

# The Relationship between Oral Health Knowledge Mothers and Dental Caries in Tripoli, Libya

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## Abstract

Mothers are directly responsible for the dental health of their offspring and can play an important role in preventing oral diseases in children. They clean teeth of their children, teach them proper hygiene and dietary habits, and organize professional dental care. The aim of this study was to investigate the relationship between oral health knowledge of mothers and dental caries in Tripoli, Libya. A cross sectional study was conducted on 392 mothers of 6 to 12 years old children who visited the three public health centers, and one of the biggest public health hospitals for regular check up or other health problem in Tripoli. A validated questionnaire was used to examine mother's knowledge about oral health and dental examination was carried out to assess the their children's caries experience. DMFT was statistically significantly associated with the mother's knowledge according to chi-square test. Approximately half of mother's had poor knowledge (49.7%), (40.1%) had average knowledge and only (10.2%) had good knowledge about oral health The higher prevalence of DMFT score was observed among children with poor mother's knowledge (36.4%), while the lowest prevalence was observed among prevalence of DMFT values amongst children with good mother's knowledge (15.0%). The relationship was statistically significant (P-value= 0.031). In conclusions the prevalence of DMFT was affected by the level of mother's knowledge, the children whose mothers with good level of knowledge had the lowest prevalence of DC, while the children whose mothers with poor level of knowledge had the highest.

**Keywords:** Oral Health, Knowledge, Dental caries, Children, Tripoli, Libya.

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## INTRODUCTION

Mother is considered as the cornerstone of the family, and an adequate mother knowledge about oral health and oral hygiene practice can provide best oral preventative health care to her children and also affects the child's teeth and attitude towards oral health [1].

Mothers are directly responsible for the dental health of their offspring and can play an important role in preventing oral diseases in children. They clean teeth of their children, teach them proper hygiene and dietary habits, and organize professional dental care.

Dental caries (DC) is a pathological process, which appear as a cavity inside the tooth, this cavity occurs due to demineralization of the hard tissues of tooth surfaces, which happened as a results of an acid attack made by bacteria. The DC is a localized, chronic progressive non self-limiting disease, and if untreated the affected tooth condition will be worsen, and it may

effects on general health of the child and his/her normal function at home and in school [2].

According to WHO, the higher prevalence of DC were noticed in developing countries compared with developed countries [3]. There are many factors helped to decrease the prevalence of last few decades in developed countries including changes in diet, hygiene procedures, raised awareness about dental health, the widespread use of fluoride and preventing care programs [4].

One of the most important factors which related with the prevalence of DC is the parent's knowledge especially the mother, because mother is considered as the cornerstone of the family and also they are the primary model of their children's behaviors which includes oral health habits. The mother playing the important role of their child's health and an adequate mother knowledge about oral health and oral hygiene practice can provide best oral preventative

health care to her children and also affects the child's teeth and attitude towards oral health [1].

Nearly all studies that were found in the literature reported that DC was positively associated with the level of the mother's knowledge. Positive knowledge of oral hygiene is related to mothers with background of high education levels, where the mothers with lower education level considered having poor knowledge of oral hygiene, and poor attitude towards oral health of their children.

Children, who receive minimal mother supervision, have inadequate basic oral health knowledge and are unaware of methods available to clean their teeth, and thus may predispose risks in developing DC in those children [5].

This study will help to increase the awareness of the mothers about the importance of their child's oral health and early treatment of DC, which will lead to decrease the prevalence of DC and therefore reduce the economic burden of DC. Based on the results of proposed study we will be able to put forward DC prevention programs and new policies in Libya.

The aim of this study was to investigate the relationship between oral health knowledge of the mothers and DC in Tripoli, Libya.

## METHODOLOGY

A cross-sectional survey was conducted from May to August 2016 among mothers of 6 to 12 years old children who visited the three public health centers, and one of the biggest public health hospitals in Tripoli for regular check up or other health problem. A total of 392 mothers along with their child were selected by convenient sampling technique, which has been found at the same time that the investigator is present. Informed consent was obtained from the participating mothers. Approval for conducting the study was obtained from the Research Ethics Committees of Jordan University and Ministry of Health in Libya.

Mothers whose agreed to participate in the study, were asked to prepare her child for dental examination, meanwhile in the waiting room the author gave the mothers the questionnaire and asked them to answer all of the questions with honesty and clarification.

The questionnaire was developed by investigators in English language than translated to Arabic by investigators to be more appropriate and adopted according to the culture of the subjects in this study, and to check for the quality and accuracy of translation, back translation from the Arabic language to the original English language was done by an external professional translator. Pre-tested was conducted on forty mothers to check the reliability and

modifications made based on the results before the study commenced. The reliability of the Arabic version of questionnaire was tested using Cronbach's alpha for all the questions= 0.751.

The questionnaire composed of 8 statements to evaluate knowledge of the mother, four of the questions were close-ended questions containing statements about important of teeth brushing, treatment of primary teeth, know of fluoride and does it protects from decay.

The other questions containing questions about kind of treatment do you prefer if you see saw dental caries in your child's tooth?

The correct answer was given 1 point while the wrong answer was given zero point.

In the other questions containing multiple choices were used based on scoring scale (blooms method) including: how often we should visit the dentist office and important of teeth brushing.

Regarding the scoring method, "More than twice" was given 3 point; "Twice" was given 2 point and "Once" was given 1 point, and "If there is pain or complain" was given 0 point. The scores obtained were categorized as knowledge poor knowledge (< 50%), average knowledge (50% - 70%) and (>70%) good knowledge.

Oral examination of children was done by the first author in dental clinic. At the end of examination and fill the questionnaire, the investigator gives instructions about teeth cleaning and advice about their dental health.

The dentist recorded both healthy and affected students; DC were assessed using DMFT score following the diagnostic criteria of World Health Organization [6].

DMFT score express the DC prevalence and are obtained by calculating the number of decayed (D), a tooth with any sign of presence of DC like white spots; discolored tooth or stain pit or fissure on tooth surfaces. Missed (M), any tooth missed due to DC and filled (F), a tooth restored with dental filling with no caries teeth only in permanent teeth [6].

## Statistical Analysis

Data collected is entered in Statistical Package for Social Sciences Software (SPSS), version 24. Descriptive distribution frequency tables, means and standard deviations were used. Chi square test was used, P-value of less than 0.05 was considered as significant statistics.

## RESULTS

A total of 392 mothers were fill the questionnaire and their children aged between 6 to 12 years were examined. More than one third of participant's mothers were at the university graduate level of education (38.5%) and (57.1%) of the mothers were housewives. Approximately half of mother's had poor knowledge (49.7%), (40.1%) had average knowledge and only (10.2%) had good knowledge about oral health (Table-1).

The higher poor level of knowledge was found amongst the mothers who have primary school level (76.6%), while the average level of knowledge was found amongst the mothers with postgraduate studies (35.7%). The relationship was statistically significant (P= 0.000) (Table-2).

The prevalence of DMFT score according to the mother's knowledge about dental health was very high (36.4%) amongst children with poor mother's knowledge compared with, prevalence of DMFT values amongst children with good mother's knowledge

(15.0%). The relationship was statistically significant (P= 0.031).

The prevalence of DT score according to the mother's knowledge about dental health was very high (35.4%) amongst children with poor mother's knowledge compared with, prevalence of DT score amongst children with good mother's knowledge (12.0%). The relationship was statistically significant (P= 0.017).

The prevalence of MT score according to the mother's knowledge about dental health was very high (1.5%) amongst children with poor mother's knowledge compared with, prevalence of MT score amongst children with good mother's knowledge (0.0%). The relationship was statistically insignificant (P= 0.732).

The prevalence of FT score according to the mother's knowledge about dental Health was very high (4.1%) amongst children with poor mother's knowledge compared with, prevalence of FT score amongst children with good mother's knowledge (2.5%). The relationship was statistically insignificant (P= 0.835) (Table-3).

**Table-1: Percentages distribution of mother's knowledge about dental health**

Characteristic	Number	Percentages (%)
<b>How typically from time to time do you require to replace your child's toothbrush? (N= 275)</b>		
More than 3 months	71	25.8
3 months and less	12	4.4
I don't know	192	69.8
<b>Is brushing your child's teeth important? (N= 382)</b>		
Yes	380	99.5
No	2	0.5
<b>Why are teeth brushing important?</b>		
Teeth whitening	198	50.5
Prevent dental caries	323	82.4
Prevent gingivitis	149	38.0
Prevent bad odor	179	45.7
All the answers	102	27.7
<b>How often should we visit the dentist's office? (N= 284)</b>		
If there is pain or complain	33	11.7
Once	56	19.7
Twice	158	55.6
More than twice	37	13
<b>Is it important interest in the treatment of primary teeth? (N= 357)</b>		
Yes, very important	289	81.4
Unimportant	68	18.6
<b>What kind of treatment do you prefer if you saw dental caries in your child's tooth? (N= 366)</b>		
Go for dental filling	248	63.3
Go for extraction	48	12.2
Medication	57	14.5
Do nothing	13	3.3
<b>How to protect teeth from decay?</b>		
Eating sweets and chocolates	271	69.1
Drinking juices and soft drinks	124	31.6
Don't brush your teeth after eating food	256	65.3
All the answers	89	22.7
Don't know	17	4.3
<b>Do you know what fluoride is? (N= 368)</b>		
Yes	218	59.2
No	150	40.8
<b>Does fluoride protects teeth from decay? (N= 217)</b>		
Yes	209	96.3
No	8	3.7

**Table-2: Prevalence of mother's knowledge about dental health in relation with mother's educational levels (N= 392)**

Knowledge level	Mother's Educational Level					P-value
	Primary School	Preparatory School	High school diploma	University graduated	Postgraduate studies	
Poor	36(76.6)	52 (65.0)	43(47.3)	53(36.6)	0(0.0)	0.000**
Average	6(12.8)	27(33.8)	45(49.5)	66(45.5)	(64.3)	
Good	5 (10.6)	1(1.3)	3(3.3)	26(17.9)	5(35.7)	

**Table-3: Prevalence of DMFT score and its components in relation mother's knowledge about dental health (N=392)**

Score	Mother's knowledge level			P-value
	Poor	Average	Good	
<b>DMFT</b>				
Caries affected	71(36.4)	51(23.5)	6(15.0)	0.031*
Caries free	124(63.6)	106(67.5)	34(85.0)	
<b>DT</b>				
Yes	69(35.4)	48(30.6)	5(12.5)	0.017*
No	126(64.6)	109(69.4)	35(87.5)	
<b>MT</b>				
Yes	3(1.5)	2(1.3)	0(0.0)	0.732
No	192(98.5)	155(98.7)	40(100)	
<b>FT</b>				
Yes	8(4.1)	5(3.2)	1(2.5)	0.835
No	187(95.9)	152(96.8)	39(97.5)	

## DISCUSSION

Mother's knowledge can have an impact on children's oral health. Children under 12 years aged generally spend most of their time with mothers. In this study, the percentages of the mothers who responded with good knowledge were 10.2%, while (40.1%) average knowledge and (49.7%) poor knowledge. This is lower than study done by Mahmoud *et al.*, [7] found 58.2% of mothers had adequate knowledge and higher than study done by Sehrawat *et al.*, [8] found 30% of the mothers had fair knowledge which reflected in their poor oral health practices towards their children. The main result found in the present study was the significant association between mother's knowledge and dental caries among their children ( $P = 0.00$ ).

This was very consistent with finding from earlier study by Abduljalil and Abuaffan [9] among 419 mothers of 3-5 years old pre-school children in Khartoum North, Sudan. Also, similar to analyzing the 2006 National Oral Health Survey Data by Jung *et al.*, [10] reported that the higher the education level of the mother association with low dental caries among children. Hence, mothers with higher education have good knowledge about the oral health of children, which is similar to studies done in Kuwait [11].

Moreover, Mothers have weak knowledge and practice in relation to the oral health of preschool children and significant correlation between dental health knowledge and practices of mothers and their educational level in study done by Abduljalil and Abuaffan [9].

Low education level was strongly associated with a lack of information about oral health than those

who have higher education [12, 13].

However, DMFT was statistically significantly associated with the mother's knowledge. Similar to study was conducted in Taiwan, a cross sectional on 101 children, to assess the prevalence of dental caries according to the mother knowledge, it was revealed that the mother knowledge have a significant association with DC [14], the prevalence of DC associated with mother's knowledge in KSA [15] and in India [16].

Furthermore different than study done by Guan *et al.*, [17] reported a non-significant association between prevalence of DC and mother's knowledge.

The prevalence of DMFT decreased at higher level of mother's knowledge and the reason for this could be explained by the fact, that mothers with high level of knowledge focus more on the oral hygiene habits of their children.

In conclusions, prevalence of DMFT was affected by the level of mother's knowledge, the children whose mothers with good level of knowledge had the lowest prevalence of DC, while the children whose mothers with poor level of knowledge had the highest. So, adequate information about oral health and motivation of mothers is necessary to maintain good oral health for preventing dental caries among children.

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