dental health education in curriculum at secondary school level and to provide sufficient training to teachers to enable them to participate actively in oral health promotion activities.

Key words: Dental, Oral health education, Oral health promotion, Saudi Arabia**,** School teachers

Corresponding author:

Dr. Ammar Ahmed Siddiqui,
Faculty of Dentistry,
University of Hail, KSA
Cell #: 0553226295
Email: ammarqta2002@hotmail.com

Introduction

Schools are valuable platform for promoting oral health through oral health education as the students spend most of their active time in schools. Secondary school days are a significant and memorable juncture of one's life.[1] During this period the children not only go through bodily and hormonal changes but enjoy more liberty from guardians and parents to make new friends and move around with them as compared to primary school years. [2] At this point in time of their lives, they ought to be repeatedly briefed about the importance of general health in one's life and that of oral health in maintaining general health. Good oral cleanliness habits, proper chewing, less repeated sugar ingestion and timely consultation with dentist may ensure health of teeth and other parts of their mouths. [3] The students can have this knowledge if they are imparted oral health education along with traditional curricular education. The role of a teacher in this respect becomes very precious and eminent as they have influence thousands of students and their parents [4] in making compliance with oral health instructions easy. He/ she can educate students about prevention of oral diseases through dental health education.

Many studies have proved that school teachers possess basic knowledge about oral hygiene and dental health. [5, 6] In many countries, school teachers have been trained and effectively utilized as a tool to reduce dental plaque and improve oral hygiene of school children. [7] This preventive strategy not only saves young children from agony of undergoing fearful dental treatment but also saves their precious academic time. [8]

Public health workers and researchers have done many studies in Kingdom of Saudi Arabia, (KSA) to find out the suitability of school teachers as oral health promoters with positive findings. [9, 10] However, no such study has ever been reported about oral health knowledge of school teachers in Hail. The present study was, therefore, planned to assess the knowledge of secondary school teachers about dental caries and periodontal diseases, and also to explore their interest in promoting oral health. The underlying aim was to prepare recommendations to be forwarded to the Health Directorate of Hail and Ministry of Education, Saudi Arabia to develop an integrated preventive oral health program for school children.

Objectives:

To determine the knowledge of school teachers about causes and prevention of dental caries and gingival diseases and to know about their interest and willingness to participate in oral health education programs.

Methods:

The study was a questionnaire based cross-sectional survey of secondary school teachers in Hail, Saudi Arabia. The data was collected through a self administered questionnaire, especially designated and validated for the study. Content of questionnaire were validated by public health dentist. Internal consistency of questionnaire was checked through SPSS version 20 using Cronbach's alpha and was found to be 0.764. A two stage sampling technique was used which involved random sampling of schools in each district, followed by random sampling of secondary schools teachers in selected schools. From a list of 70 schools (22 girls and 48 boys schools) in Hail region, every 3rd school was randomly picked. The teachers in the 23 selected schools were detailed about the aims and objectives of the study and their queries were replied to their full satisfaction. Total numbers of teachers in 23 selected schools were 920 compromising an average of 40 teachers in every school. Every 4th teacher from each school was randomly selected yielding a sample size of 230. Out of which 223 replied at response rate of 97%. The filled questionnaires were gathered after two days to allow them time to fill their responses carefully and thoughtfully.

The questionnaire consisted of three parts. The first part contained demographic information about the respondents. The second part consisted of questions about causes of dental caries and gingival diseases while the third part contained questions about respondents' interest and willingness to impart oral health education. A three – point Likert scale of 'agree' 'not sure' and 'disagree' was used for collection of data in the second and third parts of the questionnaire.

Data obtained from questionnaire were coded and analyzed using the Statistical Package for the Social Sciences (SPSS Version 20). Chi-square test were applied to check the association among genders.

Results:

Characteristics of the participants

The response rate in the study was 97% including 148 (66.4%) male and 75 (33.6%) female teachers who filled out the questionnaire. Table 1 shows the gender and age wise distribution of the participating teachers. The response rate for male teachers was almost twice (66.4%) the response rate in case of female (33.6%) teachers. About 81% respondents were 21-40 years old.

Table-1: Characteristics of participants (N=223)

	Variables	N	Percentage %
	Male	148	66.4%
	Female	75	33.6%
Total		223	100
	21-30 years	76	34.1
	31-40 years	104	46.6
	41-50 years	37	16.6
	51-60 years	6	2.7
Total		223	100

Knowledge about causes of dental caries:

Regarding causes of caries, around 80% of the responding teachers rightly mentioned bacteria to be the cause of the caries. 80% respondents believed that caries is associated with consumption of sugar. Whereas there was statistically significant difference between genders $p < .001$ who rightly pointed out that frequency of sugar intake can be the cause of caries. The majority of the teachers (91.5%) identified irregular tooth brushing as an important cause of dental disease (Table 2).

Knowledge about prevention of dental caries:

Knowledge of a great majority of teachers about prevention of caries was also up-to-date. Almost all participants (97.3%) reported that dental decay could be prevented by maintenance of oral hygiene through habitual tooth brushing. Eighty five (85%) were aware that consumption of less sugar may reduce caries incidence. Eighty eight (88%) teachers knew that Fluoride is an element which can reduce bacterial activity. Whereas 67% thought that the use of fibrous food can decrease the prevalence of caries and its found to be statistically significant among genders $p < .001$. About 88% of teachers approved the regular and periodic visit to dentist as a caries preventive measure (Table 3).

Table-2: Knowledge of dental caries cause (N=223)

Variable		Male	Female	X^2	P. value
	N (%)	N (%)	N (%)		
Because of bacteria	176 (78.9)	120 (81.08)	56 (74.66)	1.2	0.2
Amount of sugar consumed	180 (80.7)	117 (79.05)	63 (84)	0.7	0.3
Frequency of sugar consumed	186 (83.4)	114 (77)	72 (96)	12.9	0.0003**
Irregular tooth brushing	204 (91.5)	132 (89.2)	2 (96)	2.9	0.08

Table-3. Knowledge of dental caries prevention (N=223)

Variable	N (%)	Male N (%)	Female N (%)	X^2	P. value
Regular tooth brushing	217 (97.3)	143 (96.6)	74 (98.7)	0.8	8.3
Visiting the dentist	197 (88.3)	130 (87.8)	67 (89.3)	0.1	0.7
Using fluoride tooth paste	198 (88.8)	129 (87.2)	69 (92)	1.1	0.2
Eating fibrous food	150 (67.3)	90 (60.8)	60 (80)	8.3	0.003*

Knowledge about causes of gingival diseases:

Knowledge of teachers about gingival diseases was satisfactory but statistically significant different between genders were identified in all item $p < .005$ except the first one where 92.4% respondents rightly believed that gum diseases were caused by bacteria. Ninety three (93%) of the respondents declared smoking as probable cause of gingival diseases. Lack of vitamin deficiency and poor general health were also identified as causes of such diseases by 85% and 80% teachers respectively (Table 4).

Knowledge about prevention of gingival diseases:

Like causes of gingival diseases, teacher's knowledge about prevention of these diseases was appreciable. Almost all teachers 97.3% thought that regular tooth brushing keeps away from gingival disease. Statistical significant association were found $p < .005$ among 84.8% respondents from both genders who answered that consuming a good quality diet can prevent gum diseases. Visiting the dentist on a regular basis was reported by 87.9% to be effective in prevention of gingival diseases. There were statistically significant associations between gender $p < .005$ regarding use of vitamin intake to prevent gum disease among 79. 8% teachers who reported vitamin intake can prevents gum disease. (Table 5).

Table 4: Knowledge of causes of gum diseases (N=223)

Variable	N (%)	Male N (%)	Female N (%)	X^2	P. value
Presence of bacteria in the mouth	206 (92.4)	135 (91.2)	71 (94.7)	0.8	0.03
Lack of vitamins	190 (85.2)	120 (81.1)	70 (93.3)	5.9	0.01*
Poor general health	179 (80.3)	111 (75)	68 (90.7)	7.7	0.005**
Smoking	208 (93.3)	134 (90.5)	4 (98.7)	5.2	0.02*

Table-5: Knowledge of gum disease prevention (N=223)

Variable	N (%)	Male N (%)	Female N (%)	X^2	P. value
Eating a good quality diet	189 (84.8)	118 (79.7)	71 (94.7)	8.5	0.003**
Regular tooth brushing	217 (97.3)	143 (96.6)	74 (98.7)	0.8	0.3
Going to the dentist	196 (87.9)	131 (88.5)	65 (86.7)	0.15	0.6
Taking vitamins	178 (79.8)	111 (75.9)	67 (89.3)	6.3	0.01*

Teachers' interest and willingness to be in involved in oral health activities

Results showed that 94.2% of the respondents agreed that teachers can play effective role in oral health promotion while 4.9% were not sure. Almost all (96%) were found to be interested in performing additional duty as oral health promoter. The majority (91.9 %) thought that oral health education must be included in school curriculum. Eighty four percent of the teachers wanted that teachers must have training in oral health education (Table 6).

Table-6: Interest & willingness of teachers towards oral health promotion (N=223)

	Agree N (%)	Not sure N (%)	Disagree N (%)
Can teachers play effective role in oral health promotion?	210 (94.2)	(11) 4.9	2 (0.9)
Would you like to perform additional duty as oral health promoter?	214 (96)	5 (2.2)	4 (1.8)
Education of oral health must be included In school curriculum	205 (91.9)	13 (5.8)	5 (2.2)
All teachers must have training in Oral health education	187 (83.9)	23 (10.3)	13 (5.8)

Discussion

The study provided a detailed view of the secondary school teachers' knowledge about etiology of oral diseases and their prevention and, also highlighted their interest in promoting oral health. The present study was the first of its kind in Hail region of Saudi Arabia targeting secondary school teachers. The findings of the present study showed that a high percentage of teachers, around 80 to 90%, had adequate knowledge of causes and prevention of most common dental diseases i.e. dental caries and gum diseases, coinciding the findings of a similar studies conducted in Riyadh [10] and Michigan. [11] The majority of the respondents rightly reported that the presence of bacteria in oral cavity is mainly responsible for gingival diseases. They also thought that correct tooth brushing could prevent gum disease, a finding that is in line with studies performed among teachers in Saudi Arabia and African countries.[12,13] The results of the present study, however, vary conspicuously from studies which showed that about 50% of teachers had the basic knowledge of the causes and prevention of dental diseases. [14,15,16-17] More or less 81 and 83% teachers contemplated consumption of sugar and frequency of its

intake to be the causes of dental caries respectively, which is higher from a study performed in the Caribbean, where 65% and 52% of respondents held consumption–and frequency of sugar intake to be responsible for dental caries respectively. [6] The majority of respondents 85.2% linked inadequate vitamins intake to be associated with gum diseases, similar to the findings of some other studies. [18,19] Approximately 84% participants agreed in obtaining training in dental health education which is consistent with results reported in relevant studies [20, 21] but in contrast to a study done among Tanzanian teachers [16] which found merely 11% of teachers showed interest in getting trained for oral health promotion activities. The most impressive finding was the insistence of a great majority of teacher on including dental health education in secondary school curriculum. The interest shown by teachers in the present study to be involved in promoting oral health may strenghthen the 'health promoting schools' concept of WHO [22] that advocated the inclusion of dental health education as a part in school curriculum. Despite great interest showed by teachers, dental health education is not integrated with secondary school teaching program and there is no oral health education curriculum to promote oral health in Saudi Arabia. Based on teachers' willingness and interest, it is recommended that dental health education should be promoted through secondary school curriculum in Kingdom and adequate training should be provided to teachers to enable them to participate actively in oral health promotion activities in schools.

Conclusion

The present study concluded that over all teachers has adequate knowledge of oral diseases etiology and prevention. Females' teachers found to have statistically higher knowledge of gingival diseases and prevention. However, majority of teachers showed great interest to perform additional duties to facilitate oral health promotion activities in schools.

Limitation

Due to lack of logistic support, samples from all the schools were not taken alongside with low response rate from the female were the probable limitation of the present study.

References:

1. Holland M, Evans A, Hawksley F, Dawson D, editors. Secondary teachers' perceptions of the effectiveness of their pre-service education and strategies to improve pre-service education for teachers: A school based training route in England. ATEE 2009 Annual Conference.
2. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. Bulletin of the World Health Organization. 2005;83(9):661-9.
3. Hui K-p, 許家寶. Dental treatment needs for preschool children in Tin Shui Wai and their parents' attitudes and knowledge: The University of Hong Kong (Pokfulam, Hong Kong); 2005.
4. Organization WH, Unicef. Primary health care: report of the International Conference on Primary Health Care, Alma-Ata, USSR, 6-12 September 1978. 1978.
5. Haden NK, Catalanotto FA, Alexander CJ, Bailit H, Battrell A, Broussard J, et al. Improving the oral health status of all Americans: roles and responsibilities of academic dental institutions: the report of the ADEA President's Commission. Journal of Dental Education. 2003;67(5):563-83.
6. Ramroop V, Wright D, Naidu R. Dental health knowledge and attitudes of primary school teachers toward developing dental health education. West Indian Medical Journal. 2011;60(5):576-80.
7. Petersen PE, Kwan S. Evaluation of community-based oral health promotion and oral disease prevention-WHO recommendations for improved evidence in public health practice. Community dental health. 2004;21(4):319-29.
8. Gift HC, Reisine ST, Larach DC. The social impact of dental problems and visits. American Journal of Public Health. 1992;82(12):1663-8.
9. Wylie AH. teachers' oral health knowledge, attitude and practices. Saudi Med J. 2002;23(1):77-81.
10. Almas K, Al-Malik TM, Al-Shehri MA, Skaug N. The knowledge and practices of oral hygiene methods and attendance pattern among school teachers in Riyadh, Saudi Arabia. Saudi medical journal. 2003;24(10):1087-91.

11. Lang P, Woolfolk MW, Faja BW. Oral health knowledge and attitudes of elementary school teachers in Michigan. Journal of public health dentistry. 1989;49(1):44-50.
12. Al-Tamimi S, Petersen PE. Oral health situation of school children, mothers and school teachers in Saudi Arabia. International dental journal. 1998;48(3):180-6.
13. Åstrøm AN, Jackson W, Mwangosi IEt. Knowledge, beliefs and behavior related to oral health among Tanzanian and Ugandan teacher trainees. Acta Odontologica. 2000;58(1):11-8.
14. Khan N, Al-Zarea B, Al-Mansour M. Dental caries, hygiene, fluorosis and oral health knowledge of primary school teachers of Riyadh, Saudi Arabia. Saudi Dental Journal. 2001;13(3):128-32.
15. Sekhar V, Sivsankar P, Easwaran M, Subitha L, Bharath N, Rajeswary K, et al. Knowledge, Attitude and Practice of School Teachers Towards Oral Health in Pondicherry. Journal of clinical and diagnostic research: JCDR. 2014;8(8):ZC12
16. Elena B, Petr L. Oral health and children attitudes among mothers and school teachers in Belarus. Stomatologija Baltic Dental and Maxillofacial Journal. 2004;6:40-3.
17. Nyandindi U, Palin-Palokas T, Milén A, Robison V, Kombe N, Mwakasagule S. Participation, willingness and abilities of school-teachers in oral health education in Tanzania. Community dental health. 1994;11(2):101-4.
18. Timmerman M, Abbas F, Loos B, Van der Weijden G, Van Winkelhoff A, Winkel E, et al. Java project on periodontal diseases: the relationship between vitamin C and the severity of periodontitis. Journal of clinical periodontology. 2007;34(4):299-304.
19. Dietrich T, Nunn M, Dawson-Hughes B, Bischoff-Ferrari HA. Association between serum concentrations of 25-hydroxyvitamin D and gingival inflammation. The American journal of clinical nutrition. 2005;82(3):575-80.
20. Al-Jundi SH, Al-Waeili H, Khairalah K. Knowledge and attitude of Jordanian school health teachers with regards to emergency management of dental trauma. Dental Traumatology. 2005;21(4):183-7.
21. Pacheco LF, Letra A, Menezes R, Villoria GEM, Ferreira SM. Evaluation of the knowledge of the treatment of avulsions in elementary school teachers in Rio de Janeiro, Brazil. Dental Traumatology. 2003;19(2):76-8.
22. Kwan SY, Petersen PE, Pine CM, Borutta A. Health-promoting schools: an opportunity for oral health promotion. Bulletin of the World Health Organization. 2005;83(9):677-85.