

## The Influence of Oral Health Knowledge on Parental Practices among the Saudi Parents of Children Aged 2–6 Years in Riyadh City, Saudi Arabia

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### INTRODUCTION

Children, though dependent on parents, have every right to enjoy high standard of health including the oral health.<sup>[1]</sup> The children develop their daily proficiency from their parents, thereby improving their day-by-day skills from them.<sup>[2]</sup> Children younger than 6 years generally put in much of their time with their parents

and caregivers even though they go to preschool. These early years include “primary socialization,” from which

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### ABSTRACT

**Aims and Objectives:** The parent’s oral health knowledge has a great influence on their children, so the aim of the study was to estimate the parental knowledge about oral health care and its influence in maintaining the diet and hygiene practices on their children and also to access how the demographic variables will influence them in taking their child to dental visits.

**Materials and Methods:** The self-administered pretested questionnaire was distributed among Saudi parents whose children are in the age group of 2–6 years visiting primary health care centers (PHCCs) in Riyadh city. The PHCCs were divided into five zones (Central, East, West, South, and North). 240–250 samples were randomly selected from each zone to reach the prescribed sample size of 1200. The survey will be composed of self-administered pretested questionnaires seeking for age, gender, educational level, and their financial status followed by 26 questions related to parent knowledge about oral health (14), dietary (5), and hygiene (7) practices what they implement on their child. The data collected were analyzed using SPSS software SPSS 25.0 (SPSS, Inc., Chicago, IL, USA).

**Results:** Demographic information showed that the average age of the parents who participated in the study is 32.2 years. The mothers were 942 (75.7%) and fathers were 303 (24.3%) among the participants. The mean knowledge score among the mothers (34.85) is slightly greater than fathers (34.76). Similar results with dietary and hygiene practices were not statistically significant ( $>0.05$ ). The parents having more than one child have better knowledge, of which the parents with more than three children have better scores, which is statistically significant. 69.3% of the parents prefer taking to a dentist only when they have a problem. Moreover, these findings found to be statistically significant ( $P < 0.05$ ).

**Conclusion:** Parents should get access to oral health knowledge to put in practice on their children so as to influence them in gaining better oral health.

**KEYWORDS:** Dental visits, dietary practices, hygiene practices, oral health knowledge

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their daily routines (dietary and hygiene practices) are achieved. These routines which acquired from their parents or care givers improve their general well-being, specifically the dietary and hygiene practices to develop the good oral health care habits. This acquiring knowledge by the child depends on the knowledge of the parents.<sup>[2-4]</sup> In the present world, most of the parents are getting educated because of various community programs conducted in their respective countries. Furthermore, in Saudi Arabia, The Dental Directorate, Ministry of Saudi Arabia, organized many public oral health programs such as “Community Oral Health Education” and “Oral Health Weeks” to educate the population particularly the parents so as to improve their daily routines.

Consistently visiting the dentist will allow us to prevent various forthcoming issues related to teeth making ourselves to move toward a positive oral health.<sup>[5,6]</sup> Unfortunately, rather than combination of prevention and dental visits, it has become the combination of pain and dental visits which in turn prevents us from going to a dentist because of painful visits. This can be avoided by adequate monitoring by the dentists and motivation of the parents to attain a painless regular visits.<sup>[6]</sup>

We hypothesize that dietary and hygiene practices are in direct relation to parental knowledge on oral health.

Our aim of the study was to assess the oral health knowledge and how they influence the oral health habits (dietary and hygiene practices) on their children and also how the demographic variables will influence them in taking their child to dental visits.

## MATERIALS AND METHODS

Questionnaire method was selected as it may provide chance to cover large group of population. However, there are more chances that questions can be misinterpreted because of subjective variation. To overcome this, direct interview or face-to-face interview method was chosen to make the participants answer effectively.<sup>[7,8]</sup>

### STUDY POPULATION AND SETTING

The study was conducted in primary health care centers (PHCCs) in Riyadh city among the Saudi nationals after approval from the IRB (IRB No: RC/IRB/2018/1067) Riyadh Elm University during July 2018. The services in PHCCs are totally free and around 99% of every Saudi national would register officially within the nearest allotted PHCCs. A simple random sampling was employed for selection of participants according to al-Doghaither *et al.*<sup>[9]</sup> where the PHCCs are divided into five zones (Central, East, West, South, and North). It was planned in such a way that the sample size of approximately 245–250 were selected by simple

random sampling from each zone so as to reach the prescribed sample size of 1200 which was calculated according to using a level of precision formula ( $n = z^2 pq/d^2$ ). To overcome certain rejections, our target was marginally increased to get more than the prescribed sample size and finally managed to achieve a sample size of 1245 which was ahead of the sample needed.

Inclusion criteria were Saudi parents whose children are in the age of 2–6 years and are mentally and physically stable to answer the questionnaire. Exclusion criteria were those participants not adhering to the above limits, which includes the parents who are not Saudi nationals and those not having a child between 2 and 6 years of age. Furthermore, the parents who are by anyway related to dentistry such as dentists or dental hygienists are excluded for this research.

### STUDY INSTRUMENT

The survey will be composed of self-administered pre-tested questionnaires<sup>[2,10,11]</sup> seeking for age, gender, educational level, and their financial status followed by 26 questions related to parent knowledge about oral health, (14) dietary (5), and hygiene (7) practices what they implement on their child.

This pretested questionnaire for the easy understanding to the local population was translated to Arabic by Arabic native speaker who is able to speak both English and Arabic. Later, it was back-translated to English by another bilingual native Arabic speaker. This translated English questionnaire was compared with original English questionnaire. Through these continuous cycles, we could manage to get the original meaning in Arabic language. A pilot study was done out utilizing this bilingual instrument to ensure equivalence, clarity, and comprehension. This method of validation was similar to the one done by Kotha *et al.*<sup>[12]</sup> Consent was provided to all participants' before answering the questionnaires.

### Data collection

A brief description of the questionnaire was given to the participants to enable them to answer appropriately.

### Data management

Basic demographic data of the parents who participated was asked to answer about their gender, educational and financial status, and number of children they have were collected.

### PARENTAL KNOWLEDGE

The designed questionnaire included 14 questions to assess the knowledge of the parents regarding oral health. Three possible responses yes (counted as score 3), may be (counted as score 2), and no (counted as score 1) were used for these 14 questions. Hence, the possible total

scores ranged from 14 to 42. Higher the score indicates better knowledge regarding the oral health among the participants.

#### DIETARY AND HYGIENE PRACTICES

The dietary and hygiene practices part of the questionnaire has five questions each. Three possible responses ranged from always (counted as score 3), sometimes (counted as score 2), to rarely (counted as score 1). Scores ranged between 5 and 15 for both dietary and hygiene practices. Higher the score indicates better dietary and hygiene practices followed by parents toward their children.

#### STATISTICAL ANALYSIS

After computing the cumulative score, the reliability of the questionnaire was examined using Cronbach's alpha and it was 0.82, 0.87, and 0.85 for knowledge, dietary, and hygiene practices, respectively, which was considered a good level of reliability. The data collected were analyzed using SPSS software SPSS 25.0 (SPSS, Inc., Chicago, IL, USA). Descriptive statistics were used to show the participants' demographics, and independent sample *t*-test was used to analyze between the parents (mothers and fathers) with their knowledge, dietary, and hygiene practices. One-way ANOVA for the other demographic factors was to analyze the relationship with the parental practices followed by *post hoc* analysis to analyze the influence within the intragroup demographic mean variables. Chi-square analysis was done to assess how the child was taken to a dentist in relation to demographic variables. Pearson correlation was used to correlate among these parental knowledge and their practices to estimate the interrelationships within themselves.

#### RESULTS

Demographic information showed that the average age of the parents who participated in the study is 32.2 years. The mothers were 942 (75.7%) and fathers 303 (24.3%) among the participants.

Table 1 shows the relationship between the demographic factors with the means of oral health care factors (parental knowledge, dietary, and hygiene practices). The mean knowledge score among the mothers (34.85) is slightly greater than fathers (34.76), which was not statistically significant. The dietary and the hygiene practice scores follow the same where mothers are slightly more than the fathers without any statistically significance between them.

The education status in relation to the knowledge about oral health showed that the knowledge score is more in parents who have done higher studies and is highly significant statistically ( $<0.001$ ). The dietary and hygiene

**Table 1: Relationship between the demographic factors with knowledge, dietary, and hygiene practices**

Demographic factor	Mean±SD		
	Parental knowledge	Dietary practice	Hygiene practice
Parent			
Mother	34.85±2.727	10.08±1.717	10.07±2.364
Father	34.76±2.973	10.05±1.568	9.86±2.2777
<i>P</i>	0.635	0.740	0.170
Educational status			
Schooling	34.48±2.693	10.02±1.698	9.96±2.334
Graduation	34.76±2.811	10.11±1.587	10.05±2.404
Postgraduation	35.49±2.710	10.18±1.718	10.24±2.298
<i>P</i>	0.000	0.437	0.311
Financial status			
<5000 SAR	34.52±2.638	10.02±1.754	9.83±2.477
5000-10,000 SAR	34.64±2.762	10.11±1.603	10.06±2.263
>10,000 SAR	35.10±2.858	10.06±1.706	10.09±2.321
<i>P</i>	0.005	0.769	0.272
Number of children			
1 child	34.50±2.747	10.19±1.859	10.15±2.202
2-3 children	34.69±2.767	10.03±1.644	10.05±2.309
>3 children	35.15±2.805	10.04±1.630	9.73±2.623
<i>P</i>	0.004	0.443	0.070

SD=Standard deviation

practice scores though more in parents with good education are not significant statistically ( $P > 0.05$ ).

Financial status showed that both the scores of parental knowledge and hygiene practices are more in participants having the greater earning with significant relation with knowledge score ( $P = 0.005$ ) but not the hygiene practice score ( $P = 0.272$ ). Participants earning between 5000 and 10,000 SAR are more keen on dietary practice and so the score, though not statistically significant in relation to groups with either extremes of their financial status.

The parents with more children have the highest knowledge score and are significant ( $P < 0.05$ ) with converse scores for dietary and hygiene practice though not statistically significant.

Table 2 shows the *post hoc* analysis of the parental knowledge scores within the groups of demographic variables. After identifying the significance between the three groups, *post hoc* gives the significance within the groups separately like in the table given. For example, parental knowledge showed the significance between the education groups as in Table 1. Table 2 shows the significance in specific between parents who did graduation and postgraduation than that of parents with school education. Similarly, among the groups with financial status, the parents earning between 5000 and 10,000 SAR have significant relation though less oral health knowledge scores than with parents

earning >10,000 SAR. The parents having more than one child have better knowledge, of which the parents with more than three children, and is statistically significant.

Table 3 gives the preference of taking to a dentist in relation to demographic factors. 69.3% of the parents prefer taking to a dentist only when they have a problem. 27.5% unfortunately do not prefer going to a dentist. These findings found to be significant ( $P < 0.05$ ). More than half of the participants (69.2%) take their children only if they have a problem irrespective of their educational status and the results found to be significant. Similar results for other demographic factors, financial status (68.6%) and number of children (69%) though statistically not significant ( $>0.05$ ).

Table 4 gives the Pearson correlation among these three oral health score components, i.e., within parental knowledge, dietary, and hygiene practice scores. The parents with good knowledge follow better dietary practice on their children which is significant ( $P < 0.05$ ) and highly significant with hygiene practice aspect ( $P < 0.001$ ). The parents who follow good dietary practice for their children will also concentrate more on hygiene practice, which is statistically highly significant ( $P < 0.001$ ).

## DISCUSSION

Oral health literacy is how much people have the ability to acquire, process, and comprehend fundamental oral health data and services expected to settle on achieving proper health resources.<sup>[13,14]</sup> Any decrease in the oral health knowledge among the parents will influence in maintaining diet and hygiene practices within their children.<sup>[15,16]</sup> There are various associated components with decreased knowledge and poor attitudes among the parents such as low socioeconomic status,<sup>[13,17-19]</sup> living in impoverished areas,<sup>[13,15,20]</sup> ethnicity or immigrant status,<sup>[13,15,21]</sup> lack of further education,<sup>[13,15,22]</sup> high caries status in the children,<sup>[13,22]</sup> and difficult past dental experience,<sup>[13,23]</sup> so this research was planned how much interest the Saudi parents have toward their children. The results obtained from the present survey clearly gives a view that the parental knowledge and their attitudes toward themselves about oral health have a greater influence on their children.<sup>[24-29]</sup> Within the parents, mothers definitely have a major role and more often they being the role model to their children. It is usually the mother who has more knowledge compared to fathers regarding their child's oral health and our results conclude the same but not statistically significant, unlike previous studies.<sup>[24-27]</sup>

**Table 2: Post hoc analysis of the parental knowledge scores within the groups of demographic variables**

Demographic factors	Parental knowledge			Post hoc analysis
Education	Schooling (A)	Graduation (B)	Postgraduation and higher (C)	A=B<C
	34.48	34.76	35.49	
Financial status	<5000 SAR (A)	5000-10,000 SAR (B)	>10,000 SAR (C)	A=B<C
	34.52	34.64	35.10	
Number of children	1 child (A)	2-3 children (B)	3 children (C)	A=B<C
	34.50	34.69	35.15	

=denotes not significant, < denotes significant

**Table 3: Demographic factors in relation to preference of taking to a dentist**

Demographic factor	Regularly	Only when he complains	Never prefer to go to a dentist	P
Parent (%)				
Mother	23 (1.8)	649 (52.1)	272 (21.8)	0.049
Father	14 (1.1)	215 (17.2)	72 (5.7)	
Educational status (%)				
Schooling	9 (0.7)	181 (14.5)	57 (4.5)	0.054
Graduation	24 (1.9)	559 (44.8)	216 (17.3)	
Postgraduation	4 (0.3)	124 (9.9)	71 (5.7)	
Financial status (%)				
<5000 SAR	13 (1.0)	195 (15.6)	81 (6.5)	0.111
5000-10,000 SAR	15 (1.2)	271 (21.7)	102 (8.1)	
>10,000 SAR	9 (0.7)	398 (31.3)	161 (12.9)	
Number of children (%)				
1 child	8 (0.6)	163 (13.0)	83 (6.6)	0.105
2-3 children	20 (0.1)	356 (28.5)	148 (11.8)	
>3 children	11 (0.8)	343 (27.5)	113 (9.0)	

**Table 4: Pearson correlation among three oral health score components**

	Parental knowledge	Dietary practice	Hygiene practice
Parental knowledge	1	0.067*	0.185**
Dietary practice	0.067*	1	0.330**
Hygiene practice	0.185**	0.330**	1

\* $<0.05$ , \*\* $<0.001$

The education status in relation to the knowledge about oral health is usually directly related where in which our study showed similar results and is statistically significant conveying that higher studies would influence the oral health knowledge.<sup>[27]</sup> There is one previous study done in Mexican mothers who are less in their education results in reduced knowledge and hence the parental practices.<sup>[30]</sup> Similar results are also from the previous studies.<sup>[15,22,26]</sup> It has been recommended that the parents with a general, enhanced level of education may be able to collect the information from the relevant source and can comprehend the knowledge completely.<sup>[26,31]</sup> One of the fundamental factors that may give some thoughts regarding parental knowledge about oral health is the frequency of dental visits that educated mothers do take their children regularly to a dentist.<sup>[20]</sup> A study by Al-Zahrani *et al.*, 2014<sup>[32]</sup> only 22% of the parents agreed that the child was taken to a dentist only if they have dental problem but not regularly. Contradictory results in our study show that 54.7% mothers take their children but only when they complain in spite of being educated with statistically significant results. The results in the present study confirmed that educated parents with better financial status follow better parental practices as in other studies.<sup>[15,28,33-37]</sup> It was also found that many studies conducted in various countries have concluded that parents with low educational status with lower income levels were important indicators for the parental practices (dietary and hygiene) among their children.<sup>[3,38]</sup> In conclusion, the postulated theory for this could be that reduced education status reduces the financial status which resulted in limited access to the dentists on a regular basis.<sup>[39,40]</sup> Conflicting studies in the previous research show that parents irrespective of their educational or financial status do not prefer taking their child to the dentist due to multiple reasons which include expensive, ignorance, lack of access to dental care or even their past painful experience in the dental setting.<sup>[41,42]</sup> These are some of the reasons which developed the concept of “dental neglect” which was defined as “the failure by a parent or guardian to seek treatment for visually untreated caries, oral infections and pain; or failure of the parent or guardian to follow

through with treatment once informed that the above condition(s) exists.”<sup>[41,43]</sup>

Although in Saudi Arabia in spite having wide range of health-care system to the locals such as providing free dental health care to the citizens in the Ministry of Health, there is no requirement for dentists to encourage the recall visits for the patients. This makes the patients being irregular visiting only when in pain leading to painful visits for children. Public health experts now suggest to encourage dentists to recall children regularly and also conduct camps regularly in schools to overcome fear among the dentists so that the regular visits can be improved.<sup>[6]</sup>

Parents having more than one child prefer taking to a dentist without negligence probably they faced the consequences with the first child suffering.<sup>[34]</sup> Antithetical results can be seen in our study by not visiting the dentist regularly because managing many children by only mother makes it irregular which can be overcome here in Saudi Arabia because most of the families hire maids to handle children.

The hygiene practices and the decisions of parents, especially the mothers, are specifically connected with those of their children. Dentists always acknowledge that endeavors went for enhancing parental oral health care practices could result in improving the oral health for their children. Anyway, various variables have been determined that would affect the mother’s care affecting the child’s oral health. Some of them include mother’s education, age, occupation, present knowledge, and their attitude towards oral health.<sup>[44]</sup>

The parents with good oral health knowledge would have an eye on the diet given to their child and hence the hygiene practices which all of them are directly proportional among themselves.<sup>[13]</sup> Our results also gave similar results being directly proportional and also statistically significant.

Previous methodical reviews<sup>[45,46]</sup> and even in recent researches,<sup>[11,47,48]</sup> it was proved that upgrading the knowledge on oral health among the parents and caregivers would certainly enhance the oral hygiene practices in their children and this can be accomplished by conducting various oral health educational programs.

As hypothesized, the primary outcome which measured parental knowledge confirmed in our research that this would influence their children as they being the role models would transfer the values, norms, and demeanor that are accepted for their children. The secondary outcomes include the dietary and hygiene practices could be viably accomplished and are directly related to parental knowledge. This direct relationship between

primary and secondary outcomes was demonstrated in our research [Table 4] that parental knowledge is the utmost important. Hence, the school settings ought to give chance for the parents as in school gatherings, community meetings, and oral health services to improve oral health knowledge among parents.

The conclusions of the present research may give a perspective of the link between parents' attitudes and their children's oral health; however, there are a few constraints in light of the fact that the investigation is cross-sectional and the sample is not substantial, just by considering only parents visiting the PHCCs. There are additional issues identified in understanding this survey. For instance, in spite of the major participants having finished their secondary school, there are some who were uneducated or had only few years of study. Recollecting bias, in answering to the questionnaire, may likewise have been confinement.<sup>[28]</sup>

The findings in the present research have evolved to give rise to new questions where we need to answer in the forthcoming researches such as relating the parental knowledge and their practices with the child's oral health status to understand how parents are applying their knowledge into practice. Researches should change the perceptions of parents and caregivers about the oral health importance to aid in reducing the oral health problems in the future generation.

## CONCLUSION

As it was evidenced by this and many other previous studies, educating the parents improved their child's oral health. It would be more fruitful to educate mother to-be individuals regarding oral health care and its maintenance so that the next generation is handled in a systematic way. This can be achieved by concentrating at the grassroots level by conducting various educational programs among the parents to achieve a major goal.

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## CONFLICTS OF INTEREST

There are no conflicts of interest.

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