Oral Health and Dental Treatment Knowledge, Attitudes and Behavior among Syrian School Children

Sulaf Hamid M.D.S. [1]*,*Chaza Kouchaji PhD.* [2]

Abstract

Objective: The aim of this study was to assess the knowledge, attitudes and behavior of Syrian schoolchildren towards oral health and dental treatment.

Methods: Students of this study aged between 11-15 years old attending public schools completed a questionnaire that aimed to evaluate young schoolchildren's behavior, knowledge, and perception of their oral health.

Results: 300 students participated in this study. Results of this study indicated that desire to improve oral health found to be high among children (80%). Dental Anxiety scores were also high (83%).Toothache was the major driving factor for dental visits (81.8%) and regular dental visits weren't necessary for most participants (87.5%). About (73.2%) of the children in this study have not recognized the importance of oral health to the well-being of the rest of the body. (53.8%) of them think that it's possible to treat a cavity at its early stage by brushing, while (28.4%) think that cavities are impossible to avoid.

Conclusions: The findings of this study had indicated that the participants had poor oral health behavior, insufficient knowledge, but positive attitudes regarding oral health and dental treatments.

Keywords: Oral health, knowledge, attitudes, behavior, Syrian.

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Introduction

Oral and Dental care has been systemically organized to improve dental health attitudes among children and the young.(1) This was the reason for reduction in the severity and prevalence of the oral disease among the population of the developed countries.(2,3,4) However, evidence had shown that strong knowledge of oral health demonstrates better oral health and better oral health practice.(5) Questionnaires and interviews became a common method for collecting diagnostic data and performing oral health surveys.(6) Since information from questionnaires are helpful for understanding what should be taught and which behavioral changes are necessary for improvement of oral health.(7)

1. **Post graduate student, Department of Pediatric Dentistry, Dentistry School, Damascus University, Syria.**
2. **Assistant Professor, Department of Pediatric Dentistry, Dentistry School, Damascus University, Syria.**

**** Correspondence should be addressed to:***
E-mail: Sulaf Hamid, sulaf-rose@hotmail.com

In Syria–which lies on the Eastern coast of the Mediterranean Sea-poor oral health knowledge was found among 15-year-old children and poor oral hygiene was also common among[8]. On the other hand, there was a limited community and preventive oriented approach towards oral health in public dental clinics, so that the awareness of behavior conducive to oral health is poor too[9]. As knowledge and behavior are indications of the efficacy of applied oral health education programs, the aim of this study was to assess knowledge, attitudes and behavior of Syrian school children of an age ranged from 11-15 years old towards oral health with.

Materials and Methods:

This cross-sectional study was approved by the Ethical Approval committee at Damascus University, School of Dentistry. Informed consent was given by the parents before giving questionnaires to the children. The target population of this study consists of school children aged from 11 to 15 years old. Fifteen years old is the age that marks the end of obligatory school education in Syria. Basic Education is the name of the learning stage from 6 to 15 years old. In collaboration with School of Dentistry and Association of Education in Damascus, four schools around Damascus city-the capital of Syria- were randomly selected including 2 primary schools and 2 elementary ones.

The principles of the schools were contacted about the proposed investigation and all agreed to administer the questionnaire that aimed to evaluate young schoolchildren's knowledge, attitude and behavior towards their oral health. Students were gathered in one classroom with the help of the teacher and the interviewer would read aloud the questionnaire to entire class. The classes also were selected randomly. All of the students asked to fill the questionnaire by ticking the best choice for each item depending on their believes and the choices were (agree – sometimes agree sometimes disagree - disagree).

The chosen questionnaire in this study was OSCA (Oral Self Care Appraisal) which was adopted by Kawamura et al 2008.[7] The questionnaire was pre-tested on a convenient sample of 50 subjects selected from schools. It was then modified based upon responses and so called MOSCA (Modified Oral Self Care Appraisal). The questionnaire consisted of 10 socio-psychological fields, which were:

Field 1 with 5 items to assess the desire to improve oral care.

Field 2 with 2 items to assess dental anxiety.

Field 3 with 2 items to investigate depending on snacks among respondents.

Field 4 with 2 items to assess tooth brushing.

Field 5 with 2 items to assess persistence.

Field 6 with 2 items to assess the concern over the number of cavities.

Field 7 with 2 items to assess expectation about fluoride effect.

Field 8 with 2 items to assess sociability among them.

Field 9 with 2 items to assess why do they postpone visiting the dentist.

Field 10 with 2 items to assess resignation of cavities.

Statistical Analysis:

Principal component factor analysis was under taken to identify the set of the underlying factors contributing to the OSCA responses, followed by a promax rotation of the factors that accounted for the greatest amount of the variation and computation of factor loadings for each question to identify

any that exceeded 0.45 (SPSS version 20.0), which was used as threshold for moderate to high loadings. An item was assigned to factor X when its absolute value of loading was more than 0.45 and it had no loading at 0.35 or higher for another factor. Differences between boys and girls were evaluated using independent t-test.

Data Analysis:

The data was analyzed using the SPSS version 20.0 software. The individual scores were summed up to yield a total score and given in subtitles for each questions. Frequency distribution, number and percentage were calculated.

Results:

This study was conducted to assess knowledge, behavior and attitudes related to oral health among (11-15) years old 300 Schoolchildren attending public schools around Damascus city of. Grade and gender distribution of the respondents were given in Table (1).

Table 1: Demographic characteristics of the sample

Characteristics	**Number of cases**	**Percentage** (N) (%)
School level		
primary	**120**	**40**
Intermediate	**180**	**60**
Gender		
Male	**150**	**50**
Female	**150**	**50**

Table 2: Answers to 10 factors extracted by promax rotation

Item Description	**Agree (%)**	**Sometimes Agree (%)**	**Sometimes Disagree (%)**	**Disagree (%)**	**Factor loading**
I would like to learn how best 2 brush my teeth	**16**	**28**	**33**	**23**	**0.83**
I want to know how to use dental floss properly	**23**	**30**	**26**	**22**	**0.51**
I feel that is fashionable to have beautiful teeth	**33**	**28**	**19**	**20**	**0.72**
I think dental health affects general health	**11**	**21**	**21**	**46**	**o.66**
I get nervous the day before I visit the dentist	**18**	**26**	**22**	**35**	**0.61**
I worry about what my treatment will be like in the waiting room	**15**	**24**	**30**	**31**	**0.80**
I often eat too many snacks to the point where I am unable to eat my meals	**16**	**33**	**36**	**15**	**0.73**
I tend to eat snacks in my free time	**13**	**30**	**29**	**28**	**0.76**
Sweets affect the teeth adversely	**19**	**33**	**30**	**19**	**0.86**
I often check my teeth in a mirror after brushing	**16**	**33**	**36**	**15**	**0.73**

I don't brush because even with good brushing caries will happen	**21**	**44**	**27**	**8**	**0.49**
Often when I start something I never finish it	**36**	**36**	**20**	**8**	**0.78**
I try to be persistent in what I do	**42**	**40**	**13**	**5**	**0.77**
I had many cavities when I was young	**11**	**31**	**33**	**25**	**0.84**
I develop new cavities soon after being treating by the dentist	**19**	**33**	**27**	**31**	**0.48**
I think fluoride paste is good for the gums	**22**	**25**	**21**	**32**	**0.64**
I think fluoride treatments prevent cavities	**14**	**29**	**37**	**20**	**-0.82**
I feel I am a happy person	**7**	**9**	**22**	**63**	**0.66**
I usually try to respond to a smile with a smile	**10**	**12**	**18**	**60**	**0.89**
I put off going to the dentist until I have a toothache	**42**	**40**	**13**	**5**	**0.77**
I think that regular visits to the dentist are necessary.	**10**	**16**	**28**	**46**	**0.77**
It's possible to treat a cavity at its early stage by brushing	**22**	**25**	**21**	**32**	**0.64**
I feel cavities are impossible to avoid	**21**	**44**	**27**	**8**	**0.49**

Table (2) shows distribution of the respondents regarding oral health knowledge, behavior and attitudes.

About (87.3%) showed a desire to learn how best to brush their teeth. On the other hand, dental flossing wasn't known by (56.1%) of the students.

Almost 61% of the students though that having beautiful teeth is fashionable.

Children in this study also haven't recognized the importance of oral health to the well-being of the rest of the body (73.2%). They, as well, indicated that they feared dental treatment (83%).

About 65% of participants though that even with good brushing caries will happen.

Effect of fluoride wasn't clear for children. Only (33%) thought that fluoride prevents cavities.

Toothache was the major driving factor for dental visits (81.8%) and regular dental visits weren't necessary for most participants (87.5%). However, (53.8%) of them think that it's possible to treat a cavity at its early stage by brushing, while(28.4 %) think that cavities are impossible to avoid.

There was also an emphasis on describing differences among gender (Table 3). There were significant differences between the sexes on 7 factors. Desire to improve oral health, expectation about fluoride effect and resignation of cavities had no significant difference.

Concerning behavior the scores for Dental Anxiety, Dependency on snack, Tooth brushing ($p<0.001$) and concern over the number of cavities were higher for females than for males ($p<0.01$).

However, males had higher rates on sociability ($p<0.001$) and persistence ($p<0.05$).

Results also appeared that males put off going to the dentist more than females ($p<0.05$).

Table 3: Comparison of scores of 10 factors by gender

	boys	girls	p- value
F1: desire to improve oral care.	-0.125	0.125	0.000
F2 :dental anxiety.	-0.137	0.137	0.000
F3 :depending on snacks among respondents.	-0.149	0.149	0.000
F4 : tooth brushing .	0.146	0.146	0.000
F5 :persistence	0.050	-0.050	0.032
F6 :concern over the number of cavities	-0.067	0.067	0.008
F7 : expectation about fluoride effect.	-0.011	0.011	
F8 :sociability among them.	-0.213	0.213	0.000
F9 :postponement of visiting the dentist.	0.083	-0.083	0.000
F10 : resignation of cavities.	-0.005	0.005	

Discussion:

This study was the first of its kind in Syria since it had emphasis on Syrian schoolchildren knowledge, attitude and behavior towards oral and dental health among age group from 11 to 15 years old around Damascus city using MOSCA which is socio-psychiatric questionnaire regarding attitudes and behavior related to oral health. Previous studies by Beirut et al. had focused on 15-year-old schoolchildren living in Damascus city.[8]

It wasn't known if the sample of this study is representative of other samples of school children of similar age in all public schools in Syria. Investigator was always available during the completion of the questionnaire if any participant wanted extra explanation of any item. One of limitations was that of this study is being evaluated on the basis of self-reported data. Measurement error due to misinterpretation of questions and memory errors are subject to occur.[10,11]

To overcome this problem the questionnaire was pretested before the study was conducted with positive results, and the items were written at a language level that should have allowed children to answer easily. Another limitation of this study was that investigator had no ability alone to prevent children from affecting by each other while answering questions in regard that children had previously told that it wasn't an exam and there were no marks given, so a help of teachers were needed.

The children also haven't recognized the importance of oral health to the well-being of the rest of the body which differs from Jordanian peers in study of al-Omari*et al.* (2006).[13]

In agreement with Joshi *et al.* (2005) and Lian *et al.*, most students in this study (83%) experienced that they fear dental visit.[14,15]

Approximately 33% percent were aware about effects of fluoride on the dentition. This wasn't the same of 77% of sample in al-Omari study where children knew the positive effects of it.[13]

Pain was the main reason for visiting the dentist and in agreement with the report by WHO (2008) where majority of the students

only visited their dentist when they had dental pain (20).[16] Results by several studies found to be similar.[13,15,17]

Results showed a lack of knowledge regarding the importance of visiting the dentist regularly. Majority of participants reported to be not aware that regular dental visits are necessary. This wasn't the case in a study of Emmanuel et al. (2010).[18] Low dental visits may probably due to low awareness of importance of oral health thus, affects the student's health seeking behavior.

It was found that the level of oral health knowledge was insufficient, this comes along with the result found in a study by Beiruti[8,9] There was significant difference of the knowledge score between genders (p=0.003). However, Joshi *et al*. (2005) reported that boys had better knowledge than girls.[14]

The attitude towards oral and dental health problems was found to be positive and girls had more positive attitudes than boys did. In measuring believes on dental treatment, the majority held positive believes with no difference between boys and girls which is different from finding reported by Nyamuryekung'e.[19] This could be due to different age group and\or the sample size.

Desire to improve oral health, expectation about fluoride effect and resignation of cavities had no significant difference. However, Kawamura *et al.* found that girls had significantly higher scores than boys.[7]

Concerning behavior the scores for Dental Anxiety, Tooth brushing ($p<0.001$) and concern over the number of cavities were higher for females than for males ($p<0.01$). Same found Kawamura *etal.*[7]Dependency on snack was also higher for females. Gordon *et al.* and Al-Sadhan*et al.* found the same result.[20, 21]

Conclusion:

In this study, participants had poor oral health behavior, insufficient knowledge, but positive attitudes regarding oral health and dental treatments. In conclusion, the oral health knowledge, attitudes and behavior among the Syrian school students around Damascus city is still below the satisfactory level and need to be improved. Comprehensive oral and dental health educational programs for students are required to achieve this goal.

Conflicts of Interest:

The authors declare that they have no conflicts of interest.

Supplement
Dental questionnaire given to the participants

Grade:	**5**	**6**	**7**	**8**	**9**
Gender:	**male**		**female**		

Field	Items
1	**1. I would like to learn how best to brush my teeth** **2. I want to know how to use dental floss properly** **3. I feel that is fashionable to have beautiful teeth** **4. I think dental health affects general health** **5. I get nervous the day before I visit the dentist**
2	**6. I worry about what my treatment will be like in the waiting room** **7. I often eat too many snacks to the point where I am unable to eat mymeals**
3	**8. I tend to eat snacks in my free time** **9. Sweets affect the teeth adversely**
4	**10. I often check my teeth in a mirror after brushing** **11. I don't brush because even with good brushing caries will happen**
5	**12. Often, when I start something I never finish it** **13. I try to be persistent in what I do**
6	**14. I had many cavities when I was young** **15. I develop new cavities soon after being treating by the dentist**
7	**16. I think fluoride paste is good for the gums** **17. I think fluoride treatments prevent cavities**
8	**18. I feel I am a happy person** **19. I usually try to respond to a smile with a smile**
9	**20. I put off going to the dentist until I have a toothache** **21. I think that regular visits to the dentist are necessary.**
10	**22. It's possible to treat a cavity at its early stage by brushing** **23. I feel cavities are impossible to avoid**

	agree	**Sometimes agree**	**Sometimes disagree**	**disagree**
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معرفة أطفال المدارس السوريين وموقفهم وسلوكهم تجاه الصحة الفموية والمعالجة السنية

سلاف حامد[1]، وشذى قوشجي[2]

1- قسم طب الأسنان، كلية الطب، جامعة دمشق، سوريا.

الملخص

الهدف: كان الهدف من هذه الدراسة تقييم سلوك ووعي ومعتقدات أطفال المدارس السوريين.

طرائق الدراسة: أتم الأطفال في هذه الدراسة الاستبيان المرفق والذي يهدف لتقييم معرفتهم وموقفهم وسلوكهم تجاه الصحة الفموية والمعالجة السنية، حيث تراوحت أعمارهم ما بين 11-15 عاماً ممن يدرسون في المدارس الحكومية.

النتائج: شارك في هذه الدراسة 300 طالباً. أشارت النتائج إلى أن رغبة الأطفال في تحسين الصحة الفموية لديهم كانت عالية (80%). كانت معدلات القلق من العلاج السني مرتفعة عند الأطفال أيضاً (83%). تميز الألم السني بكونه السبب الرئيس لزيارة العيادة السنية (81.8%) حيث لم يكن من الضروري القيام بزيارات دورية بالنسبة لغالبية المشاركين (87.5). لم يدرك حوالي (73.2) من الأطفال في هذه الدراسة أهمية الصحة الفموية بالنسبة للجسم ككل. كما يعتقد حوالي (53.8%) منهم أنه من الممكن معالجة النخر في مراحله المبكرة من خلال التفريش، في حين يعتقد (28.4%) منهم أنه من المستحيل تجنب النخور.

الاستنتاجات: تشير النتائج المستخلصة من هذه الدراسة إلى أن ضعف السلوك الممارس للمشاركين في هذه الدراسة تجاه الصحة الفموية إضافة إلى نقص معرفتهم بالرغم من وجود مواقف إيجابية حول الصحة الفموية والمعالجة السنية.

الكلمات الدالة: معرفة، موقف، سلوك، أطفال سوريين، صحة فموية، معالجة سنية.