

Oral health knowledge and sources of information among male secondary school children in Riyadh

Amjad H. Wyne,* BDS, BSc, MDS, FASDC, FADI

Arham N. Chohan,** BDS, BSc, MSc, FPFA, FADI, Ziyad Al-Abdulsalam,*** BDS

Abdullah Al-Qedrah,*** BDS, Sari Al-Qahtani,*** BDS

الغرض من هذه الدراسة هو تحديد مستوى معلومات الصحة الفموية ومصادرها عند طلاب المدارس الثانوية في مدينة الرياض، المملكة العربية السعودية. جمعت معلومات الصحة الفموية ومصادرها عند الطلاب من خلال استبيان ذاتي مخصص لذلك. أكمل الاستبانة ٦٠٥ طالب تم اختيارهم عشوائياً من ستة مدارس. كان العمر المتوسط للطلاب ١٧،٠ سنة (الانحراف المعياري ١،٤، تفاوتت أعمارهم من ١٥ إلى ٢١ سنة). نسبة كبيرة (٤٠،١٩٪) من الطلاب كانوا على وعي بأهمية صحة الأسنان وتأثيرها على الصحة العامة. غالبية الطلاب أجابوا بطريقة صحيحة، بأنه يجب تنظيف الأسنان بعد كل وجبة (٦٠،٥٪)، علماً بأن أكثر من ربع الطلاب (٤٠،٨٢٪) لم يتلقوا أي معلومات عن طريقة تنظيف الأسنان. عدد كبير من الطلاب (٥٠،٩٣٪) اعتقدوا أن زيارة طبيب الأسنان لا تجب إلا في حالة وجود ألم في الأسنان. والغالبية (٥٠،٤٩٪) من الطلاب يعلمون أن السكريات (الشوكولا / الحلويات) قد تؤدي إلى تسوس الأسنان. علماً بأن (٢٠،٠٤٪) من الطلاب لا يدركون باحتمال حدوث التسوس من جراء تناول المشروبات الغازية. نسبة عالية (٤٠،٠٨٪) من الطلاب يعلمون أن أفضل طريقة للحفاظ على صحة اللثة هو التنظيف اليومي للأسنان. ووجد أن أطباء الأسنان هم المصدر الشائع (٢٠،٤٣٪) للمعلومات عن صحة الفم، يأتي بعد ذلك وسائل الإعلام (٢٠،٢٣٪) ثم الوالدان والأجداد (٨،٣٢٪). فقط (٨،٠١٪) ذكروا بأن المدرسين كانوا مصدراً للمعلومات عن صحة الفم. يستخلص من الدراسة بأن هناك حاجة لزيادة معلومات الطلاب فيما يتعلق بصحة الفم والأسنان وأن هناك حاجة لتفعيل دور المدرسين لزيادة التنقيف الصحي عن صحة الفم والأسنان لدى طلاب المدارس.

The aim of the present study was to determine the oral health knowledge and sources of information in male secondary school children in Riyadh, Saudi Arabia. The information on oral health knowledge and sources of information was collected through a specially designed self-administered questionnaire. A total of 605 randomly selected male secondary school children from six schools completed the questionnaire. The mean age of the children was 17.0 years (SD 1.4, range 15 to 21 years). A great majority (91.4%) of the children was aware that good dental health is important for good general health. Majority (60.5%) of the children correctly thought that teeth should be cleaned after each meal, however, more than one-fourth (28.4%) of the children reported that no one taught them how to clean their teeth. More than one-third (39.5%) of children thought that one must visit a dentist only in case of pain in the teeth. A great majority (94.5%) of the children knew that sweets (chocolates/candies) could cause tooth decay. However, 40.2% of children were not aware of cariogenic potential of soft drinks. A high percentage (80.4%) of children knew that the best way to maintain optimum gingival health was to clean their teeth daily. Dentists were the most popular (34.2%) source of oral health information followed by media (32.2%) and parents/grandparents (23.8%). Only 1.8% children reported their teachers as source of oral health information. It could be concluded that these school children need further oral health information, and that there is a need to reinforce the role of school teachers in enhancing school children's oral health knowledge.

INTRODUCTION

Oral health knowledge and information form the basis of optimal dental health. Recent studies show that caries prevalence is very high among school children in Riyadh,^{1,2} including secondary school children.³ Therefore, an effective preventive program is desirable for these children. However, it is important to establish the current status of oral health knowledge and sources of oral health information among school children before designing an effective prevention

program. Such information will assist in establishing an effective preventive dental health strategy. It is expected that preventive oral health education based realities on the ground will enhance these children's oral health knowledge, transforming knowledge into appropriate behaviors, and consequently resulting in better oral health.

A pilot study was recently carried out to determine the oral health knowledge in male school children attending the King Saud University, College of Dentistry Clinics.⁴ The results of the study strongly indicated the need for a larger study to establish oral health knowledge and sources of oral health information among school children in Riyadh. Therefore,

Received 9 April 2005; Revised 15 May & 3 June 2005

Accepted 20 August 2005

* Associate Professor

** Lecturer

Pediatric Dentistry Division

Department of Preventive Dental Sciences

King Saud University, College of Dentistry, Riyadh, KSA

*** General Dental Practitioner

Address reprint requests to :

Dr. Amjad H. Wyne

P.O. Box 60169, Riyadh 11545, KSA

E-mail : ahwyne@ksu.edu.sa

the purpose of the present study was to determine the oral health knowledge and sources of information in a randomly selected sample of male secondary school children in Riyadh, Saudi Arabia.

METHODS

The approval for the study was obtained from the Ministry of Education. Six secondary schools were selected from a list of schools provided by the Ministry of Education. Each school was randomly selected from every region of Riyadh City, i.e., Eastern, Western, Northern, Southern and Central regions. In addition, a private school was also randomly selected to ensure representation from all segments of the society. There was a similar representation of each three years/levels of secondary school in the sample.

The information about oral health knowledge and sources of information was collected through a questionnaire adopted from that used by Wyne *et al.*⁴ The study did not obtain any typical confidential information such as income or educational level of parents. However, the questionnaire was provided to the Ministry of Education at the time for approval; and parents were informed of the study through a letter from the ministry. The questionnaire was designed to be comprehensible for the secondary school children and was pre-tested among a group of children who did not participate in the main study causing some modifications to be made. The questionnaires were anonymous distributed in the classrooms and collected after completion by the children at the same time by one of the researchers. The following areas were covered in the questionnaire:

- Demographic information such as age and educational level
- Knowledge of dental diseases

- Knowledge of selected preventive measures
- Sources of oral health information

All the information was entered into a computer utilizing FOXPRO Program, and a data file was generated. Statistical Package for Social Sciences (SPSS) was utilized for descriptive statistics.

RESULTS

A total of 605 male secondary school children from the six schools completed the questionnaire. The mean age of the children was 17.0 (SD 1.4) years ranging from 15 years to 21 years.

The children's response about oral health knowledge questions is presented in Table 1. A great majority (91.4%) of the children was aware that good dental health is important for good general health. Most of the children were aware of the importance of teeth in chewing (79.5%) and appearance (65.1%). Less than half (45.8%) of them were not aware of the importance of teeth in speech. Most of the children correctly thought that teeth should be cleaned after each meal (60.5%) or at least twice daily (28.6%). Parents of the children mainly (48.9%) taught them how to brush their teeth, followed by their dentists (17.9%). However, more than one-fourth (28.4%) of the children reported that no one taught them how to clean their teeth. While six in every ten children (59.2%) correctly thought that one must make a routine dental visit every six months or once a year, a large number (39.5%) of children thought that one must visit the dentist only in case of pain related to teeth.

Although slightly more than half (53.4%) of the children had heard about fluoride, only 31.2% knew that fluoride helps to protect teeth from dental caries (Table 2). Only 9.9% of the children recognized fluoridated water as

Table 1. Responses to questions regarding oral health knowledge

Question	Number	%
Do you think good dental health is important for good general health?*		
1. Yes	553	91.4
2. No	18	3.0
3. I don't know	34	5.6
What is the importance of teeth?		
1. Chewing*	481	79.5
2. Talking	328	54.2
3. Appearance*	394	65.1
4. Not important	22	3.6
Teeth should be cleaned at least:**		
1. Once daily	42	6.9
2. Twice daily*	173	28.6
3. After each meal*	366	60.5
4. Once a week	24	4.0
Who taught you mainly to clean your teeth?*		
1. Parents	296	48.9
2. House maid	14	2.3
3. School teacher	15	2.5
4. Dentist	108	17.9
5. No one	172	28.4
How often one must routinely visit a dentist?*		
1. Every six months*	250	41.3
2. Once every year*	108	17.9
3. Once every two years	8	1.3
4. Only when pain in your tooth	239	39.5

* Appropriate responses ** Select one response only

a source of fluoride while 23.7% of the children were not aware of any method of getting fluoride (Table 2). A great majority (94.5%) of the children knew that sweets (chocolates/candies) could cause tooth decay. However, a large number of children were not aware of the cariogenic potential of soft drinks (40.2%) and sweetened milk (77.5%) as shown in Table 2.

The responses to questions about periodontal health are summarized in Table 3. About six in every ten children (61.3%) thought that blood on the tooth brush could be a sign of gum disease. A little more than half, 51.7% of the children recognized that symptoms of

Table 2. Responses to questions about caries prevention

Question	Number	%
Have you heard about fluoride?*		
1. Yes	323	53.4
2. No	282	46.6
What is the main benefit of fluoride?*		
1. Whitens the teeth	107	17.7
2. It helps protect teeth from decay*	189	31.2
3. Protect the gums	19	3.1
4. Don't know	290	48.0
Various ways of getting fluoride are:		
1. Have a dentist put fluoride on your teeth	112	18.5
2. Brush your teeth with fluoride tooth paste	290	47.9
3. Drink water that has fluoride in it	60	9.9
4. I don't know	143	23.7
Which of the following can cause tooth decay?		
1. Sweets (Chocolate/candies)*	572	94.5
2. Soft drinks/bottled juices*	362	59.8
3. Fresh milk	7	1.2
4. Fresh fruits/vegetables	9	1.5
5. Sweetened milk*	136	22.5
Which of the following can be a sign of tooth decay?		
1. Toothache*	435	71.9
2. Bleeding gums	203	33.6
3. Calculus	232	38.3
4. Cavities in teeth*	280	46.3

* Appropriate Response ** Select one response only

Table 3. Responses to questions about periodontal health

Question	Number	%
Blood on your tooth brush may be a sign of:**		
1. Gum disease*	371	61.3
2. Tooth decay	46	7.6
3. I don't know	188	31.1
Symptoms of gum diseases include:**		
1. Swelling and redness of gums	152	25.1
2. Bad smell from mouth	58	9.6
3. Bleeding from gums	79	13.1
4. All of the above*	316	52.2
The best way to keep your gums healthy is to:**		
1. Eat a good diet	38	6.3
2. Clean your teeth every day*	486	80.4
3. Take vitamins	34	5.6
4. I don't know	47	7.7

* Appropriate response ** Select one response only

gum disease include swelling, redness of gums, bad smell from mouth and bleeding from gums. Approximately 80% of the children knew that the best way to maintain optimum gingival health was to clean their teeth daily.

Dentists were the most popular (34.2%) source of oral health information followed by media (32.2%) and parents/grandparents (23.8%). Very few children (1.8%) reported school teachers as their main source of oral health information (Fig. 1).

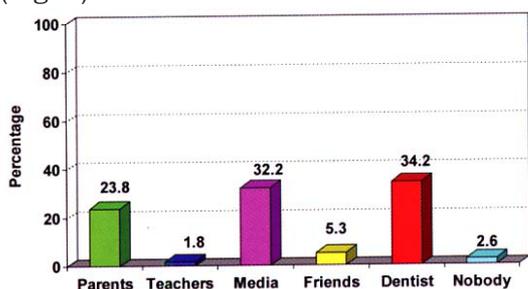


Fig. 1. Main source of oral health information.

DISCUSSION

The present study has provided basic information about oral health knowledge and its sources among selected male secondary school children in Riyadh. The information should assist in designing more effective preventive dental health schemes for these children. The improved preventive programs could consequently result in better dental health of these children. Oral health education programs are an important influence on the oral health of children.⁵ According to Frazier and Horowitz,⁶ oral health education empowers individuals with accurate information to take actions towards their health. Therefore, it is important to formulate national oral health education plan especially for schoolchildren.⁷

Most of the children had a satisfactory understanding of importance of good dental health and information about

functions of teeth. However, a considerable number of children were not aware of all the functions of teeth. Appropriate knowledge about the functions of teeth is likely to enhance dental care among these children. More than one-fourth of the children were not taught by anyone how to brush their teeth. A proper brushing technique is important in achieving adequate oral hygiene. Therefore, parents of the children should be encouraged to provide oral hygiene guidance to their children.

Although, it was encouraging to note that more than half of the children thought that routine check-up dental visit must be made every six months or once a year, yet a large number of children thought that a dental visit is only necessary in case of dental pain. This attitude could be explained in terms of fear due to previous negative dental experience or continuous parental negligence and attitude. Similar findings were reported by Oliveria *et al.*⁵ in their study of young school children in Houston, USA. Farsi *et al.*⁸ also reported that pain was the main reason for dental visits in Saudi school children in Jeddah City.

Less than one-third of the children knew that fluoride prevents dental caries. Similarly, very few children recognized fluoridated water as an efficient source of fluoride. These results are the same as several other similar studies carried out in various countries,^{5,9,10} and indicate the need to educate school children about the benefits of fluoride to teeth. The children's knowledge about sweets (chocolates/candies) as a cariogenic diet was quite adequate. However, a large percentage of the children did not consider soft drinks and sweetened milk as cariogenic; thus requiring appropriate guidance in this area.

The children's knowledge of gum disease was satisfactory in terms of recognizing its symptoms and identifying the best way of preventing it. The results

of the present study were in agreement with several similar previous studies in other populations.^{5,9,10} However, some studies have reported unsatisfactory knowledge of periodontal health among school children.^{8,11}

Dentists and media were the main source of oral health information. The role of mass media has been gradually increasing in providing health information to the public including oral health information.¹² The need however still exist to enhance the media utilization for children's dental health awareness. The present study confirms the findings of other studies,^{5,9} but differs from the Woolfolk *et al.*¹⁰ study in which parents were the main source of information for children. A useful way to raise children's dental health awareness would be to furnish accurate information to parents. The children whose parents have sufficient oral health knowledge and a positive attitude are likely to adopt satisfactory healthy oral health habits.^{13,14} Children spend a good part of their daily time in schools. However, the results of the present study showed that only a small minority of the children obtained oral health information from their school teachers. There is a need therefore for increased provision of oral health information at schools, and utilization of school teachers also as providers of information on dental prevention.

The information collected through questionnaires has to be viewed with caution. The possibility of bias created by favorable responses can not be ruled out, as the children who participated in the study were aware that the survey was being carried out by dentists. The study was limited to male school children, as it was conducted by the male dentists in all-male schools only, due to socio-cultural norms. Nevertheless, the study has provided useful information about oral health knowledge and its sources in male secondary school children in Riyadh. The

study has also indicated a need towards a larger study to establish oral health knowledge and sources of oral health information amongst school children in the Kingdom of Saudi Arabia.

CONCLUSIONS

- A great majority of the children was aware of appropriate daily brushing frequency. However, more than one-fourth of the children were not taught by anyone how to brush their teeth.
- A large number of children thought that a dental visit was only necessary in case of dental pain. Only one-third of children knew that the fluoride prevents dental caries.
- The children's knowledge about sweets (chocolates/candies) as a cariogenic diet was quite adequate. However, about one-third of the children did not consider soft drinks and sweetened milk as harmful for dental health.
- Dentists and media were the main source of oral health information in these children.

REFERENCES

1. Wyne AH, Al-Ghorabi BM, Al-Asiri YA, Khan NB. Caries prevalence in Saudi primary schoolchildren of Riyadh and their teachers' oral health knowledge, attitude and practices. *Saudi Med J* 2002; 23:77-81.
2. AlDosari AM, Wyne AH, Akpata ES, Khan N. Caries prevalence and its relation to water fluoride levels among primary and intermediate schoolchildren of Riyadh and Qaseem. *Int Dent J* 2004; 54:424-428.
3. AlDosari AM, Wyne AH, Akpata ES, Khan NB. Caries prevalence among secondary school children in Riyadh and Qaseem. *Saudi Dent J* 2003; 15:96-99.
4. Wyne AH, Chohan AN, Al-Dosari K, Al-Dokheil M. Oral health knowledge and sources of information among male Saudi school children. *J Odonto-Stomatol Tropic* 2004; 106:22-26.

5. Oliveria ER, Narendran S, Williamson D. Oral health knowledge, attitude and preventive practices of third grade school children. *Pediatr Dent* 2000; 22:395-400.
6. Frazier JP, Horowitz AM. Oral health education and promotion in maternal and child health: A position paper. *J Public Health Dent* 1990; 50:390-395.
7. Al-Tamimi S, Petersen PE. Oral health situation of schoolchildren, mothers and schoolchildren in Saudi Arabia. *Int Dent J* 1998; 48:180-186.
8. Farsi JM, Farghaly MM, Farsi N. Oral health knowledge, attitude and behaviour among Saudi school students in Jeddah city. *J Dent* 2004; 32:47-53.
9. Hamilton ME, Coulby WM. Oral health knowledge and habits of senior elementary school students. *J Public Health Dent* 1991; 51:212-219.
10. Woolfolk MW, Lang WP, Faja BW. Oral health knowledge and sources of information among elementary schoolchildren. *J Public Health Dent* 1989; 49:39-43.
11. Linn EL. Teenagers' attitude, knowledge and behaviors related to oral health. *J Amer Dent Assoc* 1976; 92:946-951.
12. Paik DI, Horowitz AM, Jeong KL. Knowledge of and practices related to caries prevention among Koreans. *J Public Health Dent* 1994; 54:205-210.
13. Blinkhorn A. Influence of social norms on toothbrushing behavior of preschool children. *Community Dent Oral Epidemiol* 1978; 6:222-226.
14. Pine CM, McGoldrick PM, Burnside G, Curnow MM, Chester RK, Nicholson J, Huntington E. An intervention programme to establish regular toothbrushing: Understanding parents' beliefs and motivating children. *Int Dent J* 2000; Suppl (Creating a Successful):312-323.