Oral hygiene awareness among female Saudi school children

Abdulaziz A. Al-Kheraif, MPhil, PhD, Shaikhah A. Al-Bejadi, SSc, BSc.

ABSTRACT

الأهداف: لتقييم العادات الصحية الفموية، ومدى الاستفادة من الخدمات الصحية المقدمة في مجال الأسنان للأطفال في المدارس الأبتدائية، ومقارنة الأختلافات في مجال الوعي الصحي لنظافة الفم والأسنان بين أطفال المدارس اللذين تلقوا التثقيف الصحي، واولئك اللذين لم يتلقوا

الطريقة: شملت الدراسة 400 طالبة بمدارس البنات الابتدائية – الخرج – المملكة العربية السعودية، خلال شهر ابريل 2007م. تم تقسيم الطالبات إلى مجموعتين على النحو التالي: المجموعة الأولى وهي مجموعة الدراسة احتوت على 200 طالبة تم اختيارهن من 25 مدرسة بشكل عشوائي، وتراوحت أعمارهن مابين 9–11 عاماً، تلقين تثقيف صحي في مجال الأسنان خلال شهر مارس 2006م. المجموعة الثانية وهي مجموعة التحكم واحتوت على 200 طالبة، تم اختيارهن من 25 مدرسة بشكل عشوائي وتراوحت أعمارهن مابين 9–11 عاماً، لم يتلقين التثقيف الصحي في مجال الأسنان. تم جمع المعلومات المطلوبة حول الوعي الصحي من خلال استبيان صُمم خصيصاً لهذه الدراسة.

النتائج: استخدام فرشاة الأسنان مرتين في اليوم أو بعد كل وجبة هو الأكثر شيوعاً بين تلاميذ المدارس في مجموعة الدراسة عنه في تلاميذ المدارس من مجموعة التحكم. أفادت الدراسة بأن تنظيف الأسنان لدى مجموعة الدراسة أعلى بكثير بالمقارنة مع مجموعة التحكم، كما لوحظ أن هناك اختلاف كبير (p=0.00) بين مجموعة الدراسة ومجموعة التحكم فيما يتعلق بعدم استخدامهم لفرشاة الأسنان نهائياً. لم يلاحظ أية اختلاف بين مجموعة الدراسة ومجموعة التحكم بالنسبة لاستخدام الخيط السني، وعدم استخدم غسول الفم، وعدم زيارة طبيب الأسنان للفحص. كان سبب الرئيسي لزيارتهم لطبيب الأسنان لكلتا المجموعتين هو عند حدوث آلالم في الأسنان. كما أظهرت المجموعتين استهلاك للحلوى و المشروبات الغازية. تبين وجود اختلاف ملحوظ (p=0.00)، من حيث صحة الأسنان لمجموعة الدراسة فقد كانت جيدة بالمقارنة مع مجموع التحكم.

خاتمة: تبين إن المدارس التي قامت بتطبيق البرامج التثقيفية كان لدى أطفالهم وعي فيما يتعلق بنظافة الفم (OHA) وصحة والأسنان مقارنة بمجموعة التحكم. وعليه، فإن مدارس المملكة بحاجة إلى برامج منهجية توعوية لتعزيز صحة الفم والأسنان تستهدف الأطفال.

Objective: To evaluate the oral hygiene habits and utilization of professional dental health services by all the children in the primary schools, and to compare the differences in oral hygiene awareness (OHA) and dental health status of schoolchildren who are exposed to dental health education and those who are not.

Method: Participants included 400 Saudi children, randomly selected from the primary female schools in Al-Kharj, Kingdom of Saudi Arabia on April 2007. Two hundreds children (age 9-11) from the 25 schools, who were exposed to the dental health education program on April 2006, were randomly selected as the study group. Two hundred children (age 9-11) from the schools, which were not exposed to such program were also randomly selected as the control group. The required information about oral hygiene awareness was collected through an especially designed questionnaire.

Results: Tooth brushing for 2 times a day or after meals were more common among schoolchildren of study group, than schoolchildren of control group. A significant difference (p=0.00) was observed between study group and control group, with regard to "never brush their teeth". There was no significant difference between study group and control group with respect to using dental floss, using mouthwash, and in relation to never visiting a dentist for check up. The main reason cited by study group, and by control group for visiting the dentist was that they had severe toothache. Both groups presently consume more sweetened soft drinks. A significant (p=0.00) higher frequency of good dental status was observed in the study group, as compared with that of the control group.

Conclusion: The school which applied this program, showed improved OHA of children as compared with the control group. Systematic school-based oral health promotion programs are urgently needed in the Kingdom to target lifestyles and health needs of children.

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From the Dental Health Department (Al-Kheraif), College of Applied Medical Sciences, King Saudi University, Riyadh, Department of Dental (Al-bejadi), Dental Hygienist, King Khalid Hospital, Ministry of Health, Al-Kharj, Kingdom of Saudi Arabia.

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Address correspondence and reprint request to: Assistant Professor Abdulaziz A. Al-Kheraif, Chairman of Dental Health Department, College of Applied Medical Sciences, King Saudi University, PO Box 10219, Riyadh 11433, Kingdom of Saudi Arabia. Tel. +966 (1) 4358522 Ext. 200. Mobile. +966 554299995. Fax. +966 (1) 4355883. E-mail: Khuraif@yahoo.com

An individual's dental health status is a result of life long oral care behavior and attitude.[1] Dental health education programs and dental clinicians have shown to be determining factors in the improvement of dental health standards. The presence of a dental hygienist in health centers had shown improve a dental health of the population.[2,3] Dental education had improved in the Kingdom of Saudi Arabia (KSA) has improved in all aspects during the last decade. Dental services administration of the Ministry of Health (MOH) started oral health programs for primary school, which necessitate the assessment of oral hygiene awareness (OHA) among children in order to collect the data that would be used in planning, and evaluation of expanded school-based oral health programs. Systematic dental health education programs if implemented, in respect to all education levels and ages, was claimed to support the improvement of regular oral self care practices.[3] Most of the studies that were carried out about oral health awareness among schoolchildren concluded that schoolchildren need further oral health education in areas of caries prevention.[4] All schoolteachers need to have basic knowledge and positive attitude towards oral health to increase oral hygiene habits.[5] Parents should also be advised regarding their child's dental health, and continuous dental follow-up. Al-Banyan et al[2] showed that among Saudi children living in Riyadh area, approximately 70% of the children of National Guard had poor brushing habits, and only about 30 percent brushed their teeth at least once a day. Paul[6] indicated that 70.9 percent of Al-Kharj school children visited the dentist only when in pain, and that 89% of them who rarely brushed their teeth had plaque, and that all children who never brushed their teeth had both plaque and dental caries. The schoolteachers were shown to play a positive role in dental health education program, and consequently it is very important to educate them regarding oral health.[7] In another study carried out by Almas et al[8] in Riyadh City, it has been found that 56% of teachers mentioned that school teachers should be provided with the basic knowledge to be able to advise and teach the children about dental diseases' control. In a recent study from the KSA,[9] it has been reported that out of 2586 Saudi students, 87.1% knew that tooth brush helps prevent periodontal disease, and 33.1% knew that using dental floss helps in preventing periodontal disease. However, little is reported about the oral hygiene habits and dental health status of children in KSA. Such knowledge is an indicator of the efficacy of applied dental health education program.

The objectives of the present study are to evaluate the oral hygiene habits, and utilization of professional dental health services by all the children in the primary schools, and to compare the differences in OHA and dental health status of schoolchildren who are exposed to dental health education and those who are not. Beside that, such data are needed for planning, expanding, and evaluation of the future oral health programs.

Methods. ***A school-based oral health education program.*** Dental services administration of the MOH, KSA is responsible for the organization of the oral health program for children. This program is focused on oral health, teeth and their functions, dental plaque and tooth decay, sugar and self-care for oral health, and the importance of dental visits. Tooth brushing twice a day with use of fluoride toothpaste is recommended. Moreover, the mothers are encouraged to be present during oral hygiene instructions and are informed about methods of cleaning and how to take responsibility for their child's teeth on a daily basis. In addition, the schools received various macromodels, slides, posters, and other didactic materials to support the oral health education activities. Throughout the project, activities in schools are supervised by dentists and hygienists with a background in dental public health. Accordingly, in Al-Kharj (small town 90 kms from Riyadh), 25 primary schools were exposed to a school dental health education program, which started by the beginning of the second semester on March 2006, using the slogan "Brush your teeth every day". By the end of the first year of the implementation of this program on April 2007, 200 female school children (age 9-11) from the 25 schools who were exposed to the dental health education program were randomly selected as a study group. Two hundred female school children (age 9-11) from the schools, which were not exposed to such program were also randomly selected as a control group. A set of questionnaire was designed to investigate the number of times: the child brushes her teeth, using floss or mouthwash, eating sugary snacks, frequency of visit to the dentist, and oral hygiene status. Every child was interviewed and also was asked about the source of oral health information, and the response was recorded. Finally, each student was intra-orally examined in classrooms under natural daylight one time by hygienist, and dental hygiene status of each student was graded as good, fair, and poor on the basis of plaque index score.[10] The data was collected using a pilot tested and validated questionnaire. The validity of the questionnaire, was assessed independently by faculty members (public health, dentist pretest) who were asked to assess the clarity and content validity of each question of the specific questions asked. The assessed validity ranged between 79-97% for different questions with an overall validity of 85%. Reliability was assessed and tested by interviewing 30 children who did not participate in the study. The calculated reliability was 89%. The internal

consistency was also checked using Cronbach's alpha coefficient, which was 0.7. The ethical approval was obtained for the local ethics committee prior to the commencement of the study, and that informed consent was received from the participant's schools.

Statistical analysis. Statistical Package for Social Sciences Version 10 program was utilized for data analysis. Frequency distributions and Chi-square test for statistical evaluation of proportions of the 2 groups were obtained. The level of significant was set at 0.05 levels. The incomplete data were excluded from the analysis.

Results. There was a total of 400 school children involved in this study: 200 for the study group and 200 for the control group. Out of these 49.5% of study group and 4% of control group had received oral hygiene instructions and motivation from the school, while 35% of study group and 37% of control group had received oral hygiene instruction from parents (**Table 1**). Tooth brushing 2 times a day or after meals was more common among schoolchildren of study group (27.5% versus 26%) than schoolchildren of control group (19% versus 13.5%). Study group reported significantly higher frequencies of tooth brushing (p=0.018) as compared with control group. A significant difference (p=0.00) was observed between study group (10.5%) and control group (26%) with regard to "never brush their teeth". There was no significant difference (p=0.958) between study group (8.5%) and control group (9%) with respect to using dental floss, and also both groups presently consume more sweetened soft drinks (p=0.073). There was significant difference (p=0.163) of using mouthwash between study group and control group. There was no significant difference (p=0.645) between study group (9%) and control group (9.5%) in relation to "never visiting a dentist" for check up and the main reason cited by study group (87%), and by control group was (84%) for visiting the dentist was that they had severe toothache. A significant (p=0.00) higher frequency of good dental status was observed in study group (18.5%), as compared with that of the control group (7%).

Discussion. The results of this study provide a comprehensive overview of oral health behavior, awareness, and attitudes of schoolchildren aged 9-11 years, and showed the effect of dental health program on oral hygiene habits among them. There are limitations to this study, and bias in the questionnaires due to misinterpretation of questions. To overcome this problem, the questions were worded simply, and pilot study was performed. The schoolchildren who were exposed to health education program showed satisfactory awareness regarding oral health and their attitude to dental health is positive as compared with those who were not exposed. This could be attributed to the awareness of teachers who participated in oral health education programs in those schools.[5] However, parents as source of dental health information scored low grade and this may be due to the fact that oral care instruction to parents in dental clinic is not effective.[11] The bacterial plaque plays an important role in the etiology of dental caries, gingivitis, and periodontitis. Therefore, removal of dental plaque can result in the prevention or control of these diseases.[8] Schoolchildren who were exposed to the program practiced sound oral hygiene methods more frequently than the control group (**Table 1**).[12] This is clearly demonstrated by tooth brushing twice a day (27% versus 19%) and good dental health status (18.5 versus 7%), whereas once a week tooth brushing habit was prevalent in control group (22%). This high rate of

Table 1 - Frequency of oral hygiene method and dental status among Saudi female school children.

Oral hygiene methods	Study group		Control group		*P*-value
	Frequency	%	Frequency	%	
Sources of health information					
Dentist or hygienist	16	8.0	52	26	0.00
Parents	70	35	74	37	
Media	15	7.5	24	12	
School	99	49.5	8	4.0	
Never	-		42	21	
Brushing					
Once a day	40	20	39	19.5	0.018
Twice a day	55	27.5	38	19	
After each meal	52	26	27	13.5	
Once a week	32	16	44	22	
No brushing	21	10.5	52	26	0.00
Flossing					
Once a day	9	4.5	10	5.0	0.958
Two to 3 times a week	4	2.0	5	2.5	
Once a week	-	-	-	-	
No flossing	4	2.0	3	1.5	
	183	91.5	182	91	0.00
Mouthwash use					
Yes	55	27.5	43	21.5	0.163
No	145	72.5	157	78.5	
Sugary snacks					
Once a day	70	35	60	30	0.073
Twice a day or more	101	50.5	112	56	
Once a week	24	12	15	7.5	
Never	5	2.5	13	6.5	
Dental visit					
Every 1-2 years	7	3.5	10	5.0	0.645
Every 3-5 years	1	0.5	3	1.5	
When in pain	174	87	168	84	
Never	18	9.0	19	9.5	
Dental health status					
Good	37	18.5	14	7.0	0.00
Fair	141	70.5	107	53.5	
Poor	22	11	79	39.5	

toothbrushing habit in children who had received advice on dental care may be attributed to effectiveness of oral health education programs. This study support previous studies suggesting that oral health education programs should be developed, and focus on preschool children and their parents to maintain good oral hygiene.[6,12] Also, Al-Omiri et al[13] suggested that parents' education must be included in dental public health programs. The results of the present study also indicated that most of the schoolchildren in the study group and control group take sweet snacks, which are in agreement with other similar studies in KSA.[6] Moreover, one-quarter (26%) of schoolchildren in the control group who did not brush their teeth had significant (p=0.00) poor dental health status. In general, the dental health status of the study group is better than the control group and this may be attributed to the differences in behavioral activities such as health care awareness, oral self-care practices, and tooth brushing. Daily tooth brushing is effective in removing sugar containing sweets, which might adhere to the tooth surface for sufficient time which will lead to the development of tooth decay.[6,14] This indicates that toothbrushing plays an important role in the prevention of gingivitis and consequently, good dental hygiene is necessary to protect the teeth and gums. The majority of the schoolchildren in the study group and control group had never used other oral hygiene methods, such as dental floss and mouthwash. This may be attributed to lack of awareness about these in child oral health education programs, and the cost of such aids.[13] Several other studies reported that the use of dental floss is negligible among children.[2,15-17] A study by Wyne et al[4] has shown that 11.5% of school children have no information regarding dental health which is in agreement with our study, as almost a quarter of the control group school children did not have basic knowledge regarding dental health. Both the children of the study and control group visited the dentist when they have dental pain (toothache) rather than having a regular pattern of visits to the dentist. This might reflect a similarity in this behavior among all schoolchildren. This could be attributed to dental treatment anxiety, which is a problem for many adults and children, and acts as a barrier to treatment, and they only visit a dentist during emergencies.[3,18] Another factor in this respect could be due to the high cost of dental care,[8,13] and lack of parental encouragement and advice to visit the dentist.[13] Most of the previous studies recommend visiting a dentist on regular basis is a necessity to ensure good oral health.[6,19] Our results are in agreement with these studies regarding the large number of children who never visited a dentist, as there was no significant difference between both groups as far as regular oral health checking is concerned.

In conclusion, we noticed that the schools which applied this program, showed improved OHA of children as compared with the control group. Systematic school-based oral health promotion programs are urgently needed in the Kingdom to target lifestyles and health needs of children. Oral health training programs for schoolteachers should aim at improving their knowledge about oral health in collaboration with other oral health care workers. Poor oral hygiene habits, high intake of sweets, and large number of children who never visited a dentist, necessitate an urgent implementation of effective oral health promotion for the children of KSA. Also, a dental health education program is required to target new and prospective Saudi parents.[20] Parents should be advised to take their children to the dentist at least once every 6 months, restrict their intake of sweets, and maintain good oral hygiene. Furthermore, research is needed to focus on the barriers to regular visit to dentist among schoolchildren.

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Statistics

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