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Primary teeth importance and dental care of children among mothers in Saudi Arabia: Knowledge and awareness assessment

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ABSTRACT

Background: Parent's belief and attitude about children's oral health is very crucial to enhance their children's oral health. Mothers can help their children establish dental care habits if they are well acquainted with oral prevention and diseases techniques. The purpose of this study was to measure mothers' knowledge and awareness of primary teeth and their value in the lives of their children. *Methods:* A-cross-sectional study was carried out through self-administered questionnaire which distributed to around 841 mothers in different regions in Saudi Arabia. Information regarding, mother education, children's oral habits and dental preventive measures was obtained. Data was entered using the Office Excel program (2016) for windows. The data was then transferred to the Statistical Package of Social Science Software (SPSS) version 20 program. *Result:* A total of 841 participants who responded for the questionnaire. The mean age of the study participants was 34.29 ± 9.43 years. 40.8 percent of the subjects were employed. 73.7% of the participants were having a university education, 88.8% are having Saudi nationality. Majority (45.9%) were from eastern region. Out of these 841 participants 43 were not considered as they were not having children. So, final sample size considered for the study was 798 (95.9%). *Conclusion:* In the current study, caregivers have favourable partial understanding deciduous teeth and their worth. Through kids' oral programs with active parental engagement, there is a need to nurture and reinforce good attitudes, as well as significantly enhance their dental awareness.

Keywords: Primary Teeth, Oral Prevention, Dental Care, Importance.

1. INTRODUCTION

Oral health is an essential component of children's health and well-being as dental diseases have an impact on children's everyday activities. Additionally, the quality of their life is reduce due to the psychosocial effect of oral diseases (Azimi et al., 2018). As a result of early childhood caries (ECC), children may also suffer from local infections, oral pain that expresses as complication eating and sleeping, growth inhibition, mental disorders, and a higher risk of caries in permanent dentition (Al-Zahrani et al., 2014). Unfortunately, ECC is an abbreviation for early childhood caries is globally problem due to lack of national program of oral health assessment and primary oral health care (Suma Sogi et al., 2016). This carious process starts after deciduous teeth eruption by *S. mutans*, the main bacterial component involved in dental caries (Dutta et al., 2018). The 1999 to 2004 survey data showed that around 23 per cent of children between 2 and 11 years of age suffer from non-treated caries (Horowitz et al., 2015).

A study found that Bengaluru city parents had just a rudimentary understanding of primary teeth, and that there is a need to improve this information (Moses & Arunachalam, 2018). The parents' general knowledge of trauma emergency management was unsatisfactory. Although the majority of people were in favour of seeking expert advice for emergency trauma management, the most of them were uninformed of the actions that they needed to take in order to reduce complications and enhance prognosis (Rahul et al., 2016). In 2012, 620 parents of preschool-aged children ages one to four years old participated in a study to measure their knowledge, attitudes, and beliefs about oral health and dental care for their children. The findings demonstrated that barriers to early preventive dental care for preschool children were produced by a lack of understanding and awareness of primary teeth and their value, parental dental phobia, and dental treatment myths (Manar et al., 2018).

Very few researches conducted in particular areas of Saudi Arabia in recent years. Studies have shown variable results regarding the knowledge and attitude of mothers about their kid's dental care. There are a few numbers of sample sizes regarding all regions of Saudi Arabia. This study is planned to assess mothers' knowledge and awareness about their children's dental care also the importance of primary teeth and dental prevention measures.

2. MATERIALS AND METHODS

A cross-sectional study was carried out from May 2021 to November 2021. To assess; the parent's knowledge, attitude and practice on their respective children oral health.

All children and their mothers at any age, attending primary health care and hospitals dental clinics and was invited to participate in the study. A convenience sample size of 841 women, aged 20-50 years, with a confidence level of 95%, and a 5% margin of error was selected Inclusion criteria will be mothers getting their children at any age (males/females) treated for dental caries or had a past dental history and who are willing to participate in Saudi Arabia was included in the study. Mothers, who were not the primary care takers of their children or outside Saudi Arabia, were excluded from these studies.

The survey instrument was a self-administered anonymous questionnaire in both English and Arabic, containing questions regarding knowledge and awareness of children's primary teeth importance and dental care among mothers. On the computer, data was entered using the Office Excel program (2016) for windows. Then data was exported to the IBM SPSS Statistics for Windows, Version 20.0, of the Statistical Package of Social Science Software (SPSS) IBM Corporation, Armonk, New York to do a statistical analysis of the data.

3. RESULTS AND DISCUSSION

First section: Study Subjects Personal Information

Table 1 shows demographic characteristics of the study population. In total there were 841 participants who responded for the questionnaire. The mean age of the study participants was 34.29 ± 9.43 years. 40.8 percent of the subjects were employed. Figure 1 shows 73.7% of the participants were having a university education, 88.8% are having Saudi nationality. Majority (45.9%) were from eastern region. Out of these 841 participants 43 were not considered as they were not having children. So final sample size considered for the study was 798 (95.9%) (Figure 2).

Table 1 Demographic characteristics of study population

Parameters	N	Mean	Std. Deviation
Age	841	34.2961	9.43255
		Frequency	Percentage
Occupation	Employee	343	40.8
	Unemployed	498	59.2

Education	Primary	13	1.5
	Intermediate	33	3.9
	Secondary	165	19.6
	University	620	73.7
	Uneducated	10	1.2
Nationality	Saudi	747	88.8
	Non-Saudi	94	11.2
Region	Western	268	31.9
	Southern	60	7.1
	Northern	35	4.2
	Eastern	386	45.9
	Central	92	10.9
Do you have children	Yes	798	94.9
	No	43	5.1
How many children you have	One	185	23.2
	Two	229	28.7
	> Two	384	48.1

Second section: statements to evaluate mothers' knowledge about Oral hygiene of children less than 5 years

Table 2 shows mothers' knowledge on various questions related to dental care of the children. 95.5% of the mothers have agreed that primary teeth need tooth brushing out of which 29.9% have started brushing their Childs teeth between 10-12 months followed by 2 years (19.8%). Majority (73.9%) were using small brush with 48.5% brushing once daily followed by 45.1% brushing twice daily. 55.6% of mothers were using fluoride products 22.3% were using dental floss (majority once daily (74.7%)

Table 2 Mothers responses about various questions related to dental care of children.

Questions	Response	Frequency	Percentage
Do you agree about brushing primary teeth?	Agree	762	95.5
	Disagree	36	4.5
If agree, mention the time you started brushing your baby's teeth?	4-5months	85	10.7
	6-7months	120	15.0
	8-9months	99	12.4
	10-12months	239	29.9
	2years old	158	19.8
	3 years old	57	7.1
	4years old	22	2.8
	5years old	18	2.3
What kind of tools do you use to brush primary teeth?	Clean, damp washcloth	89	11.2
	Gauze pad	88	11.0
	Small brush	590	73.9
	Other	31	3.9
How many times do you brush your baby's teeth?	Once	387	48.5
	Twice	360	45.1
	More	51	6.4
Do you help your child with tooth brushing?	Yes	724	90.7
	No	74	9.3
Do you use fluoride products to clean your baby's teeth?	Yes	444	55.6
	No	354	44.4
Do you use dental floss for your child teeth?	Yes	178	22.3
	No	620	77.7

If yes how many times	Once	133	74.7
	Twice	39	21.9
	Thrice	6	3.4

Third section: Dental visits

Table 3 shows table on Childs 84.3% of mothers are of the view that it is important to follow up with Pedodontist. When the question was asked about the last visit to Pedodontist the percentage varies 3.3 to 18.7 and 49.2% have told when needed as the reason to visit Pedodontist with dental problem or pain as the cause (46.1%). Nearly 50% of the mothers told that their child had bad dental experience. Also, nearly 50% of mothers are not aware of preventive procedures or caries preventive agents.

Table 3 Mothers responses about various questions related to dental visits.

Questions	Response	Frequency	Percentage
Is it important to follow up with pedodontics?	Yes	673	84.3
	No	125	15.7
When was the first time you visited Pedodontist with your baby?	4-5months	46	5.8
	6-7months	38	4.8
	8-9months	26	3.3
	12months	149	18.7
	2years old	148	18.5
	3 years old	90	11.3
	4years old	74	9.3
	5years old	81	10.2
	> 5years old	146	18.3
How frequent do you visit Pedodontist?	Once a year	180	22.6
	twice a year	111	13.9
	When needed	393	49.2
	did not visit Below 5 years	114	14.3
What was the reason for visiting Pedodontist	Routine checkup	354	44.4
	Dental problem/pain	368	46.1
	No response	76	9.5
Have you or your child ever had a bad dental experience?	Yes	392	49.1
	No	406	50.9
Do you know anything about? Please select the options you know about, if you don't know please chose "no"	No	396	49.6
	space maintainer	145	18.2
	Prophy	125	15.7
	Fissure sealant	20	2.5
	preventive resin restorations	112	14.0

Forth section: Development of primary teeth and the effect of bad habits

Table 4 shows questions related to eruption of primary teeth and adverse habits affecting development. 56% of respondents have told that they know the age of eruption of primary teeth with 5.36 ± 2.35 as mean age of eruption. 34.6% of mothers told the child uses pacifier. 58.8% of response was received from mothers for not having any adverse habit by the child. 57.6% of mothers have told that they know the effect of bad habits on primary teeth.

Table 4 Mothers responses about various questions related to eruption of primary teeth and adverse habits affecting development

Questions	Response	Frequency	Percentage
Do you know the age of primary teeth	Yes	447	56.0

eruption?	No	351	44.0
What is the age of primary teeth eruption?	Mean	5.36	2.35
Does your child use a pacifier?	Yes	276	34.6
	No	522	65.4
Does your child have any of these habits?	No	469	58.8
	Thumb sucking	116	14.5
	Mouth Breathing	86	10.8
	Other	33	4.1
	Grind teeth	94	11.8
Do you know the effect of bad habits in primary teeth development?	Yes	460	57.6
	No	338	42.4

Fifth section: Diet

Table 5 shows questions related to diet of child. 48.2% of children were fed on bottle 75.2% of mother's responded that their child was not allowed to carry a bottle or cup during the day containing something other than plain water. 53.5% of mothers said that their child eats 3 meals a day and 49.6% of mother told their child have two snacks a day.

Table 5 Mothers responses about various questions related of child

Questions	Response	Frequency	Percentage
Do you put your child in bed with a bottle?	Yes	385	48.2
	No	413	51.8
Is your child allowed to carry a bottle or cup during the day containing something other than plain water?	Yes	198	24.8
	No	600	75.2
How many meals per day does your child eat?	2 meals	121	15.2
	< 2 meals	46	5.8
	3 Meals	427	53.5
	> 3 meals	204	25.6
How many snacks does your child eat?	Once	151	18.9
	Two	396	49.6
	Three	139	17.4
	> three	75	9.4
	No snacks	37	4.6

The following responses to questions were found statistically significant when compared according to employment status of mothers (table 6). The time when they started brushing their teeth, use of dental floss number of times they use dental floss, follow up with Pedodontist, reason for visiting Pedodontist, knowledge about preventive procedures and fluorides, use of pacifiers and child allowing to carry bottle or cup during the day containing something other than plain water. When compared according to educational status the knowledge level varied significantly and most of the questions were found to be statistically significant as shown in table 7.

Table 6 Comparison of mother's knowledge to various questions according to occupation

Questions	χ^2	p value	Significance
Do you agree about brushing primary teeth?	2.123	0.166	NS
If agree, mention the time you started brushing your baby's teeth?	15.30	0.032	S

What kind of tools do you use to brush primary teeth?	6.86	0.076	NS
How many times do you brush your baby's teeth?	5.48	0.065	NS
Do you help your child with tooth brushing?	0.411	0.537	NS
Do you use fluoride products to clean your baby's teeth?	2.31	0.129	NS
Do you use dental floss for your child teeth?	10.59	0.001	S
If yes how many times	11.39	0.010	S
Is it important to follow up with pedodontics?	5.073	0.029	S
When was the first time you visited Pedodontist with your baby?	18.01	0.021	S
How frequent do you visit Pedodontist?	24.66	< 0.001	HS
What was the reason for visiting Pedodontist	7.33	0.007	S
Have you or your child ever had a bad dental experience?	3.04	0.085	NS
Do you know anything about? Please select the options you know about, if you don't know please chose "no"	14.87	0.005	S
Do you know the age of primary teeth eruption?	0.470	0.515	NS
What is the age of primary teeth eruption?	8.46	0.67	NS
Does your child use a pacifier?	5.53	0.019	S
Does your child have any of these habits?	6.87	0.143	NS
Do you know the effect of bad habits in primary teeth development?	1.33	0.275	NS
Do you put your child in bed with a bottle?	3.92	0.052	NS
Is your child allowed to carry a bottle or cup during the day containing something other than plain water?	6.76	0.010	S
How many meals per day does your child eat?	6.40	0.09	NS
How many snacks does your child eat?	1.79	0.773	NS

Table 7 Comparison of mother's knowledge to various questions according to educational level

Questions	χ^2	p value	Significance
Do you agree about brushing primary teeth?	23.04	< 0.001	HS
If agree, mention the time you started brushing your baby's teeth?	76.91	< 0.001	HS
What kind of tools do you use to brush primary teeth?	54.73	< 0.001	HS
How many times do you brush your baby's teeth?	11.94	0.154	NS
Do you help your child with tooth brushing?	41.83	< 0.001	HS
Do you use fluoride products to clean your baby's teeth?	5.61	0.23	NS
Do you use dental floss for your child teeth?	30.25	< 0.001	HS
If yes how many times	52.31	< 0.001	HS
Is it important to follow up with pedodontics?	10.81	0.029	S
When was the first time you visited Pedodontist with your baby?	92.13	< 0.001	HS
How frequent do you visit Pedodontist?	17.62	0.128	NS
What was the reason for visiting Pedodontist	5.82	0.212	NS
Have you or your child ever had a bad dental experience?	14.37	0.06	S
Do you know anything about? Please select the options you know about, if you don't know please chose "no"	55.58	< 0.001	HS
Do you know the age of primary teeth eruption?	32.12	< 0.001	HS

What is the age of primary teeth eruption?	44.47	0.088	NS
Does your child use a pacifier?	9.03	0.060	NS
Does your child have any of these habits?	30.57	0.015	S
Do you know the effect of bad habits in primary teeth development?	18.15	0.001	S
Do you put your child in bed with a bottle?	6.35	0.174	NS
Is your child allowed to carry a bottle or cup during the day containing something other than plain water?	10.57	0.032	S
How many meals per day does your child eat?	19.36	0.080	NS
How many snacks does your child eat?	43.42	< 0.001	HS

Table 8 & figure 1 and 2 shows comparison according to region status the knowledge level varied significantly almost all the questions were found to be statistically significant ($p<0.05$) except tools used to brush the teeth, use of fluoride products to clean the teeth, having a childs bad dental experience and child allowing to carry bottle or cup during the day containing something other than plain water.

Table 8 Comparison of mother's knowledge to various questions according to region

Questions	χ^2	p value	Significance
Do you agree about brushing primary teeth?	34.41	< 0.001	HS
If agree, mention the time you started brushing your baby's teeth?	61.61	< 0.001	HS
What kind of tools do you use to brush primary teeth?	17.18	0.143	NS
How many times do you brush your baby's teeth?	21.92	0.005	S
Do you help your child with tooth brushing?	22.70	< 0.001	HS
Do you use fluoride products to clean your baby's teeth?	1.43	0.838	NS
Do you use dental floss for your child teeth?	13.59	0.009	S
If yes how many times	86.60	< 0.001	HS
Is it important to follow up with pedodontics?	38.58	< 0.001	HS
When was the first time you visited Pedodontist with your baby?	93.87	< 0.001	HS
How frequent do you visit Pedodontist?	28.94	004	S
What was the reason for visiting Pedodontist	42.86	< 0.001	HS
Have you or your child ever had a bad dental experience?	2.344	0.673	NS
Do you know anything about? Please select the options you know about, if you don't know please chose "no"	36.73	0.002	S
Do you know the age of primary teeth eruption?	14.54	0.006	S
What is the age of primary teeth eruption?	81.04	001	S
Does your child use a pacifier?	13.32	0.010	S
Does your child have any of these habits?	45.81	< 0.001	HS
Do you know the effect of bad habits in primary teeth development?	15.64	0.004	S
Do you put your child in bed with a bottle?	14.07	0.007	S
Is your child allowed to carry a bottle or cup during the day containing something other than plain water?	4.98	0.289	NS
How many meals per day does your child eat?	35.79	< 0.001	HS
How many snacks does your child eat?	31.39	0.012	S

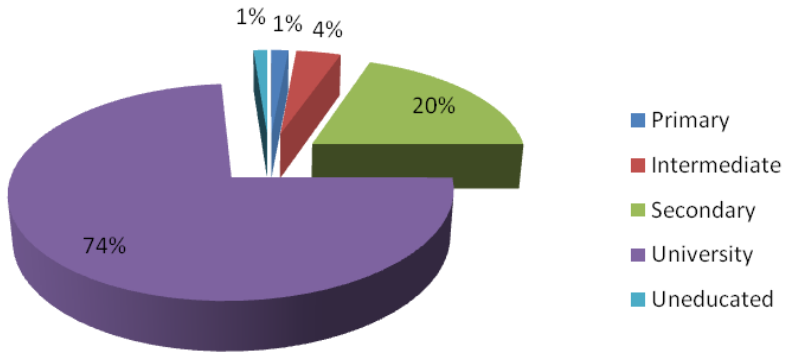

Figure 1 Educational status of study participants

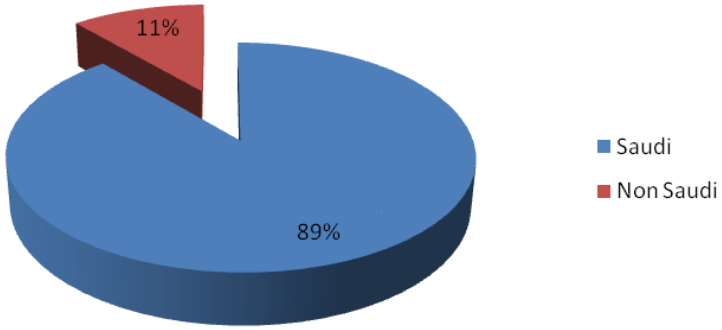

Figure 2 Nationality of study participants

4. DISCUSSION

Children's oral health is related to their mothers'/guardians' oral health knowledge, even though oral health related patterns (including those related to oral hygiene and nutrition) are established during infancy and sustained throughout early childhood (Wendt et al., 1996; Almotawah et al., 2021). Parents, especially mothers, function as in order to serve as positive examples for their kids. This research adds significant new evidence to the knowledge base about mothers' attitudes toward oral primary dentition and preventive dental measures. The questionnaires specifically target mothers' knowledge of Oral hygiene of children under 5 years, dental visits, eruption of primary teeth and adverse habits affecting development and questions related of child diet.

Oral hygiene practices

Knowledge regarding the oral hygiene practice which includes brushing, when did they start brushing child teeth, tools used to brush teeth, number of times they brush the teeth, use of fluoride products for brushing, use of dental floss were asked in this section. 95.5% of mother agreed about brushing primary teeth. Similar result was found in an Australian study (Gussy et al., 2008). According to a study conducted by Gussy et al., (2008) 95 percent of parents in rural Australia believed that they should begin brushing when the first tooth erupts. The majority of our research study participants (29.9%) reported that they started brushing at 10-12 months of age. In the present study 73.9% uses a small toothbrush to clean teeth similar to 85% of an Indian study by Gurunathan et al., (2018) where they reported 85% of mothers agree to brush their child teeth. Hence, the mothers do understand the advantage for brushing. Pullishery et al., (2013) reported majority of mothers agreed brushing of children needed to be supervised till 5 years in their study; similar trend was seen in our study (90.7). 55.6% of mothers in the current study use fluoride products to clean their Childs teeth. Slightly lower percentage was reported by Sehrawat et al., (2016) where 43% could identify the importance of adding fluoride to toothpaste.

In the present study, we included mother’s education, occupation and region as factors for comparing their knowledge. Previous studies showed these factors (Shaghaghian et al., 2017; 2019). Our research found that a substantial education level can have a negative impact on parents' understanding and awareness of their children's oral health. There was a significant relationship between parental education levels and geographic area in the current study. As a result, parental education may significantly impact their children's oral health. Our findings are consistent with those of other studies in the literature (Shaghaghian et al., 2017).

Second section

Dental visits

In the present study, 19.7% of mothers first visited a Pedodontist at the age of 12 months with 46.1% reporting pain as the reason for dental visit. Nearly 50% of respondents told they visit Pedodontist when needed only and on routinely. The American Academy of Paediatric Dentistry recommends that all infants have a dental home by 12 months (Chen et al., 2021). It also asserts regular visits to the dentist after the initial consultation, but due to the unavailability of primary care in developing nations, it was discovered that parents do not follow these suggestions. According to research, parents in underdeveloped nations do not follow these instructions, and one explanation for this might be a lack of priority placed on the primary school (Lahti et al., 1999) socioeconomic, (Paunio, 1994) and educational status, (Källestål & Wall, 2002) besides cultural beliefs.

Third section

Eruption of primary teeth and adverse habits affecting development

Knowledge on eruption sequence of deciduous and permanent teeth helps to prevent future malocclusion in the child. In this study 56% of mothers told they know the age of eruption of primary teeth. Preventive measures can help in reducing the incidence of malocclusion in children. Especially the adverse habits such as mouth breathing, tongue thirsting, thumb sucking etc. From the start, these behaviours must be detected and corrected (Freeman, 1977).

Parents want their babies to be happy. Giving a pacifier to a wailing infant is one approach to calm him or her down. Pacifiers can be a terrific way to keep a new born happy, but they can also be harmful to your child's health. Overuse of a pacifier might lead to poor tooth growth in a new born. In the current study 34.6% have told they use pacifiers. Pacifiers offer advantages, yet they can be harmful to a child's dental health. Sucking on a pacifier or a child's thumb can have an influence on the right growth patterns of the child's mouth and new born teeth. A pacifier can also interfere with the healthy development of the roof of the mouth. These problems are especially frequent in toddlers who use a pacifier (Savage et al., 2007). The availability and accessibility of nutritious food are characteristics related with good eating patterns at home (Cullen et al., 2003). Parents may encourage children to consume fruits and vegetables by offering them at meals and eating them themselves. Parents, on the other hand, might encourage the habitual use of inexpensive, highly delicious, energy-dense meals, such as sweetened beverages and snacks, which can contribute to caries, overeating, and weight gain. To counteract these trends, parents want assistance on food selection and the cost-to-nutrient ratio (Savage et al., 2007). Planned meal and snacking behaviours, with one to three daily snacks, are preferred over unlimited access to 100% juice, other sugared beverages and snacks over the course of the day. Such behaviours favour the intake of nutrient-poor foods and increase the risk of obesity and dental caries (Marshall et al., 2005).

5. CONCLUSION

Care givers in the present study have positive partial knowledge on primary teeth and importance. There is a need to create and maintain good attitudes among children, as well as significantly increase their dental knowledge, through child oral health-oriented programs with active parental participation. Such awareness programmes should be developed for parents imparting knowledge about primary teeth, their functions and preventive primary care of these teeth. It should be a multidisciplinary approach where medical professionals, gynecologists, pediatricians should join hands.

Informed Consent

Informed consent was obtained from all participants included in the study.

Ethical approval

Ethical approval was obtained from Research Ethics Committee at Ibn Sina National College with IRB number (IRRB-01-15102021).

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Conflict of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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