

Knowledge, behaviours and beliefs of parents regarding the oral health of their children



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Abstract

Aim The purpose of this study was to assess the Saudi parent's knowledge, behaviours, and beliefs regarding the oral health of their children.

Materials and methods Parents answered a questionnaire, which included questions about parental knowledge, behaviours, and beliefs regarding dental caries development, baby bottle use, and how to care for children's oral health as well as the reasons for their children's first visit to the dentist and other questions.

Results There was a statistically significant difference in the mean scores of knowledge of participants, across all age groups. Age, number of children, and education level were statistically significantly related to the mean scores of behaviours. Beliefs scores of participants indicated statistically significant difference in relation to the education level, monthly family income, and use of smart phone.

Conclusion There is discrepancy between parental knowledge, behaviours, and beliefs regarding oral health of their children and there is association of these variables with their sociodemographic status.

KEYWORDS Attitudes; Beliefs; Child; Oral health knowledge; Parents.

Introduction

It is essential to recognise the way for better oral health and to determine key barriers to preventive strategies [Ramos-Gomez et al., 2005]. Behavioural and social characteristic such as health beliefs, cultural attitudes and values, health literacy, health knowledge, acculturation, community characteristics and generational facts are important because they are often used to characterise the strategies of the population studied [Ramos-Gomez et al., 2005]. One important aspect of oral health care for children is dental caries. A study in preschool children in England, Wales and Northern Ireland reported that 40% of 5-year-olds had obvious caries experience increasing to 56% when enamel lesions were included [Vernazza et al., 2016]. In addition,

there remain a substantial minority with a significant burden of caries, associated with economic deprivation and these represent significant public and clinical health challenges [Vernazza et al., 2016]. Another study in a group of American Indian children at age 36 months reported caries prevalence for cavitated lesions as high as 80%, with an additional 15% having only noncavitated lesions [Warren et al., 2016]. An earlier study completed in Saudi Arabia has shown a high prevalence of caries in preschool children [Al-Malik, Holt, & Bedi, 2003]. A more recent systematic review reported the national prevalence of dental caries in the children of Saudi Arabia as approximately 80% with a mean dmft score of 5.0 for the primary dentition [Al Agili, 2013]. The World Health Organization (WHO) 2000 objectives are still unmet for primary dentition [World Health Organization, 2018].

It is natural for children to depend on their guardians for nutrition, education, and health. Several studies reported that children's oral health status and outcome is affected by parents' habits and knowledge about oral health [World Health Organization, 2018; Adair et al., 2004; Mattila et al., 2005; Suresh et al., 2010]. The caregivers' awareness of their children oral health may be evaluated during early preventive dental visits to the dentist to prevent future dental treatment and reduce costs for interventions [Ramos-Gomez et al., 2005; Savagem et al., 2004]. Early dental visits help in the establishment of "dental home", which in turn offers a prospect for parent education [Savagem et al., 2004]. The American Academy of Pediatric Dentistry (AAPD) and the Australian Dental Association (ADA) recommend the first dental visit for children at 12 months [American Academy of Pediatric Dentistry, 2016; Hoefl, Barker, & Masterson, 2011; The Australian Dental Association, 2018]. Some studies showed that 34% of Saudi parents believed that the first dental visit should be done at 3 years old and 42% believed it should be done at 6 years of age [Al-Shalan, 2003]. Comparison of children with favourable oral habits to those with poor oral habits shows less dental caries development [Mattila et al., 2005]. Parents often carry some faulty beliefs such as that primary teeth need less dental care than the permanent ones due to their future exfoliation [Al-Malik, Holt, & Bedi, 2003]. However, lack of care may result in oral diseases such as dental caries, periodontal diseases, and malocclusions [Al-Malik, Holt, & Bedi, 2003; Finlayson et al., 2005]. The mother is usually supervising over several of the

factors associated with caries incidence and has a role in the development of early childhood caries [Mattila et al., 2005].

Factors like long exposure to sweetened beverages at bedtime [Febres, Echeverri, & Keene, 1997; Kaste & Gift, 1995] and late weaning are more common in children with early childhood caries [Kaste & Gift, 1995]. In addition, awareness was generally lower among parents of the early childhood caries children than parents of children without early childhood caries [Febres, Echeverri, & Keene, 1997; Kaste & Gift, 1995]. Although dental caries has many factors influencing its progress, environmental variables including demographic, and behavioural factors, parents' socioeconomic status and their extent of knowledge and beliefs about oral health habits play a role in caries incidence [Borges et al., 2012]. The AAPD recognises that early childhood caries approaches all paediatric populations regardless of their culture and economic status, but it reaches epidemic extents in populations with low socioeconomic status [American Academy of Paediatric Dentistry, 2016]. A relationship between those factors and dental caries incidences in young children was reported [Kim Seow, 2012].

Collecting quality and essential data to help in the model of disease prevention and identify cultural risk factors that emphasises on behavioural variables, risk assessment and successful prevention is crucial. Therefore, the purpose of this study was to evaluate the Saudi parent's knowledge (the information a person gains through education or experience), behaviours (the way a person behaves or functions in a particular situation) and beliefs (a strong feeling that something exists or is true) regarding oral health of children younger than 5 years old. In addition, the aim was to evaluate the association between socioeconomic status and parent's knowledge, behaviours and beliefs regarding oral health of their children. The null hypothesis was no difference in the Saudi parent's knowledge, behaviours and beliefs regarding oral health of children younger than 5 years old.

Methods

Ethics

This cross-sectional study and informed consent were approved by the Ethical Committee of Human Studies at College of Dentistry Research Center of King Saud University, Riyadh (Saudi Arabia).

Subjects and procedures

A self-administered questionnaire was designed to evaluate parental knowledge, behaviours and beliefs regarding oral health of their children. The questions were created based on reviews of the paediatric dentistry and general dental literature. The validity of the questionnaire was reviewed and tested by three paediatric dentists and modifications to the questionnaire were made based on their review. Then, the survey was pilot tested for test-retest reliability and clarity of the questionnaire by randomly selecting a convenience sample of 15 parents from the target participants who were not included in the main study and selecting one or more children in the same age group who visited dental office in a regular basis. The answers were reviewed and items reported by parent as confusing and difficult to answer were addressed. Accordingly, revision of the questionnaire was performed and final survey was generated to avoid misinterpretation of the questions.

The survey was conducted on a sample of 240 participants in an urban city (Riyadh). Only Saudi parent who had children less than 5 years of age were included in this study. Any eligible participant who worked in the dental field (dentists, dental hygienists, dental assistants, etc.) was excluded from the study. Parents were supervised whilst undertaking the questionnaire. Assistance in completing the questionnaire was offered when needed by offering a structured interview with uniform prompts. The questionnaire included questions about parental knowledge, behaviours and beliefs regarding dental caries development, baby bottle use, and how to care for children's oral health as well as the reasons for their children first visit to the dentist. In addition, other questions related to oral health of their children were included. Furthermore, sources of dental knowledge such as dentist, books, newspapers, magazines, recordings, radio, movies, television and the Internet as well as potential sources for their future improvement in knowledge were obtained from parents. Parents were asked to respond to the questions by selecting the correct answer, by indicating whether they "Agree", "Disagree", or "Do not know." In addition, a question was included in which parent were asked to describe the condition of their child's teeth by answering "Poor", "Fair", "Good", "Very good" or "Excellent." In addition, sociodemographic variables were collected which included: the caregiver's age, gender, educational level, housing status and monthly household income.

Statistical analysis

Data was analysed using SPSS version 21.0 statistical software. Descriptive statistics (mean, standard deviation and percent) were used to describe the quantitative outcome variables. Student's t-test for independent samples was used to compare the mean values of quantitative outcome variables in relation to the two categories of study variable. One-way analysis of variance was used to compare the mean values of quantitative outcome variable, in relation to more than two categories of study variable. Tukey's multiple range test was used for multiple comparisons. A p-value of <0.05 was used as statistical significance to report the results.

Results

The null hypothesis was rejected, as there was a difference in the Saudi parent's knowledge, behaviours and beliefs regarding the oral health of their children younger than 5 years old. A total of 240 surveys were collected from parents in Riyadh city. Table 1 shows frequency and percent of sociodemographic characteristics of the participants. Parents reported that the mean (+ SD) age of their children was 3.52 + 1.41 years old. Figure 1 shows the answer to the question "How often your child should have a routine dental visit to dentist?" according to family income per month. About 42% of the participants with low income stated that their children should have the dental visit when they feel pain and only 23.6% mentioned they should have routine dental visits every 6 or 12 months but only 8% had their first dental visit for routine check-up. In contrast, for high-income participants, 35% would take their children when they feel pain and 41% would have a routine dental visit while 22% went for routine check-up for their first visit.

Parents reported different sources of information about oral health, where 56.3%, 10.4%, 51.3%, 48.8%, and 7.1%

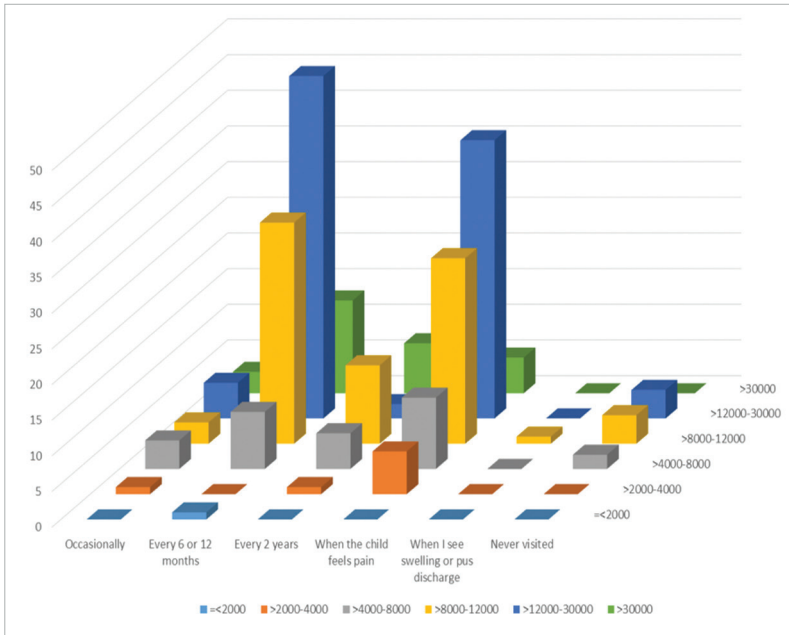


FIG. 1 The answer to the question “How often your child should have a routine dental visit to the dentist?” according to family income per month.

Variables	Frequency (Percent)
Age of participants in years	
<=20	8 (3.3)
21-25	21(8.8)
26-30	63 (26.3)
31-40	102 (42.5)
>40	46 (19.2)
Marital status	
Married	235 (97.9)
Single & Divorced	5 (2.1)
No. of children in family	
1	57 (23.8)
2	68 (28.3)
3	51 (21.3)
4	24 (10)
>4	40 (16.7)
Education level	
Middle school or less	5 (2.1)
Secondary school	35 (14.6)
College	172 (71.7)
More than college	28 (11.7)
Family income per month	
<8000 (Saudi Riyal)	38 (15.8)
8000 to 12000 SAR	76 (31.7)
12000 to 30000 SAR	98 (40.8)
>30000 SAR	28 (11.7)
Type of housing	
Owned house	102 (42.5)
Rented house	36 (15)
Owned apartment	36 (15)
Rented apartment	66 (27.5)

of the participants consider the dentist, health care professional, mass media, relatives and friends, and others as a source respectively. Reported potential sources for the parents’ future improvement in knowledge were 66.7%, 15.8%, 33.3%, 16.3%, and 27.9% for education provided through tablet devices and smartphones, lectures, education and hands on in dental office, brochures, and video respectively. Large number of participants reported use of tablet, PC (78.8%) and smart phone (97.1%).

Table 2 shows frequency and percent of responses by the participants to the statements related to child’s teeth care. Responses of parents to the question which describes the condition of their child’s teeth were poor (1.7%), fair (10%), good (19.2%), very good (40.8%) or excellent (28.3%). The most common reason for the first visit to dentist was reported as tooth decay (25.4%). However, 46.7% never visited the dentist. Other reasons for child first dental visit to dentist included routine check-up 19.6% and emergency visit 8.3%. Parents reported the timing of giving a bottle to a child as “anytime they want it” (41.7%), at feeding times when they cry (29.5%) and at bedtime (28.8%). Parents reported the frequency of consuming sweets by their children as none (58.3%), once a week (30.4%) and twice a week (11.3%). About 85.8% of parents were aware that sugary snacks and juices are causes of dental caries and 72.5% agrees that using fluoridated toothpaste will help in prevention of tooth decay. When the statement “Cavities in baby teeth don’t matter since they will fall out anyway” was given to participants with a college degree and higher, the ratio between those who disagree to those who agree was 5:1; compared to 3:2 ratio with a high school degree and lower.

Table 3 shows comparison of mean values of knowledge scores of participants related to the oral health of their children. Some noteworthy differences were observed between different educational levels, 63% of the participants

TABLE 1 Frequency and percent of socio-demo-graphic characteristics of participants (n=240).

Statements	Frequency (Percent)
Age of child started brushing his/herself without help	38 (15.8)
3 years	92 (38.3)
5 years	46 (19.2)
6 years	64 (26.7)
7 years or more	
When child brush his/herself teeth	70 (29.2)
Morning	22 (9.2)
Afternoon	154 (64.2)
Before bed time	--
Do not brush	
Method of teeth cleaning	189 (78.8)
Tooth brush	148 (61.7)
Tooth paste	15 (6.3)
Miswak	9 (3.8)
Dental floss	3 (1.3)
Other	
At what age take your child to dentist for the first time?	11 (4.6)
1 year	25 (10.4)
2 years	36 (15)
3 years	19 (7.9)
4 years	18 (7.5)
5 years	131 (54.6)
Not yet	25 (10.4)
Frequency of consuming soft drinks	65 (27.1)
None	79 (32.9)
Every other day	44 (18.3)
1 a day	27 (11.3)
2 a day	
More than 2 per day	

TABLE 2 Frequency and percent of responses by the participants to the statements related to their child’s oral care (n=240).

with a high school degree and lower give their babies the feeding bottle any time they want it, compared to 38% with a college degree and higher. Furthermore, 52% of all participants blow on or taste their baby's food before serving it. Also, 38% of participants who have a high school degree or lower do not know what type of toothbrush is recommended for children, while 56% with a college degree or higher stated a soft toothbrush. There was a statistically significant difference in the mean scores of knowledge of participants regarding oral health of their children, across all age groups. The mean scores were higher in the participants of higher age groups when compared with the participants of lower age groups ($F=2.49$, $P=0.044$). In addition, the knowledge scores were significantly higher in participants with a higher number of children (4 and >4) when compared with participants with less children (1 and 2) ($F=2.55$; $P=0.04$). The family income per month and type of housing, in which the participants resides, was statistically significantly related

to the scores of knowledge of oral health of their children. The mean scores were statistically significantly higher in participants whose income was higher and who resides in a house, when compared with participants with lower income and resides in apartment ($F=13.36$, $P<0.0001$; $F=3.41$, $P=0.018$) respectively. The mean scores of knowledge of participants regarding oral health of their children was statistically significantly higher in the participants who were using a smart phone, when compared with those who were not using a smart phone ($F=2.7$, $P=0.008$). Also, the participants who were using mass media as source of knowledge for seeking health information, were having significantly higher mean score of knowledge when compared with those who were not using it ($F=4.1$; $P<0.0001$).

Table 4 shows comparison of the mean values of behaviour scores of participants related to the oral health of their children. While 51.2% of all participants provide a fluoridated toothpaste, 36.7% do not know if the toothpaste used by their children's contain fluoride; about 68.4% of those were participant with low income. In addition, 24.6% of the participants do not know when they should replace their children's toothbrushes; about 39% were people with low income and 22% were people with high income. In participants with high income, 1 out of every 5 participants whose children use a toothbrush does not use it (5:1), while for the low income participants, for every 4 who uses a toothbrush, 3 do not use it (4:3). For those who use a toothbrush 61.7% use it with toothpaste. The variables such as age, number of children, education level, type of housing, use of smart phone and mass media as source of oral health information as well as other sources of oral health information were statistically significantly related to the mean scores of behaviour of participants as related to oral health of their children. The mean scores of behaviour of participants were statistically significantly higher in those who were in the higher age group, higher number of children, higher education level, higher income per month, residing in an owned house, using smart phone and using mass media as well as other sources to seek oral health information.

Beliefs and acts were compared where 11.3% of all participants allow their children to use a baby bottle at bedtime while their knowledge indicates they should not do so. In addition, 62.5% agree that a child should at least clean his/her teeth twice a day but only 28.6% do so. Moreover, 44.2% believe that cavities in baby teeth can harm permanent teeth. Additionally, 75.8% neither do not know nor believe that every child should visit the dentist at or before 12 months of age. Table 5 shows comparison of the mean values of belief scores of participants related to oral health of their children. This comparison across the study variables indicated statistically significant differences in relation to the education level and family income per month, use of smart phone, using mass media and dentist as sources of seeking oral health information. The higher the education level, the higher income, using smart phone, using mass media and dentist as sources of knowledge yielded higher belief scores of oral health of their children which was statistically significant.

Table 6 shows comparison of the mean values of knowledge, beliefs and behaviour scores in relation to parent's perception of the condition of their child's teeth. The comparison of the mean values of knowledge and beliefs of oral health of participants regarding the oral health of their children, in relation to the parent's perception on the condition of their child's teeth, showed statistically significant difference across

Variables	Mean (SD)	F-value/t-value	p-value*
Age in years			
<=20	3.6 (2.3)	2.49	0.044*
21-25	5.3 (1.5)		
26-30	5.4 (1.8)		
31-40	5.6 (1.8)		
>40	5.6 (1.5)		
Marital status			
Married	5.5 (1.8)	1.6	0.11
Single & Divorced	4.2 (1.6)		
No. children in family			
1	5.3 (1.8)	2.55	0.040*
2	5.1 (1.9)		
3	5.4 (1.6)		
4	5.9 (1.4)		
>4	6.1 (1.7)		
Education level			
Middle school or less	4.6 (3.3)	2.52	0.059
Secondary school	4.8 (2.2)		
College	5.6 (1.6)		
More than college	5.7 (1.5)		
Family income/month			
<8000 (Saudi Riyal)	4.1 (2.1)	13.36	<0.0001*
8000 to 12000 SAR	5.2 (1.5)		
12000 to 30000 SAR	6.1 (1.6)		
>30000 SAR	5.6 (1.5)		
Type of housing			
Owned house	5.8 (1.7)	3.41	0.018*
Rented house	5.7 (1.6)		
Owned apartment	4.8 (1.8)		
Rented apartment	5.2 (1.9)		
Use of tablet PC			
Yes/No	5.5 (1.7)/5.4 (1.9)	0.30	0.76
Use of smart phone			
Yes/No	5.5 (1.7)/3.7 (2.4)	2.7	0.008*
Sources of oral health information			
Healthcare prof. (Yes/No)	5.5 (1.5)/5.4 (3.4)	0.06	0.95
Dentist (Yes/No)	5.6 (1.8)/5.3 (1.7)	1.5	0.14
Mass media (Yes/No)	5.9 (1.6)/5 (1.8)	4.1	<0.0001*
Relatives/Friends (Yes/No)	5.7 (1.5)/5.4 (1.9)	1.25	0.21
Others (Yes/No)	6.4 (1.9)/5.4 (1.7)	2.32	0.021*

* Significant

TABLE 3 Comparison of mean values of knowledge scores of participants related to the oral health of their children.

Variables	Mean (SD)	F-value/ t-value	p-value*
Age in years			
<=20	2.7 (2.5)	3.33	0.011*
21-25	2.6 (1.5)		
26-30	3.4 (1.9)		
31-40	4.0 (1.9)		
>40	3.8 (2.0)		
Marital status			
Married	3.7 (1.9)	0.89	0.42
Single & Divorced	2.6 (2.7)		
No. children in family			
1	2.9 (1.9)	4.39	0.002*
2	3.5 (1.9)		
3	3.6 (2.0)		
4	4.5 (1.9)		
>4	4.4 (1.8)		
Education level			
Middle school or less	2.4 (1.9)	4.34	0.005*
Secondary school	2.7 (2.1)		
College	3.9 (1.9)		
More than college	3.7 (2.0)		
Family income/month			
<8000 (Saudi Riyal)	2.3 (1.8)	9.39	<0.0001*
8000 to 12000 SAR	3.6 (1.9)		
12000 to 30000 SAR	4.1 (1.9)		
>30000 SAR	4.1 (2.0)		
Type of housing			
Owned house	4.0 (2.0)	8.16	<0.0001*
Rented house	4.3 (1.8)		
Owned apartment	2.5 (1.7)		
Rented apartment	3.3 (1.9)		
Use of tablet PC			
Yes/No	3.7 (1.9)/3.4 (2.2)	0.92	0.36
Use of smart phone			
Yes/No	3.7 (1.9)/1.3 (1.4)	3.3	0.001*
Sources of oral health information			
Healthcare prof. (Yes/No)	4.2 (1.9)/3.6 (2.0)	1.55	0.12
Dentist (Yes/No)	3.7 (2.0)/3.6 (1.9)	0.27	0.79
Mass media (Yes/No)	4.3 (1.7)/3.1 (2.0)	4.96	<0.0001*
Relatives/Friends (Yes/No)	3.9 (1.9)/3.6 (2.0)	1.14	0.25
Others (Yes/No)	4.9 (2.0)/3.6 (2.0)	2.66	0.008*

* Significant

TABLE 4 Comparison of mean values of behaviour scores of participants related to the oral health of their children.

the 5 levels of perception (excellent, very good, good, fair, and poor). The mean values of knowledge and beliefs were statistically significantly higher for participants whose perceptions were excellent, very good, and good, when compared with the mean values of the perception levels of fair and poor. In contrast, the behaviour mean scores were not significantly different across the 5 levels of perceptions.

Discussion

Oral health prevention plans for children would benefit from including research of behavioural science which comprises a collection of behavioural elements that influence oral health and practices and results in improvement of children's oral conditions [Ramos-Gomez et al., 2005]. In addition, exploring the most effective approaches for creation and spreading information regarding children's oral health to parents, caregivers and children is vital. Therefore, this study

Variables	Mean (SD)	F-value/ t-value	p-value*
Age in years			
<=20	7.0 (4.7)	1.15	0.33
21-25	9.1 (3.1)		
26-30	8.9 (3.4)		
31-40	9.4 (3.4)		
>40	46 (3.2)		
Marital status			
Married	9.2 (3.3)	1.5	0.21
Single & Divorced	6.2 (4.5)		
No. children in family			
1	9.2 (3.4)	0.46	0.78
2	8.8 (3.5)		
3	9.1 (3.8)		
4	9.3 (2.9)		
>4	9.7 (2.9)		
Education level			
Middle school or less	5.4 (5.2)	3.77	0.011*
Secondary school	8.1 (3.4)		
College	9.5 (3.2)		
More than college	9.3 (3.6)		
Family income/month			
<8000 (Saudi Riyal)	7.1 (3.8)	7.3	<0.0001*
8000 to 12000 SAR	8.9 (3.0)		
12000 to 30000 SAR	9.9 (3.2)		
>30000 SAR	9.8 (3.3)		
Type of housing			
Owned house	9.4 (3.4)	1.64	0.18
Rented house	10.0 (2.7)		
Owned apartment	8.4 (3.4)		
Rented apartment	8.8 (3.7)		
Use of tablet PC			
Yes/No	9.3 (3.5)/8.6 (3.1)	1.25	0.21*
Use of smart phone			
Yes/No	9.3 (3.3)/5.8 (3.5)	2.65	0.009*
Sources of oral health information			
Healthcare prof. (Yes/No)	8.7 (3.4)/9.2 (3.4)	-0.71	0.48
Dentist (Yes/No)	9.6 (3.3)/8.6 (3.4)	2.5	0.014*
Mass media (Yes/No)	9.8 (3.1)/8.6 (3.5)	2.7	0.007*
Relatives/Friends (Yes/No)	9.4 (3.4)/9.1 (3.4)	0.56	0.58
Others (Yes/No)	10.5 (3.0)/9.1 (3.4)	1.63	0.10

* Significant

TABLE 5 Comparison of mean values of beliefs scores of participants related to oral health of their children.

assessed the Saudi parent's knowledge, behaviours and beliefs regarding oral health of their children. As early childhood caries can cause pain, malocclusion, malnourishment and low self-confidence [American Academy of Pediatric Dentistry, 2016] and since the awareness among parents of the children with early childhood caries was lower than parents of children without early childhood caries [Febres, Echeverri, & Keene, 1997; Kaste & Gift, 1995], the aim of this study included the association between socioeconomic statuses and parent's knowledge, behaviours and beliefs regarding oral health of their children younger than 5 years old. The present study showed that only 18.3% know that dental caries could be transmitted from one person to another. Vertical and horizontal transmission of caries as an infectious disease is established in the dental and medical literature; however, it is not recognised whether the information regarding this

Assessment Factors	Condition of child's teeth - Frequency (Percent)					F-value	p-value*
	Excellent	Very good	Good	Fair	Poor		
Knowledge	5.9 (1.7)	5.5 (1.6)	5.3 (1.7)	4.5 (2.2)	3.7 (2.2)	4.15	0.003*
Beliefs	10 (3.1)	9.1 (3.4)	9.4 (3.0)	7.0 (3.6)	8.7 (6)	3.55	0.008*
Behaviour	3.7 (2.0)	3.8 (1.9)	3.6 (2.0)	3.3 (2.0)	2.2 (2.0)	0.77	0.54

* Significant

TABLE 6 Comparison of mean values of knowledge, beliefs and behaviour scores in relation to parent's perception of the condition of their child's teeth.

matter is known to parents and caregivers [Xu & Gunsolley, 2014; Teanpaisan et al., 2012]. One study conducted in Brazil to obtain such knowledge found that 58.7% know that dental caries could be transmitted from one person to another [Sakai et al., 2008]. It is largely believed that the prevalence of caries is correlated to the form in which sugar is ingested and the frequency of consumption [Sakai et al., 2008]. In the present study, some parents recognised very well that sugary food is the main factor in caries development and that fluoride plays a role in caries prevention. In addition, in the present study, 76.7% of parents believe that sugary food has a direct contribution to dental caries and acknowledge where emphasis needs to be applied; these include factors such as the proper time for their children's dental visits and the methods of transmissibility of dental caries.

As stated by the AAPD, the first dental visit for children should be at 12 months of age [American Academy of Paediatric Dentistry, 2016; Hoefl, Barker, & Masterson, 2011]. In the present study, a question was asked to parents and it was found that 31.7% were not aware of this information and 25% believed the first dental visit should be when the child is 3 years of age. This was similar to an earlier study in Saudi Arabia in which 34% also believed that the first visit should be at 3 years of age [Al-Shalan, 2003]. In the present study, 62.1% of the parents do not consider taking their children to the dentist when they are one-year-old. Moreover, 30.8% believe that brushing their children's teeth should start when all teeth appear. This is similar to another study in which a majority of Indian parents felt that they should brush the teeth of their children after eruption of all primary teeth [Suresh et al., 2010]. Another study reported that most parents thought that the first visit to the dentist should be around age three or four and thus reflected little awareness of the parents [Naidu, Nunn, & Forde, 2012]. Children's oral hygiene is significantly associated with the perceptions of the oral health of their mothers and caries status for children [Finlayson et al., 2005]. In the present study, the majority of children do not follow an adequate oral hygiene regimen as 49.2% of parents reported that their children brush their teeth only once a day. Since oral hygiene is essential to oral health, an analysis was done for this study in which parents were asked about the appropriate time to start caring about a child's oral hygiene; 44.2% believed that caring should start when the first tooth appeared, compared to 95% of parents in rural Australia [Gussy et al., 2008]. It is generally known that optimal exposure to fluoride is essential for prevention of caries incidence in children [Adair et al., 2004]. In the present study, some positive feedback was provided from the parents about their children's fluoride use in which 51.2% stated that they provide fluoridated toothpastes for their children.

As for behaviours, a number of parents in the present study were able to recognise truthful information about oral health, but did not match the knowledge with the exact acts hence lacking the importance of such doings. In addition, the variables such as age, number of children, education level, type of housing, use of a smart phone and mass media as a source of oral health information as well as other sources of oral health information were significantly related to the mean scores of the behaviour of participants as related to the oral health of their children. In the present study, the comparison of mean values of belief scores of participants related to the oral health of their children across the study variables indicated a statistically significant difference in relation to the education level and family income per month, use of smart phone, using mass media, and the dentist as sources of seeking oral health information. In addition, the family income per month and type of housing in which the participants reside were significantly related to the scores of knowledge of oral health of their children. A study determined the level of knowledge and the behaviour of mothers in connection with the caries experience of their children showed that the level of knowledge about oral health among interviewed mothers was very low to nonexistent, and mothers needed to be educated and encouraged that they are key factors in increasing the oral health routines and habits of their children [Cooper et al., 2013]. A recent systematic review indicated that exceptional oral health is reliant on the establishment of the vital behaviours of reducing sugar snacking and tooth brushing with fluoride toothpaste [Begzati et al., 2014].

Since caries represents a serious public oral health problem in Saudi Arabia, an overall preventive programme for promotion of oral health is needed, along with the oral health education of parents and caregivers. Therefore, including questions on knowledge, behaviours and beliefs such as the importance of primary teeth and the pattern of dental visits to dentists were necessary in giving an idea about caries risk of their children [Schroth et al., 2007]. Aggregating data to form a large level of perception and trends on oral health of children is crucial and would help in oral health education. Oral health education is helpful in raising the level of knowledge and in changing both attitudes and beliefs [Kay and Locker, 1998]. Prevention plans are crucial for the successful enhancement of children's oral health. For such prevention plans to be in effect, it is essential to appreciate the societal significance of parents' perception of primary teeth. Results of the present study would help in creating well founded and established prevention plans.

The present study has some limitations. Data collected was done by self-reporting and participants may or may not have answered questions about oral health of their children honestly. In addition, some parents could not remember all

past events. In addition, reports from participants can be biased because of excessive reporting of certain habits or behaviours, which appear to alert about one's health. In addition, this study was completed in a single visit and a long-term follow-up must be completed to decide about the consistency of participants' answers regarding oral health of their children. Some questions may also have confused participants as to their knowledge, behaviour and belief. This could be a difficulty that can occur in surveys. For example, if a parent believes the correct time for tooth brushing is two minutes, they may mark this option even if it is not the actual practice or behaviour of their child.

Within the limitations of this population-based cross-sectional study, it is concluded that there is discrepancy between parental knowledge, behaviours and beliefs regarding oral health of their children. There is an association between sociodemographic status and parent's knowledge, behaviours and beliefs. Correct knowledge and beliefs are reported by some parents, but this is not reflected by their behaviour towards their children's oral health.

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