

Assessment of Children's Oral Health-Related Knowledge and Self-Efficacy in Expectant Mothers of Najran, Saudi Arabia

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ABSTRACT

Objective: To assess the knowledge of pregnant women regarding their child's oral health. **Material and Methods:** A questionnaire was developed and the 1st section comprised sociodemographic variables. The second section contained questions about the eruption of teeth, fluoride importance, cariogenic food, and dental visits. The questionnaire was shared electronically via a link to the receptionist of the gynaecologist at different health centres of Najran to be filled by expectant mothers. The convenient sampling method was used to collect the responses. Data were presented using descriptive statistics. **Results:** A total of 572 pregnant women participated in this survey. Three hundred and fifteen (55.1%) knew that 1st primary tooth erupts at the age of 6 months. The majority of the respondents (n=332) agreed that toothbrushes and toothpaste could be used to clean a child's teeth; only 5.4%, 10%, and 24.5% preferred miswak, mouthwash, and toothbrush, respectively. Participants were well familiar with cariogenic food and occasionally allowed their children to take it. They have enough knowledge about fluoride toothpaste, but they were not familiar with the benefits of fluoride varnish. Almost 50% of the respondents agreed that the child should visit the dentist within six months, and 27.4% said they should visit the dentist whenever there is a problem. **Conclusion:** Almost 50% of participants showed a positive attitude towards most questions. However, there is a need to improve their behaviour and knowledge about many aspects of dental care.

Keywords: Pregnant Women; Pediatric Dentistry; Dental Care; Oral Health.

Introduction

The essential component of general health is good oral health which plays an important role in the life of a child. Among pertinent oral health problems, dental caries is one that is universally present and commonly affects children. In most developing countries, there are abrupt lifestyle changes; specifically, dietary habits lead to a rise in the levels of dental caries. Various middle east countries also demonstrated a high prevalence of dental caries [1,2]. Early childhood caries (ECC) is a very common disease that continuously affects children around the globe, but children in developing countries are particularly vulnerable [3]. ECC is defined as the presence of missing (due to caries), decayed (cavitated or non-cavitated lesions), or filled tooth surfaces in any primary tooth of children under the age of 6 years [4]. It has a devastating effect on esthetic, general health, development, self-esteem, and speech, thus affecting children's oral health-related quality of life [5].

On-demand day-time bottle feeding for a prolonged duration, nocturnal bottle-feeding or breastfeeding, consumption of dried fruit and fruit juices between meals after the age of 12 months have all been linked to ECC [6]. In addition, it has been proved that unrestricted and prolonged milk feeding impacts the development and progression of caries [7]. Though frequent intake of beverages and sugary foods, improper health services, and poor hygiene are important factors for dental caries, one cannot deny the role of parents' behavior and knowledge regarding children's oral health [8].

It is a great task for mothers to care about their children's health as they spend most of the time with them, so they acquire healthy behavior and diet from them [1]. Besides that, maternal genetic and environmental factors also influence children's oral health. Therefore, parents' behavior, knowledge, and perception regarding oral health are important for the prevention of children's dental diseases [9]. Unfortunately, it has been reported that the behavior and knowledge of Indonesian mothers towards care of oral health are still low. Only one-third of them were aware of pregnancy and oral health relationships [10]. Evidence of research also suggested that many women during pregnancy do not receive or seek any dental care regarding education and prevention [11]. It has been concluded by Adeniyi et al. that women of British Columbia supported the view that education about oral care should be included in parental visits. However, due to financial problems, only a few women visit their dentists during pregnancy [12]. There is a correlation between a mother's socioeconomic status and education and ECC prevalence [13]. So it is understandable that infants' oral health is greatly dependent on mothers' ability and motivation required for oral care [14]. Parents' support and involvement are necessary for young children to maintain good oral health [15]. Currently, pediatric dentistry is focused largely on the health of children and pregnant women. Nevertheless, to promote child oral health, the early insertion of those responsible for orientation programs regarding healthy eating and hygiene habits is crucial to prevent oral diseases [16].

The incidence of ECC can be reduced by targeting expectant mothers [17]. Although there are many reports addressing the oral health-related knowledge of the mother/ parents of preschool children [18,19] very few have studied the knowledge of expectant women. The purpose of this survey is to assess the knowledge and behavior of pregnant women towards the oral health of their children.

Material and Methods

Study Design and Ethical Clearance

This cross-sectional study was approved by the Scientific Research Ethical Committee of Najran University (Reference No. 442-40-38372-DS). The main purpose of the survey was explained to the participants, and their consent was taken.

Data Collection

A questionnaire was developed based on a review of literature, professional experiences and previous studies [1,2,13]. 1st section of the questionnaire was comprised of demographic details of respondents, e.g., age, nationality, education level and the number of children they have. 2nd section contained questions about the eruption of teeth, fluoride importance, cariogenic food and dental visits. The questionnaire was shared electronically via a link to the receptionist of the gynaecologist at different health centres of Najran to be filled by expectant mothers. The convenient sampling method was used to collect the responses.

Data Analysis

Data were presented using descriptive statistics. Analyzes were performed with IBM SPSS Statistics software version 20.0 (IBM Corp., Armonk, NY, USA).

Results

Among 572 participants, 532 were Saudi nationals, and others were none Saudi nationals. Seventy-nine were non-educated, and 41 were postgraduate. In addition, 3.8% had no child before and 21.9% had for or more than four children (Table 1).

Table 1. Distribution of respondents according to age, nationality, education and number of children.

Variables	Categories	N	%
Age (Years)	≤ 25	115	20.1
	26-30	187	32.7
	31-35	125	21.9
	36-40	69	12.1
	≥41	76	13.3
Nationality	Saudi	542	94.8
	Non-Saudi	30	5.2
Education Level	Non-Educated	79	13.8
	Primary Education	226	39.5
	Graduate	226	39.5
	Postgraduate	41	7.2
Number of Children	No Child	22	3.8
	1 Child	106	18.5
	2 Child	175	30.6
	3 Child	144	25.2
	≥4 Child	125	21.9

Three hundred and fifteen (55.1%) participants out of 572 knew that 1st primary tooth erupts at the age of 6 months, and 121 (21.2%) were aware that permanent tooth erupts after the age of 6 years. Only 7.2% said that teeth cleaning should start after birth, while 36.4% said it should start at 6 years (Table 2). The majority of the respondents (n=332) agreed that toothbrushes and toothpaste could be used to clean a child's teeth; only 5.4%, 10%, and 24.5% preferred miswak, mouthwash, and toothbrush, respectively. Two hundred fifty-one participants knew that teeth should be cleaned twice a day, and 135 said that teeth should be cleaned after every meal (Table 2).

Table 2. Knowledge about first tooth eruption and cleaning of teeth.

Questions	Categories	N	%
Primary Tooth Erupts	At the age of 6 months	315	55.1
	At the age of 1-year	201	35.1

Permanent Tooth Erupts	After the age of 1-year	56	9.8
	At the age of 1-year	121	21.2
	At the age of 6 years	251	43.9
Age to Start Cleaning the Mouth	After the age of 6 years	200	35.0
	After birth	41	7.2
	At the age of 1 year	189	33.0
Child's Teeth can be Cleaned by Using	At the age of 6 years	208	36.4
	After the age of 6 years	134	23.4
	Toothbrush	140	24.5
	Toothbrush and toothpaste	332	58.0
Frequency to Clean the Teeth of Child	Mouthwash	57	10.0
	Miswak	31	5.4
	Others	12	2.1
	Once a day	186	32.5
	Twice a day	251	43.9
	After each meal	135	23.6

Only 39.2% of the participants were aware of the importance of fluoride for teeth, and 39.5% were not sure. A total of 36.5% of the respondents did not know the amount of fluoride in toothpaste and 184 women had knowledge about fluoride amount (Table 3).

Table 3. Knowledge about fluoride for teeth.

Questions		N	%
Knowledge About Importance of Fluoride for Teeth	Yes	224	39.2
	No	122	21.3
	May be	226	39.5
Knowledge About Amount of Fluoride in the Toothpaste	Yes	184	32.2
	No	209	36.5
	May be	179	31.3

Many participants (90%) considered chocolates as cariogenic. However, most participants did not consider bread, fruits, and vegetables as cariogenic food items (Table 4). A total of 47.6% said that they allow their kids to take cariogenic food items occasionally, 19.1% said frequently, while 33.4% allow rarely. From the response about cariogenic food, it has been observed that graduated mothers had more knowledge than others (Table 4).

Table 4. Relationship between knowledge about cariogenic food for teeth and education level.

Cariogenic Food		Education Level				Total	p-value
		Non-Educated	Primary Education	Graduate	Postgraduate		
		N (%)	N (%)	N (%)	N (%)	N (%)	
Chocolates	No	19 (3.3)	16 (2.8)	17 (3.0)	5 (0.9)	57 (10.0)	0.000*
	Yes	60 (10.5)	210 (36.7)	209 (36.5)	36 (6.3)	515 (90.0)	
Biscuits	No	35 (6.1)	91 (15.9)	92 (16.1)	25 (4.4)	243 (42.5)	0.086
	Yes	44 (7.7)	135 (23.6)	134 (23.4)	16 (2.8)	329 (57.5)	
Chips	No	33 (5.8)	114 (19.9)	122 (21.3)	22 (3.8)	291 (50.9)	0.304
	Yes	46 (8.0)	112 (19.6)	104 (18.2)	19 (3.3)	281 (49.1)	
Breads	No	47 (8.2)	163 (28.5)	173 (30.2)	36 (6.3)	419 (73.3)	0.004*
	Yes	32 (5.6)	63 (11.0)	53 (9.3)	5 (0.9)	153 (26.7)	
Fruits	No	73 (12.8)	211 (36.9)	220 (38.5)	41 (7.2)	545 (95.3)	0.058
	Yes	6 (1.0)	15 (2.6)	6 (1.0)	0 (0.0)	27 (4.7)	
Vegetables	No	76 (13.3)	222 (38.8)	224 (39.2)	41 (7.2)	563 (98.4)	0.269
	Yes	3 (0.5)	4 (0.7)	2 (0.3)	0 (0.0)	9 (1.6)	

*Statistically Significant.

Fluoride toothpaste and sugar-free diet were chosen by 74.5% and 43.2% participants respectively as aids for preventing tooth decay, while 84.6% did not consider dental floss in it (Table 5). Fluoride toothpaste was considered by most educated mothers as an aid for prevention. However, dental floss and fluoride varnish knowledge were very low even in educated participants (Table 5).

Table 5. Relationship between knowledge about aids for prevention of tooth decay and education level.

Method		Education Level				Total N (%)	p-value
		Non-Educated N (%)	Primary Education N (%)	Graduate N (%)	Postgraduate N (%)		
Fluoridated Toothpaste	No	24 (4.2)	53 (9.3)	56 (9.8)	13 (2.3)	146 (25.5)	0.497
	Yes	55 (9.6)	173 (30.2)	170 (29.7)	28 (4.9)	426 (74.5)	
Fluoride Supplement	No	43 (7.5)	153 (26.7)	193 (33.7)	34 (5.9)	423 (74.0)	0.000*
	Yes	36 (6.3)	73 (12.8)	33 (5.8)	7 (1.2)	149 (26.0)	
Fluoride Varnish	No	59 (10.3)	180 (31.5)	191 (33.4)	35 (6.1)	465 (81.3)	0.198
	Yes	20 (3.5)	46 (8.0)	35 (6.1)	6 (1.0)	107 (18.7)	
Sugar-Free Diet	No	45 (7.9)	131 (22.9)	124 (21.7)	25 (4.4)	325 (56.8)	0.859
	Yes	34 (5.9)	95 (16.6)	102 (17.8)	16 (2.8)	247 (43.2)	
Sugar-Free Chewing Gums	No	62 (10.8)	186 (32.5)	186 (32.5)	39 (6.8)	473 (82.7)	0.141
	Yes	17 (3.0)	40 (7.0)	40 (7.0)	2 (0.3)	99 (17.3)	
Dental Floss	No	72 (12.6)	192 (33.6)	183 (32.0)	37 (6.5)	484 (84.6)	0.116
	Yes	7 (1.2)	34 (5.9)	43 (7.5)	4 (0.7)	88 (15.4)	

*Statistically Significant.

Almost 50% of the respondents agreed that the child should visit the dentist within six months, and 27.4% said they should visit the dentist whenever there is a problem. In addition, 43.4% of participants visited the dentist last time before 1-6 months, and 127 visited more than a year ago. Treatment was the reason for visiting the dentist for 40.9% of the participants and 31.8% visited for a routine check-up (Table 6).

Table 6. Distribution of respondents regarding knowledge about dental visit.

Questions	Responses	N	%
Frequency of child's visit to the dentist should be	Within 6 months	287	50.2
	Within a year	128	22.4
	Whenever there is dental problems	157	27.4
Visit to the dentist last time	Before 1-6 months	248	43.4
	Before a year	197	34.4
	More than a year	127	22.2
The reason for your last dental visit	Follow up	156	27.3
	Routine check-up	182	31.8
	Treatment	234	40.9

Educated participants were more aware of teeth eruption. There is a significant relationship between knowledge of permanent tooth eruption and education level. The relationship of education with knowledge of fluoride importance and teeth cleaning is significant (Table 7).

Table 7. Relationship between knowledge about tooth eruption and education level and fluoride.

Questions	Education Level				Total N (%)	p-value
	Non-Educated N (%)	Primary Education N (%)	Graduate N (%)	Postgraduate N (%)		
Age for Primary Tooth Eruption						
At the age of 6 months	52 (9.1)	123 (21.5)	119 (20.8)	21 (3.7)	315 (55.1)	0.025*
At the age of 1-year	17 (3.)	82 (14.3)	86 (15.0)	16 (2.8)	201 (35.1)	

After the age of 1-year	10 (1.7)	21 (3.7)	21 (3.7)	4 (0.7)	56 (9.8)	
Age for Permanent Tooth Eruption						
At the age of 6 months	32 (5.6)	51 (8.9)	32 (5.6)	6 (1.0)	121 (21.2)	0.000*
At the age of 1-year	30 (5.2)	106 (18.5)	100 (17.5)	15 (2.6)	251 (43.9)	
After the age of 1-year	17 (3.0)	69 (12.1)	94 (16.4)	20 (3.5)	200 (35.0)	
Knowledge About Importance of Fluoride for Teeth						
Yes	16 (2.8)	83 (14.5)	105 (18.4)	20 (3.5)	224 (39.2)	0.000*
No	33 (5.8)	54 (9.4)	28 (4.9)	7 (1.2)	122 (21.3)	
May be	30 (5.2)	89 (15.6)	93 (16.3)	14 (2.4)	226 (39.5)	
Knowledge About the Amount of Fluoride in the Toothpaste						
Yes	24 (4.2)	60 (10.5)	82 (14.3)	18 (3.1)	184 (32.2)	0.120
No	25 (4.4)	93 (16.3)	80 (14.4)	11 (1.9)	209 (36.5)	
May be	30 (5.2)	73 (12.8)	64 (11.2)	12 (2.1)	179 (31.3)	

*Statistically Significant.

Discussion

Mothers' good behavior towards children's oral health plays an important role; therefore, if they have a positive attitude and proper knowledge of oral habits, their children's oral health would be better [20]. In the present study, 55.1% of participants said that 1st primary tooth erupts at six months. A similar response was found in another survey where 52.5% of respondents informed that primary tooth erupts after 6 months and 44.3% said it erupts after one year [21]. As soon as the primary tooth erupts, tooth brushing needs to start under the supervision of parents and by using fluoride toothpaste. 36.4% of women in the current study agreed that teeth cleaning should start at the age of 6 years, while Nagarajappa et al. [22] reported that many participants (70%) said that cleaning should start after the eruption of all teeth. In this survey, 39.2% of participants were aware of the importance of fluoride for teeth and 32.2% knew about the amount of fluoride in toothpaste.





The majority of mothers in the survey were aware that chocolates, biscuits and chips are cariogenic food items. Similar findings were reported in another study where most participants knew that fizzy drinks, chocolates, biscuits and fruits drinks are cariogenic [23]. Due to awareness of cariogenic food, 47.6% of mothers occasionally allow their children to take these items. In the present study, 74.5% agreed that fluoride toothpaste aid in preventing dental decay, but many respondents (81.3%) did not know fluoride varnish in the prevention of dental decay. Similar results were found where most mothers were not aware of the benefits of fluoride varnish [23,24]. Furthermore, only 30.8% said that they visit for a routine check-up. This number is very less from the study of Dagon et al. [25] in which (70.5%) participants stated that they regularly visit a dentist.

Conclusion

Almost 50% of women were well aware of the tooth eruption, toothbrushes and toothpaste for cleaning teeth, fluoride importance, dental visit, and prevention of tooth decay methods. It has also been concluded that educated women had more knowledge. There is a need to address pregnant women about the importance and benefits of applying fluoride varnish. Knowledge about the timing of tooth brushing and dentist visits also needs to improve.

Authors' Contributions

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All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.

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None.

Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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