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Assessment of Oral Hygiene Knowledge, Attitude and Practice Among Children in Makkah City, Saudi Arabia: a Cross-Sectional Study

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ABSTRACT

Background: *Assessment of knowledge, attitude and practice of oral hygiene in children is important for the health of the community. The lack of data in Makkah region initiated the idea of the study.*
Aims: *To assesses the knowledge, attitude, and practice of oral hygiene among Makkah children aged 9-14years.*
Design: *Cross sectional study was conducted to collect data from children in Makkah, using self-administered close-ended validated questionnaire. It contained demographic data about the child and his mother, and included ten items about oral health practice, oral health attitude, and oral health knowledge that were answered by the child and his guardian separately. SPSS version 20 was used for the analysis of the data and descriptive statistics and chi- square tests were applied.*
Results: *405 children, both males and females, and their mothers have participated, 79% of them were Saudi mothers and 57% have had higher education. A significant difference was found regarding the correct tooth brushing frequency among male and female children. 67% had more than two episodes of dental pain during last year. No significant difference was found regarding the knowledge except the effect of the fluoride on teeth. More than 45% of the children who got good score their mothers are University graduates.*
Conclusion: *Most of the children and their mothers have adequate oral hygiene knowledge, practice, and attitude. Children of university graduate mothers are more knowledgeable compared to non-graduate mothers; this necessitates the importance of educating them.*

1. Introduction

Oral health is considered an essential part of the general health and well-being. Dental caries is one of the most common oral diseases affecting the children in the world which is also preventable1. Attitude, knowledge and practice have shown to be factors that improve the dental health standard [2].

Many studies have been conducted to assess the knowledge attitude and practice of oral hygiene among school children and/or their parents in different regions of Saudi Arabia and other countries. More than 40% of children have good knowledge and practice about oral hygiene, but they lack the awareness about the other major factors that can cause dental problems and how it can be prevented2,3. The majority of children knowledge come from their parents4. Evidence showed that parents' knowledge about the oral health care of their infants and children was insufficient5. Unlike the primary school teachers who have acceptable knowledge and attitudes regarding their oral health [6].

The poor oral health knowledge was contributing to the high caries prevalence among the children [7,8].

A study carried out in 2011 about children oral hygiene knowledge in Qatar found that their knowledge was below the satisfactory level. Majority of their children lack the knowledge of the basics of oral hygiene practice. Unaware of the brushing techniques, fluoride effect, dental flossing or the regular dental visits [4].

Most of the previous literature indicated the lack of oral hygiene knowledge and practice among children and was contributing to bad oral health. [2,3,4,5,7,9,10,11,12,13].

This study aimed to assess the knowledge, attitude, and practice of oral hygiene among Makkah children.

2. Materials and Methods

2.1. Study Design and Sample Size

This was a cross-sectional study conducted in Makkah, with a Sample size of 405 participants selected with convince sampling, their age range from 9 – 14 years. The sample size was determined by Sample size calculator's website http://www.sample-size.net/ (Sample size for a descriptive study of a dichotomous variable) according to Confidence level: 95%, Expected proportion (P): 0.5, and a total width of confidence interval (W): 0.1. The samples were collected from the Parks (Alhussainiya, Almu'allim, Umm alkatad park) and the Malls (Alhijaz, Aldiyafa).

2.2. Questionnaire

A validated self-administered close-ended questionnaire9 was used at the study. The questionnaire was translated and its question was modified to accommodate with the aim of the study. The questionnaire was consisted of information related to the children personal information including: Gender and age of the child and his companion (mother or father); Mother's level of education; Nationality of the child and his mother and School type. The questionnaire included 10 items divided into 3 sections; oral health knowledge, oral health attitude, and oral health practice that was answered by both the child

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and his guardian separately. Assessment of participant's oral health-related attitude included items on self-perceived oral health status and the number of visits to the dentist for treatment of dental problems in the last year. Assessment of a participant's oral health-related practices included questions on the frequency of cleaning and cleaning aids used. Assessment of a participant's oral health-related knowledge included questions on benefits of fluoride, the necessity of regular dental visits, the role of sugar in causing dental caries, and the importance of teeth in the body.

Validity of the questionnaire:

The validation was done by distributing the questionnaire after translation and modification among 10 children to test its reliability and clarity of the questions. It was considered approved as 90% of the children reported that the questionnaire was clear and understandable.

2.3. Data Management and Statistical Analysis

SPSS software, version 20 for Mac used for all statistical analyses. Data were presented as frequencies and percentages. The comparison between frequencies was done using Chi-square test. P value less than 0.05 is considered significant.

Ethical Approval

Ethical approval was obtained from Umm Al-Qura University, Faculty of Dentistry Institutional Review Board (IRB). Patient acceptance to fill the questionnaire after a brief explanation about the study was considered as an informed consent.

3. Results

The results of the present study which was conducted to investigate the prevalence of oral hygiene knowledge, attitude and practice among children and their parents was performed through questionnaire with active voice to be clearer. It was distributed in Makkah city to children aged 9 to14 years. A total of 405 children completed all the questionnaires.

Table 1: Demographic characteristics

Demographic characteristics	Percentage (%)
Gender	
Male	47.7%
Female	52.3%
Age group	
9-11 Years old	62%
12-14 Years old	38%
School sector	
Governmental	80.5%
Private	19.5%
Mothers level of education	
University	57.3%
High	28.1%
Intermediate	6.4%
Elementary	6.7%
Non educated	1.5%

Table 2: Prevalence of oral hygiene knowledge among children.

questions	Frequency (%)	Gender		P value
		Male (%)	Female (%)	
Do the teeth plays an important role in the body?				
Yes	381 (94.1%)	180(44.4%)	201(49.6%)	0.716*
No	10 (2.5%)	6(1.5%)	4(1%)	
Don't know	14 (3.5%)	7(1.7%)	7(1.7%)	
Do teeth brushing everyday protects your teeth from caries?				
Yes	390 (96.3%)	186(45.9%)	204(50.4%)	0.194*
No	12 (3%)	7(1.7%)	5(1.2%)	
Don't know	3 (0.7%)	0(0%)	3(0.7%)	
Does regular dental visits helps keeping your teeth in a sound state?				
Yes	347 (92.3%)	173(42.7%)	201(49.6%)	0.065*
No	19 (4.7%)	14(3.5%)	5(1.2%)	
Don't know	12 (3%)	6(1.5%)	6(1.5%)	
Eating sweets, soft drinks or sugary drinks doesn't cause caries?				
Yes	65 (16%)	30(7.4%)	35(8.6%)	0.629*
No	334 (82.5%)	159(39.3%)	175(43.2%)	
Don't know	6 (1.5%)	4(1%)	2(0.5%)	
Using fluoride toothpaste helps protecting teeth from caries?				
Yes	125 (30.9%)	45 (11.1%)	80 (19.8%)	0.004**
No	20 (5%)	8 (2%)	12 (3%)	
Don't know	260 (64.1%)	140(34.5%)	120(29.6%)	

** Significant. * Non-significant.

Table 1, showing the demographic characteristics of the samples. The prevalence of oral hygiene knowledge, oral hygiene attitude and oral hygiene practice among the children were shown respectively in tables 2, 3 and 4. While, figure 1, showing the arrangement of the children knowledge levels (Good, Average and Poor) which were determined by their answers on the questionnaire and related these levels with their mothers' level of education.

Table 3: Prevalence of children's oral hygiene attitude

Questions	Frequency (%)	Gender		P value
		Male (%)	Female (%)	
Have you felt pain in your teeth in the last 12 months?				
Many times	89 (22%)	43(10.6%)	46(11.4%)	0.714*
Sometimes	139 (34.3%)	66(16.3%)	73(18%)	
Never	132 (32.6%)	66(16.3%)	66(16.3%)	
Don't remember	45 (11.1%)	18(4.4%)	27(6.7%)	
How many times have you visited a dentist in the last 12 months?				
Once	78 (19.3%)	33(8.2%)	45(11.1%)	0.575*
Twice	42 (10.4%)	22(5.4%)	20(4.9%)	
More than two	108 (26.7%)	49(12.1%)	59(14.6%)	
Never	177 (43,7%)	89(22%)	88(21.7%)	
If the answer was never then, what are the causes?				
No need	202 (49.9%)	91(22.5%)	111(27.4%)	0.416*
Dental phobia	54 (13.3%)	23(5.7%)	31(7.7%)	
No nearby clinic	27 (6.7%)	13(3.2%)	14(3.4%)	
Costly treatment	16 (4%)	7(1.7%)	9(2.2%)	
No pain	106 (26.2%)	59(14.6%)	47(11.6%)	

** Significant. * Non-significant

Table 4: Prevalence of children's oral hygiene practice.

questions	Frequency (%)	Gender		P value
		Male (%)	Female (%)	
How many times do you brush your teeth				
Once a week	36 (8.9%)	28(6.9%)	8(1.9%)	0.000**
Plenty per week	43 (10.6%)	23(5.7%)	20(4.9%)	
Once a day	100 (24.7%)	46(11.3%)	54(13.3%)	
Plenty per day	196 (48.4%)	77(19%)	119(29.4%)	
Never	30 (.4%)	19(4.7%)	11(2.7%)	
What is the method used to brush				
Using only fingers	1 (0.2%)	1(0.2%)	0(0%)	0.435*
Miswak	3 (0.7%)	2(.5%)	1(0.2%)	
Coal powder	2 (0.5%)	1(0.2%)	1(0.2%)	
Toothbrush and paste	373 (92.1%)	173(42.7%)	200(49.4%)	
Another way	26 (6.4%)	16(4%)	10(2.5%)	

** Significant. * Non-significant.

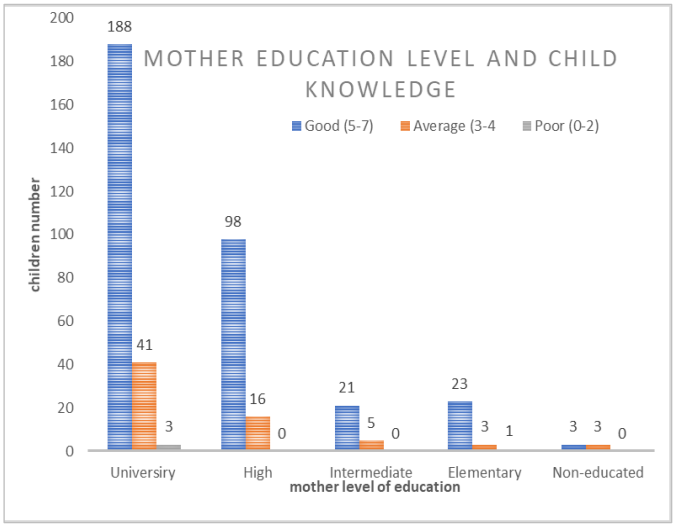

Figure 1: showing the arrangement of the children knowledge levels (Good, Average and Poor) which were determined by their answers on the questionnaire and related these levels with their mothers' level of education.

4. DISCUSSION

The present study showing the prevalence of oral hygiene knowledge, attitude, and practice among the children, using a questionnaire in Makkah city.

Regarding the oral hygiene knowledge, the collected data about the oral hygiene knowledge of Makkah children included five questions in the questionnaire (Table 2). Question about the essential role of teeth in the body, 94.1% were answered yes, that agreed with the studies conducted (Al-Darwish et al 2016) in Qatar and in India 4,9. The daily brushing protects the teeth from caries or not; 96.3% answered yes which agreed with Al-Darwish et al 2016 and Mehta et al 2012 in which showed agreement by (83%). On the other hand the results disagreed with Aljouf study3,4,9. The third question was about the regular dental visits and whether they preserve the teeth or not, which was mostly answered by yes (92.3%) and agreed with the study of Alshehri et al 2015, Togoo et al 2012 which conducted in the rural areas of southern Saudi Arabia. Other study conducted by Mehta et al in Indian showed lowest prevalence (69% girls- 74% boys) [2,5,9].

The fourth question was about whether eating sweets, soft drinks and sugary food wouldn't cause caries, mostly answered by no it causes caries (82.5%), which agrees with Zwiri et al. ,Togoo et al While disagrees with the Mehta et al, conducted in India [2,3,9]. The fifth question was asking about the fluoride and whether it has a protective effect on teeth, it was concluded that fluoride was not well known to children in Makkah. This result was agreed with Al-Darwish et al and Mehta et al [4,9].

Regarding oral hygiene attitude, a total of three questions were asked to investigate the prevalence of the attitude between children (Table 3). The first one was asking about the times they had felt pain in the last 12 months, most of them answered by sometimes (34.3%) and the rest of the answers were distributed between never, many times and didn't remember which agrees with the Indian study of Mehta et al 9. The second question was about the number of visits to the dentist in the last 12 months which were answered mostly by never (43.7%) followed by more than twice (26.7%) and twice (10.4%), and this finding disagrees with the Indian study,9. The third one was about the causes of never visiting a dentist was answered by no need (49%) followed by no pain (26%), and few were complaining about the higher cost of the dental clinics. These findings disagreed with studies conducted by Togoo et al, Mehta et al and Al-Kheraif et al. [2,9,10].

Regarding oral hygiene practice (Table 4), the question about how many times that children brush their teeth showed that a great majority of children are brushing their teeth plenty a day 196 (48.4%) followed by once a day 100 (24.7%), which agreed with Al-Kheraif et al and Zhu, While disagreed with study conducted by Alshehri et al , Zwiri et al., Al-Samadani et al., Togoo et al., and Mehta et al. [2,3,5,7,9,10,11]. Regarding the method of brushing, it revealed that most of the children were using toothbrush and paste while the other methods were not popular between them. Results founded to be agreed with the study conducted in the rural areas of southern Saudi Arabia, Aljouf, Abha, Madinah, and India [2,3,5,7,9].

The Comparison between Mothers' education level and children knowledge (Figure 1), revealed that there is a proportional relationship between the mothers' educational level and the children knowledge which explained as whenever the mother's educational level increases the better knowledge their children get.

Traditionally, good oral hygiene knowledge and practice are leading to good oral health. According to the results of our study we found that a high proportion of children in Makkah have good knowledge of oral hygiene. But they probably might have bad oral health as indicated by previous studies of areas near Makkah. Al-Malik et al. in Jeddah showed that 73% of the children had caries, and another one published by Alhabdan et al. in Riyadh showed that 83% of children had caries12,13. These variations could be due to individual factors including inappropriate brushing technique, getting used to brushing in lately teenage, visiting the dentist only for treatment not prevention, having snacks between meals, fruits not included into their snacks or meals, and high consumption of soft drinks and flavored milk.

5. CONCLUSION

The majority of the children achieved good score in the knowledge of oral hygiene, especially those whom their mothers' education level is university; this necessitate the importance of educating the mothers. Fortunately, most children exhibit a good level of awareness concerning regular teeth brushing, use of fluoride, and dental floss. The sociodemographic factors can influence oral health and hygiene, particularly knowledge, practice, and behavior.

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