

Parents' Knowledge, Behavior and Attitude Regarding their Children's Oral Health and the Consequences of Premature Loss of Primary Teeth

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Received: July 01, 2019; **Published:** July 17, 2019

Abstract

Background: Knowledge, behavior and attitude of parents' towards children's oral health can affect their children's health directly by endorsing health practices or indirectly by motivating the health related attitudes and behaviors of children.

Aim: To evaluate the Parents' knowledge, attitudes and behaviors regarding their children's oral health practices, in addition to their awareness about the importance of maintaining primary teeth and the consequence of their premature loss in Riyadh, Saudi Arabia.

Materials and Methods: A cross-sectional descriptive study was conducted in which 500 self-administered questionnaires were randomly distributed to parents with young children.

Results: Less than one third (27.7%) of children made their first visit at the age of 6 months - 1 year old. Nearly half of the children (46.1%), their 1st visit were for check-up, while 43.9% due to pain. Approximately 65% of children didn't make dental visits regularly. Thirty eight percent of children brushed their teeth 2 - 3 times/day, and 51.2% of parents stated that they help or supervise their children during brushing. Approximately 90% of the sample acknowledged the importance of primary teeth, while about half of them reported that premature loss of primary teeth won't affect permanent teeth. Two third of parents were not familiar with space maintainer indications and functions, the remaining parents who were familiar with space maintainer where parents whose children received the appliance.

Conclusion: Most parents had an overall positive attitude and reasonable knowledge about some aspects of children's oral health, however they need more education towards some areas such as first dental visits, regular visits to the dental office, the consequences of premature loss of primary teeth on child's oral health.

Keywords: Knowledge; Behavior; Attitude; Children's Oral Health; Primary Teeth

Introduction

Children are influenced by their caregiver wither it was negative or positive habits and behaviors, it was found that children who brush their teeth twice daily and had sound dentition was influenced by their mother's positive related health attitude [1] the role of parents is very important and they play the main role in their children's oral health [2], therefore it's essential to assess parent's knowledge and attitude as they are the key person in ensuring the well-being of their children and maintaining good oral health, poor attitude of parents generally reflects as poor oral health in their children [3]. A study conducted by Bozorgmehr, *et al.* [4] revealed that the factor that caused poor oral health status of parents caused poor dental health in their children as well, for example, increased consumption of sweet food had a significant relationship of this behavior with their children, moreover they also showed that the frequency of tooth brushing in

parents is significantly associated with their children tooth brushing frequency. The presence and maintenance of primary teeth for the child is important for several factors like eating, speaking and aesthetic therefore primary teeth plays a vital role on the overall health of a child [5]. The primary dentition is concluded by the age of 3 years and begins to shed by 6 - 7 years of age (ADA Vol. 136). It acts as a guide for the eruption of permanent teeth and stimulates the growth of the jaw, aids in digestion and phonation. Primary dental arches form the basis for the proper development of permanent dental arches. However, premature loss of primary teeth can result in some negative consequences [6]. For example, premature loss of primary molars and canines will result in the lack of space and midline discrepancies in the permanent dentition, earlier or delayed eruption of the successor teeth [7,8]. The impact of premature loss of primary teeth will result in multiple effects during the child's life; craniofacial growth disturbance, habits, impaction of permanent teeth and social problems like low self-esteem [9]. Al Jameel, *et al.* [10], concluded in a cross-sectional study among a sample of mothers living in Saudi Arabia, and revealed relatively moderate to high levels of knowledge on certain aspects of their children's oral health such as watching or helping their children to brush their teeth and taking their children to regular dental check-ups but insufficient knowledge on other aspects related to parents' attitudes such as taking their child to the dentist during his/her first year of age. Lack of parental knowledge about child's first dental visit considered to be one of the complications in monitoring dental diseases in Saudi Arabia [11]. It has been reported the prevalence of premature loss of primary teeth ranging from 8.5% in Venezuela to 16.5% in India to 51% in Saudi Arabia [6].

Materials and Methods

A cross-sectional study was designed and conducted among a sample of parents living in Riyadh city, the capital of Saudi Arabia. A self-administered questionnaire with multiple choices with the ability to choose more than one answer in some questions was conducted. Five Hundred questionnaire was distributed, 27 refusal and 473 were fully answered. The questionnaire form was done in Arabic language. It consisted of three main parts as follow: First part questions were including socio-demographic questions of parents (age, nationality, marital status, educational level, number of children if they have and their age). Second part was parents' behaviors and attitudes about children's oral health care practices (with or not: the child brush and floss and frequency, and wither they were supervised by parents or not, child's first dental visit and its reason, if the child was taken for regular dental check up visit or not and the reasons of not doing so). Finally, the last part was questions concerning parents' knowledge about the importance of maintaining primary teeth and about space maintainers and their functions. The questionnaire was tested before starting the study on a group of parents who did not participate in the main study and appropriate modifications were made.

Statistical analysis

All the information was collected and entered into a computer utilizing FoxPro Program for windows. Statistical Package for social Sciences (SPSS version 20) was utilized for all the statistical computations. Frequency distribution and percentage were used for descriptive analysis. Chi square test at 5% significance level was used to determine the statistical relationship between the variables.

Ethical consideration

The study was registered in the research center and received ethical approval from the institutional review board of Riyadh Elm University under number (RC/IRB/2018/1589).

Results

Socio-demographic Background

Five hundred questioners were distributed in various parts of Riyadh city, the capital of Saudi Arabia, and 473 were returned giving a response rate of 94.6%. The age of parents ranged from 31 - 40 years and most of them were Saudis (87.1%), about 70% of parents were mothers. Approximately 60% of parents had university education and nearly 97% were married.

With regard to the number of children, around 53% of parents have 1 - 3 children and 60% of those children were 8 years or below (Table 1).

Variables	Number	%	
Age of parents	18 - 30	83	17.6
	31 - 40	230	48.8
	> 40	158	33.5
Nationality	Saudi	412	87.1
	Non-Saudi	61	12.9
Educational level	High school or lower	123	26.1
	University degree	285	60
	> University degree	64	13.6
Marital status	Married	454	96.6
	Divorced	16	3.4
No. of children	1 - 3	246	52.8
	4 - 6	170	36.5
	6 - 8	41	8.8
	> 8	9	1.9
Age of children in years	2 - 4	184	39.7
	5 - 8	96	20.7
	9 - 12	75	16.2
	> 12	109	23.5
Relation to the child	Mother	323	69.6
	Father	141	30.4

Table 1: Socio-demographic background of parents (no = 473).

Parents' behaviors regarding children' oral health Practices

Oral hygiene practices

More than half of children (54%) brushed their teeth once a day while (38%) brushed 2 - 3 times/day and only 14.6% of them floss their teeth.

Regarding parents' supervision during child's cleaning of teeth; around half of parents reported that they supervised or helped their children while brushing or flossing as shown in table 2.

Dental attendance

Table 2 also shows that about 28% of parents took their children for their 1st dental visit at the age of 6 months to one year followed by 38% who took them at the age of 2 - 4 years. Nearly 50% of children visited the dental clinic for the 1st time for check-up, whereas (44%) of them was because of pain.

Regarding preventive dental attendance, only 35.6% of the surveyed parents stated that they took their children for routine dental visits every 6 months or one year, while the majority (64.4%) didn't do so.

Questions N	Response	
		%
How many times per day does your child brush his/her teeth	1 time	251 53.7
	2 - 3 times	178 38.1
	Doesn't brush	38 8.1
Does your child floss his/her teeth	Yes	68 14.6
	No	399 85.4
Do you supervise your child while brushing/flossing	Yes	237 51.6
	No	226 48.8
When was the first dental visits for your child	6 months - 1 year	125 27.7
	2 - 4 years	170 37.6
	5 - 8 years	120 26.5
	9 - 12 years	37 8.2
Do you take your child regularly for the dentist for check-up (every 6 months or one year)	Yes	165 35.6
	No	298 64.6
Have your child ever prematurely lost his/her primary teeth because of trauma/ caries/ abscess	Yes	179 38.7
	No	284 61.3
Have your child ever go for emergency visit to the dentist	Yes	160 90.9
	No	16 9.1

Table 2: Percentage of parents' behaviors regarding oral health practices (N = 473).

My child had no pain, was the response for 55% of parents for not doing regular preventive dental visits, while about one quarter of parents stated that they never thought that regular dental visits is necessary for their children as shown in diagram 1.

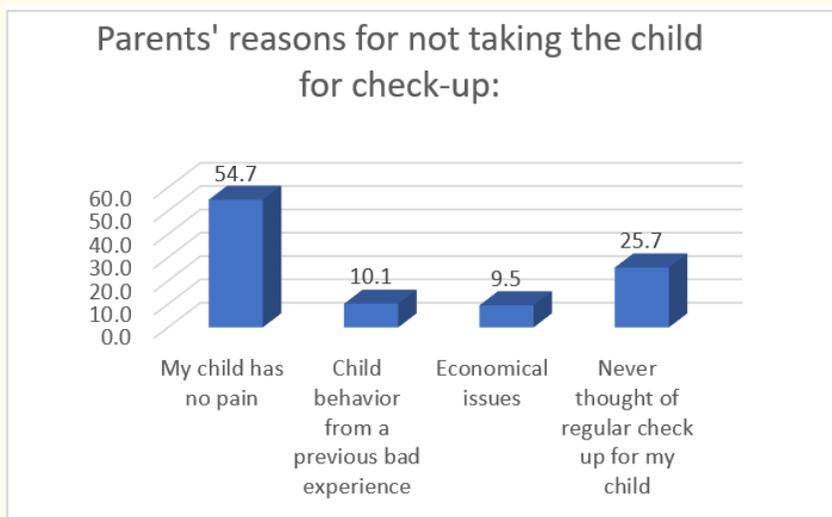


Diagram 1

Regarding the question if the child had experienced premature loss of primary teeth, about 39% of parents answered yes, and about 27% of parents stated that this was a result of dental caries as shown in diagram 2). For those who reported that their children had lost one or more of their primary teeth, about 90% of them indicated that they took their children for emergency treatment.

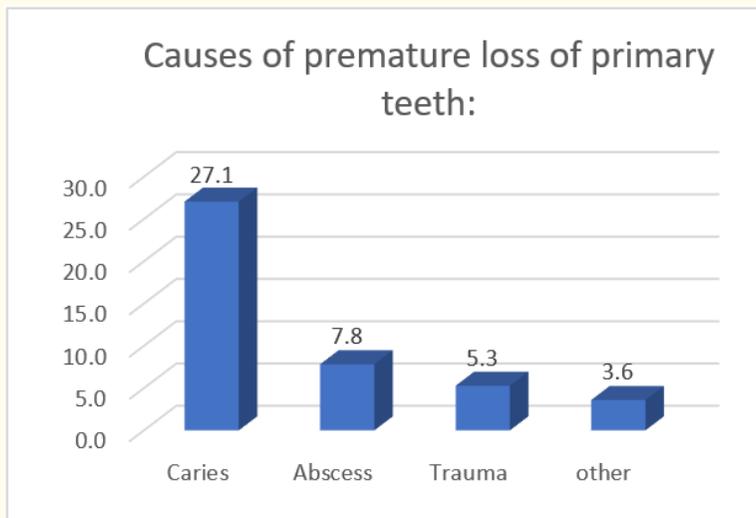


Diagram 2

Parents' knowledge and attitude

Table 3 shows that the majority of parents (90%) considered the importance of maintaining primary teeth, while half of them (51%) believed that premature loss of primary teeth wouldn't affect the permanent teeth.

Regarding the consequences of early loss of primary teeth, about 35% of parents indicated that it will affect eating and socializing followed by crowding of permanent teeth (31.3%) as shown in diagram 3. Nearly 82% of children never received dental appliances and approximately 67% of those who had dental appliances was to maintain space after losing their teeth prematurely, whereas about 73% of parents never heard about dental space maintainer.

Children's oral hygiene practices and parents' educational levels

Table 4 shows the association between children's oral hygiene practices and parents' educational levels (Diagram 3).

No statistically significant differences were found between children of parents with different educational levels with regards to the frequency of brushing or flossing of teeth ($P = 0.724$ and $P = 0.353$, respectively) (Table 4), although a slightly higher percentage of children of parents with a degree above university level were found to brush 2-3 times per day and flossing their teeth compared to other children ($P = 0.724$ and $P = 0.353$, respectively).

A higher percentage of parents with university level were found to supervise their children while brushing or flossing compared to other children although this difference was not statistically significant ($P = 0.562$).

Regarding the 1st dental visit of the child, no statistically significant differences were found between children of parents with different educational levels ($P = 0.412$).

Variables High school or lower N (%)		Parents' educational level			
		University	> University		
		N (%)	N (%)	P-value	
How many times does your child brush his/her teeth?	1 time	60 (49.6)	158 (56.0)	33 (52.4)	0.724
	2-3 times	49 (40.5)	102 (36.2)	26 (41.3)	
	Never brush	12 (9.9)	22 (7.8)	4 (6.3)	
Does your child floss his teeth	Yes	13 (10.7)	44 (15.6)	11 (17.5)	0.353
	No	108 (89.3)	238 (84.4)	52 (82.5)	
Do you supervise your child while brushing or flossing	Yes	59 (48.8)	148 (53.0)	29 (46.8)	0.562
	No	62 (51.2)	131 (47.0)	33 (53.2)	
When was the 1 st dental visit	6m-1year	31 (26.5)	78 (28.5)	15 (25.0)	0.412
	2-4years	41 (35.0)	108 (39.4)	21 (35.0)	
	5-8 years	30 (25.6)	70 (25.5)	20 (33.3)	
	9-12 years	15 (12.8)	18 (6.6)	4 (6.7)	
Do you take your child regularly to the dentist for check up (every 6m-1year)	Yes	40 (33.1)	99 (35.4)	25 (41.0)	0.572
	No	81 (66.9)	181 (64.6)	36 (59.0)	
Do you know what is the space maintainer	Yes	23 (19.0)	81 (28.8)	24 (37.5)	0.02*
	No	98 (81.0)	200 (71.2)	40 (62.5)	

Table 4: Percentage distribution of children's oral hygiene practices and parents educational level.

* Statistically significant.

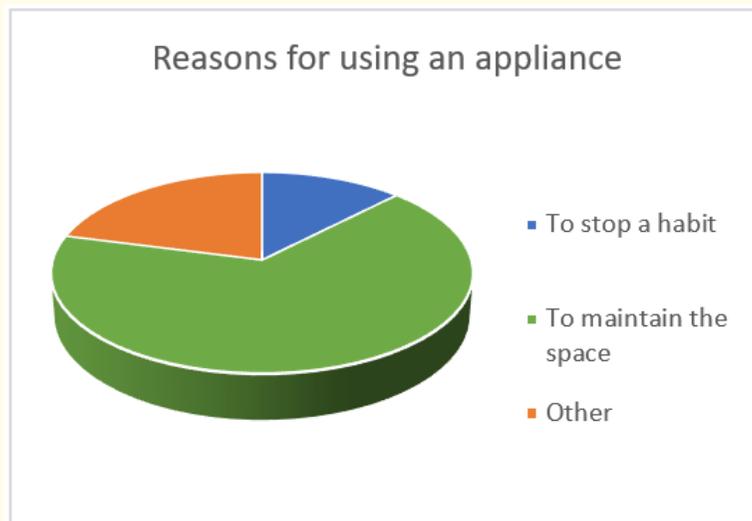


Diagram 2

Similarly, no statistically significant differences among children of parents with regard to regular dental visit (P = 0.572).

Regarding parent’s awareness about space maintainer; higher percentage of parents of higher than university degree were found to know about space maintainer compared to other parents and this difference was found to be statistically significant (P = 0.02).

Children’s oral hygiene practices and parents’ age

Table 5 shows the association between variables regarding children’s oral hygiene practices and parents’ age.

Variables 18-30 N (%)		Parents age group			
		31-40	> 40		
		N (%)	N (%)	P-value	
How many times does your child brush his/her teeth.	1 time	47 (58.8)	129. (56.6)	75 (47.8)	0.004*
	2-3 times	23 (28.8)	77 (33.8)	76 (48.4)	
	Never brush	10 (12.5)	22 (9.6)	6 (3.8)	
Does your child floss his teeth	Yes	9 (11.3)	27 (11.8)	32 (20.4)	0.043*
	No	71 (88.8)	201 (88.2)	125 (79.6)	
Do you supervise your child while brushing or flossing	Yes	46 (57.5)	126 (55.6)	63 (40.6)	0.007*
	No	43 (42.5)	100 (44.2)	92 (59.4)	
When was the 1 st dental visit	6m-1year	23 (31.5)	61 (27.7)	40 (25.5)	0.009*
	2-4years	33 (45.2)	88 (40.0)	48 (30.6)	
	5-8 years	16 (21.9)	57 (25.9)	47 (29)	
	9-12 years	1 (1.4)	14 (6.4)	22 (14.0)	
Do you take your child regularly to the dentist for check up (every 6m-1year)	Yes	27 (34.6)	72 (31.9)	64 (40.8)	0.198
	No	51 (65.4)	154 (68.8)	93 (59.2)	
Do you know what is the space maintainer	Yes	16 (19.5)	62 (27.4)	49 (31.2)	0.156
	No	66 (80.5)	164 (72.6)	108 (68.8)	

Table 5: Percentage distribution of children’s oral hygiene practices and parents’ age and educational level.

* Statistically significant.

Statistically significant difference was found between the children of parents with different age groups with regards to the frequency of brushing and flossing of teeth (P = 0.004 and 0.0043, respectively), as higher percentage of parents with age above than 40 years were found to brush teeth 2 - 3 times/day and floss their children teeth compared to other parents.

With respect to supervising children while brushing; statistically significant difference was found among parents in different age groups (P = 0.007), a higher percentage of parents in age group of 18-30 were found to supervise their children compared to other parents.

Moreover, A higher percentage of parents in age group of 18 - 30 year old were found to make children dental visit at a younger age (6months-1year), and this was found statistically significant (P = 0.007).

Regarding child’s regular dental visits; no statistically significant differences were found between parents with different age groups (P = 0.198), although slightly higher percentage of parents who are above 40 years old were found to take their children to regular dental checkup compared to other parents. Furthermore, no statistically significant differences were found between parents in different age

groups with regards to their knowledge about space maintainer ($P = 0.156$), although higher percentage of parents in age group of > 40 years old were found to be knowledgeable in comparison to other parents age groups.

Discussion

Parents' oral health behaviour can influence their children's oral health behaviour and it's essential to assess parents' knowledge and attitude toward their children's oral health. The results of this cross-sectional study identified some areas of strength and weakness in the knowledge of caregivers. It was encouraging to note that more than half of children brushed their teeth once a day under supervision or help from their parents; yet, unfortunately only four in ten children brushed their teeth twice a day. Tooth-brushing should be performed for preschool children by a parent twice daily [12]. In a study done by Amin MS., *et al.* [13] although most parents were positive about the value of toothbrushing and had intentions to brush their child's teeth regularly, some parents had little belief in their ability to implement this behaviour. The behaviour was unlikely to endure over time, despite good intentions. As It's important to note parents in age group of 18 - 30 were more likely to supervise their children compared to other parents, whereas parents aged more than 40 years were found to brush their children teeth 2 - 3 times/day and floss compared to other parents. Moreover Rajab LD., *et al.* [14] conducted in contrast to the high level of dental knowledge of parents rather poor oral hygiene habits of their children were observed and few parents reported helping their children in toothbrushing. While most of the children in our study didn't use the dental floss, according to Alsubaia AS [15]. 100% of the children in his study didn't use the dental floss, concluding that the use of dental floss may not be widely used especially in children. Though flossing should be initiated when proximal contacts develops, as proximal tooth surfaces cannot be cleaned with a toothbrush.

In order to have good oral health, healthy practices shall be implemented which include preventive measures and regular visits to the dentist [15]. Results concerning parents' behaviour regarding regular dental visits were disappointing. Only three in every ten parents took their children for their first dental visit at the age of 6 months to one year, in a study done by Ebtissam Z Murshid [16]. Most of children visited dental clinics for the first time between the ages of 3 and 5 years. Nonetheless Al-Shalan [17]; Al-Shalan., *et al.* [18] reported that parents in Saudi society believed that dental visitation before the age of 1 year was inappropriate and 45.5% of the parents considered their children to be unable to cooperate with the dentist if seen earlier than 4 years old, with the majority favouring an age range of 3 - 6 years for the first dental visit. Additionally, majority of the parents did not comply with regular dental check-ups every 6 months. Parents' justification was their children experienced no dental emergency or were unaware of the necessity of regular dental check-ups. Other studies conducted in Saudi Arabia have also documented late exposure to dental care, with considerable percentages of parents reporting that they did not see the need for dental visitation if their children were not in pain [17-19]. Unfortunately, making pain or dental emergency as the main reason for dental visit rather than preventing it from the beginning by regular visit, will make the child definitely suffer from dental pain and oral health diseases, oral diseases in children effect their life in school and home, which diminishes their quality in life [20].

The majority of the participants were knowledgeable about the importance of maintaining the primary teeth, but also believe premature loss will not affect the permanent dentition and never understood the importance of space maintainer, given that (38.7%) lost their primary teeth prematurely because of caries, abscess, trauma or other, only (12.2%) of the children received a space maintainer, also [21] revealed that only (12.8%) of the children received a space maintainer in which (27.8%) of the children lost their primary teeth prematurely and (13.7%) of the parents weren't aware wither or not this condition ever happened to their children, parents' knowledge about space maintainer was restricted to parents' whose child was treated by this appliance. Parental support is one of the many factors that will affect the success of the space maintaining treatments [22]. These results demonstrate a clear lack of dental knowledge and unawareness of the significance of primary dentition among parents of the study participants although a significant relationship ($P = 0.02$) was found between parents of higher than university degree and knowledge of space maintainers. It can be interpreted that education of caregivers can increase their awareness about its importance. However, there was not a significant relationship between children of

parents with different educational levels with regards to the frequency of brushing or flossing of teeth under supervision, time of the first dental visit, and compliance to regular dental check-ups.

Results of the study can provide an overview of parental awareness and attitude toward their children's oral health, but generalization of them is limited because of the limited sample size [23-25].

Conclusion

It is fairly concluded that bulk of the parents were unaware about the importance of taking proper measures to maintain child's primary teeth and maintaining the space after teeth loss, dental pain was the most common reason for visiting the dental clinic in some parents indicates that if pain was not a potential factor parents would not even bring their children to the dental office. There is need to reinforce positive attitude among parents and raise their awareness through dental programs such awareness programs should be developed for parents imparting knowledge about primary teeth, their function and preventive primary care of these teeth.

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Volume 18 Issue 8 August 2019

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