

ORAL HEALTH KNOWLEDGE, ATTITUDE, PRACTICE, PERCEPTIONS AND BARRIERS TO DENTAL CARE AMONG LIBYAN PARENTS.

Conocimiento, actitud, práctica, percepciones y barreras para el cuidado dental en salud bucal entre los padres libios.

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ABSTRACT:

Aim: To assess parental oral health knowledge, attitude, practice (KAP), perceptions of their children's oral health status, and explore the barriers to dental care utilization among Libyan parents living in Malaysia.

Material and Methods: A cross-sectional study was conducted among Libyan parents of children aged 1-7 years old who lived in Malaysia. A 63-items questionnaire was constructed, validated, and pretested. Six hundred self-administered questionnaires were distributed. Data were analyzed using IBM SPSS version 22.0. A generalized Linear Model was used to test the possible relationships between KAP scores and different sociodemographic factors. A significant level for all the statistical tests was predetermined at $p \leq 0.05$.

Results: A total of 381 questionnaires were included, of which fathers' responses constituted 189 (49.6%), and mothers' responses constituted 192 (50.4%). Most of the parents exhibited good oral health knowledge (77.2%), positive attitudes (86.4%), and were adherent to good oral health practice (78.7%) with mean values of 10.6 (SD=1.8), 9.5 (SD=1.5), and 7.9 (SD=1.4) respectively. Gender, age, and income had statistically significant relationships ($p < 0.05$) with KAP scores. The majority (81.1%) of parents rated their child's oral health as good. More than one-third of parents (35.7%) perceived no need for dental care, and 18.6% perceived no need to treat the primary teeth as they will be replaced.

Conclusion: Good Knowledge and positive attitudes towards oral health are not necessarily translated into favorable practices. The lack of perceived need and low value attributed to primary teeth created barriers to seek dental care services among the majority of surveyed parents. Attention must be directed to behavior change strategies rather than providing oral health education alone to improve the children's oral health outcomes.

KEYWORDS:

Oral Health; Knowledge; Attitude; Behavior; Parents; Surveys and questionnaires.

RESUMEN:

Objetivo: Evaluar el conocimiento, la actitud y la práctica de la salud bucal de los padres (CAP), las percepciones del estado de salud bucal de sus hijos y explorar las barreras para la utilización de la atención dental entre los padres libios que viven en Malasia.

Material y Métodos: Se realizó un estudio transversal entre padres libios de niños de 1 a 7 años que vivían en Malasia. Se construyó, validó y probó previamente un cuestionario de 63 ítems. Se distribuyeron 600 cuestionarios autoadministrados. Los datos se analizaron con IBM SPSS versión 22.0. Se utilizó un modelo lineal generalizado para probar las posibles relaciones entre las puntuaciones KAP y diferentes factores sociodemográficos. Se predeterminó un nivel de significancia para todas las pruebas estadísticas en $p \leq 0,05$.

Resultados: Se incluyeron un total de 381 cuestionarios, de los cuales las respuestas de los padres constituyeron 189 (49,6%) y las respuestas de las madres 192 (50,4%). La mayoría de los padres exhibieron buenos conocimientos sobre salud bucal (77,2 %), actitudes positivas (86,4 %) y se adhirieron a buenas prácticas de salud bucal (78,7 %) con valores medios

de 10,6 (DE=1,8), 9,5 (DE=1,5) , y 7,9 (DE=1,4) respectivamente. El género, la edad y los ingresos tuvieron relaciones estadísticamente significativas ($p < 0,05$) con las puntuaciones KAP. La mayoría (81,1%) de los padres calificaron la salud bucal de sus hijos como buena. Más de un tercio de los padres (35,7%) no percibieron la necesidad de atención dental y el 18,6% no percibieron la necesidad de tratar los dientes primarios, ya que serán reemplazados.

Conclusión: El buen conocimiento y las actitudes positivas hacia la salud bucal no necesariamente se traducen en prácticas favorables. La falta de necesidad percibida y el bajo valor atribuido a los dientes primarios crearon barreras para buscar servicios de atención dental entre la mayoría de los padres encuestados. La atención se debe dirigir a las estrategias de cambio de comportamiento en lugar de brindar educación sobre salud bucal únicamente para mejorar los resultados de salud bucal de los niños.

PALABRAS CLAVE:

Salud Bucal; Conocimiento; Actitud; Conducta; Padres; Encuestas y cuestionarios.

INTRODUCTION.

Oral health is important, mainly in early childhood, as it determines and affects oral health in adulthood.¹ Therefore, the oral health maintenance of young children is crucial, and it greatly depends on their parents, who are the main decision-makers. Parents' oral health-related knowledge, attitudes, and practice (KAP) play a role in determining their children's oral health.^{2,3}

It has been reported that parents' lack of oral health-related knowledge and negative attitudes are strongly correlated with higher caries experience in their children.^{2,4} On the other hand, mothers' positive attitudes towards oral health were associated with better children's dental and gingival health.^{5,6}

In addition, parental oral health behavior was also found to influence the children's oral health status (gingival and dental health) directly and/or indirectly through its effect on children's oral health behaviour.⁷ Hence, understanding and considering what parents

know about oral health is vital when working on behavior change and encouraging health promotion.⁸ Meanwhile, little is known about parental oral health knowledge, attitudes, and practices from developing countries compared to developed countries.

Furthermore, the social determinants that affect caregiver oral health outcomes similarly affect their children. Poverty, ethnicity, family income, and educational status are among the most significant determinants that influence parental oral health knowledge and attitudes.

For instance, children of families from lower socio-economic groups often have unhealthy habits, poor parental knowledge, and attitudes to oral health and uptake of dental services and therefore are more likely to have oral diseases.⁹ The level of education, for example, plays an essential role in determining the attitude and knowledge of parents towards dental caries.

Recent studies found that parents with higher education have better knowledge, positive attitudes and stronger intentions to control children's health behaviour compared to low-educated parents.¹⁰⁻¹³ Therefore, these determinants at upstream and downstream levels must be taken into account to guide effective oral health promotion efforts. Globally available data show that children under six years are the ones who have less access to dental care services when compared with school-age children.¹⁴

It has been noted that financial and cultural barriers, rising from a poor appraisal of oral health in early life, make access more difficult for children. Regular dental visits play a vital role in preventing early childhood caries (ECC) development.¹⁵ It is vital to identify and address the key barriers that prevent dental care access to improve the oral health of a community. A growing number of Libyan communities are residents in Malaysia.

The day-to-day life of families is greatly influenced by their environment, socially, culturally, and economically.¹⁶ All these aspects would have either a positive or negative impact on the family's process of acquiring, adopting and maintaining good oral health attitudes and behaviours.¹⁷ A recent cross-sectional study conducted in three Libyan primary schools in Klang Valley, Malaysia, reported that more than half of Libyan school children had dental caries. Moreover, dental caries was found highly prevalent among the younger children group (aged ≤ 10 years) and children who have poor oral hygiene.¹⁸

Hence, the expansion of the utilization level of preventive oral health care is highly needed. This might be achieved by first identifying the key barriers that prevent parents from seeking appropriate and timely oral health care. Given that oral health is subjected to individual knowledge, attitudes, and practices related to oral health care.¹⁹ Thus, understanding this population's KAP is required to develop tailored oral health educational interventions to improve their children's oral health.

There is still an insufficient understanding of KAP related to oral care among this population, and up to our limited knowledge, little documented research on

parental oral health-related KAP was found among this population, even in Libya.

Therefore, this study aimed to assess parental oral health KAP, perceptions, and explore the barriers to dental care utilization among Libyan parents living in Malaysia. The findings could be used to plan for oral health promotion programmes. It could also be used as a baseline or a reference to conduct similar studies in Libya and contribute to existing literature.

MATERIALS AND METHODS.

Study design & participants

It was a descriptive cross-sectional study. A non-probability purposive sampling method was employed. The study population consisted of Libyan parents of children aged one to seven years old who lived in Malaysia. The sampling frame consists of five Libyan schools, 3 in Kuala Lumpur, 1 in Shah Alam and 1 in Kajang.

Study Instrument

A questionnaire was developed according to the objectives and constructed based on the relevant literature. The questionnaire was first drafted in English and then translated into the Arabic language. The forward translation was performed by an independent, fluent, native Arabic speaker and experienced professional translator.

Content Validity

The English draft was sent to three independent experts for content validity, of whom two were dental public health specialists and one paedodontic specialist. Based on expert feedback, some items needed to be excluded or further refined, e.g. double-barrel items, to ensure that the final questionnaire comprehensively measured oral health KAP. Amendments were made when a consensus of two experts at least suggested the change.

Face validity

Ten parents were approached to assess the clarity and appropriateness of the Arabic version. Participants were allowed to write comments/suggestions near the items for ease of reference.

Construct validity and reliability

Rasch analysis was done to check the reliability

and construct validity of the Arabic version using Bond and Fox software®. In general, the instrument satisfied the specification of the Rasch Model. In terms of item and person reliability, the indices values ranged between 0.73-0.89. The items and persons separation indices values of all constructs were within the ranges of 1.0 to 2.0.

In terms of validity, fit statistics parameters included: the mean square (MNSQ) values which were within an acceptable range of 0.69 to 1.41 (MNSQ infit) and 0.62 to 1.44 (MNSQ outfit); and the standardized mean (Zstd) values ranged between -1.2 to +1.4 (infit), and -1.4 to +1.0 (outfit). According to the recommendations of Bond and Fox 20, results were all within the accepted ranges of >0.6 (item and person reliability), >1.0 (items and person separation), 0.6 to 1.5 (MNSQ) and ± 2.0 (ZStd). The final instrument (Appendix A) consisted of six sections:

1. Sociodemographic (8 items);
2. Oral health knowledge (15 items covered four sub-constructs, namely: general dental health knowledge, preventive dental visit, parent role in brushing and dietary/feeding practices affecting dental health);
3. Attitudes toward oral health (13 items covered four sub-constructs of attitudes towards primary teeth importance/ treatment, oral Hygiene practice, preventive dental visit, and dietary/ feeding practices),
4. Oral health practices (12 items covered four sub-constructs: preventive parent's practice, oral hygiene practice, preventive dental visit and dietary/feeding practices);
5. Barriers to dental care utilization (14 items covered personal and environmental factors);
6. Parents' perception (1 global rating item to assess child oral health status).

Scoring criteria and assessment

Response choices for oral health knowledge were: 1) Yes, 2) No, and 3) I do not know.

Each correct answer to a question was given a score of 1, and incorrect or "do not know" answers were scored 0.

The overall oral health knowledge score was the sum of the fifteen questions' scores (0 to 15), with

higher scores indicating better knowledge.

Response choices for oral health attitudes were:

1) Agree, 2) I do not agree and 3) I do not know. Each positive attitude to a question was given a score of 1, while a negative attitude or "I do not know" answers were scored 0.

The overall attitude score was the sum of the thirteen questions' scores (0 to 13), with higher scores indicating more positive attitudes.

Responses for the practices section were multiple choice answers; each favorable (recommended) practice was given a score of 1, while unfavorable practice answers were scored 0. The overall practice score was the sum of twelve questions' scores, which ranged from 0 to 12, with higher scores indicating more favorable (recommended) practice. For assessment purposes, the participants were divided into good/poor knowledge and practice and positive/negative attitude groups, considering an arbitrarily cut off point estimate of 50% of KAP scores (as the prevalence of KAP of oral health in this community was unknown). There is no reference value described in the literature, expressed by a cut off value validated to identify the groups with good/poor KAP. However, the cut-off points used in this study were proposed based on similar studies for being straightforward and commonly used. [21,22](#)

Parents rated their perception towards a child's oral health on a five-point scale (1= Excellent, 2= Very good, 3= Good, 4= Fair and 5= Poor). For assessment purposes, the responses were recorded as good=1 (Excellent-Very good- Good) or poor=0 (Fair - Poor).

Data collection

The protocol of this study was reviewed and approved by the Medical Ethics Committee, Faculty of Dentistry, University of Malaya. Permissions from Libyan schools Management office and Libyan embassy were also granted. Six hundred paper version questionnaires were distributed by enumerators to predefined schoolchildren, to be completed by their parents at home and returned to the school.

Data analysis

All coded data were entered into Statistical Package for Social Science software (IBM SPSS ver. 22.0). Des-

criptive statistics included the means and standard deviations for numerical variables (KAP scores, age, family size, and the number of children), while frequency and percentage were used to describe categorical data (gender, income, education levels, responses to KAP items). The Generalized Linear Model procedure in SPSS was employed using the log link function to investigate the potential associations of different sociodemographic variables with KAP scores. A significant level was set at $p \leq 0.05$.

RESULTS.

A total of 381 questionnaires were included in the analysis, of which fathers responses constituted 189(49.6%), and mothers responses constituted 192 (50.4%).

Table 1 presents the Libyan parent's sociodemographic characteristics. The mean age of all parents was 37.6 (SD=6.5), ranging from 22 to 52 years old. The majority of parents (58.5%) were from high-income families. Most of the parents (89.5%) were

qualified with high education levels. The main reason for Libyan parents staying in Malaysia was for study purposes (87.7%). Based on the scoring criterion used, it was found that 77.7% of parents exhibited good oral health knowledge with mean knowledge scores of 10.7(SD=1.8), the majority of parents (86.4%) exhibited a positive attitude with mean attitude scores of 9.5(SD=1.5), and 78.7% exhibited good practice with mean practice scores of 7.9 (SD=1.4) (Table 2).

The per item percentage of parents with correct knowledge answers, positive attitudes, and recommended practices are illustrated in Figure 1, Figure 2, and Figure 3, respectively. The majority of parents (81.1%) perceived their child's oral health as good (Table 2).

Table 3 presents the results of the relationship between KAP scores and different demographic variables using the generalized linear model. There were statistically significant differences ($p < 0.05$) in gender, income, and age only. Based on pairwise comparisons, the mean KAP scores for the mothers

Figure 1. Distributions of parents' oral health-related knowledge (per item).

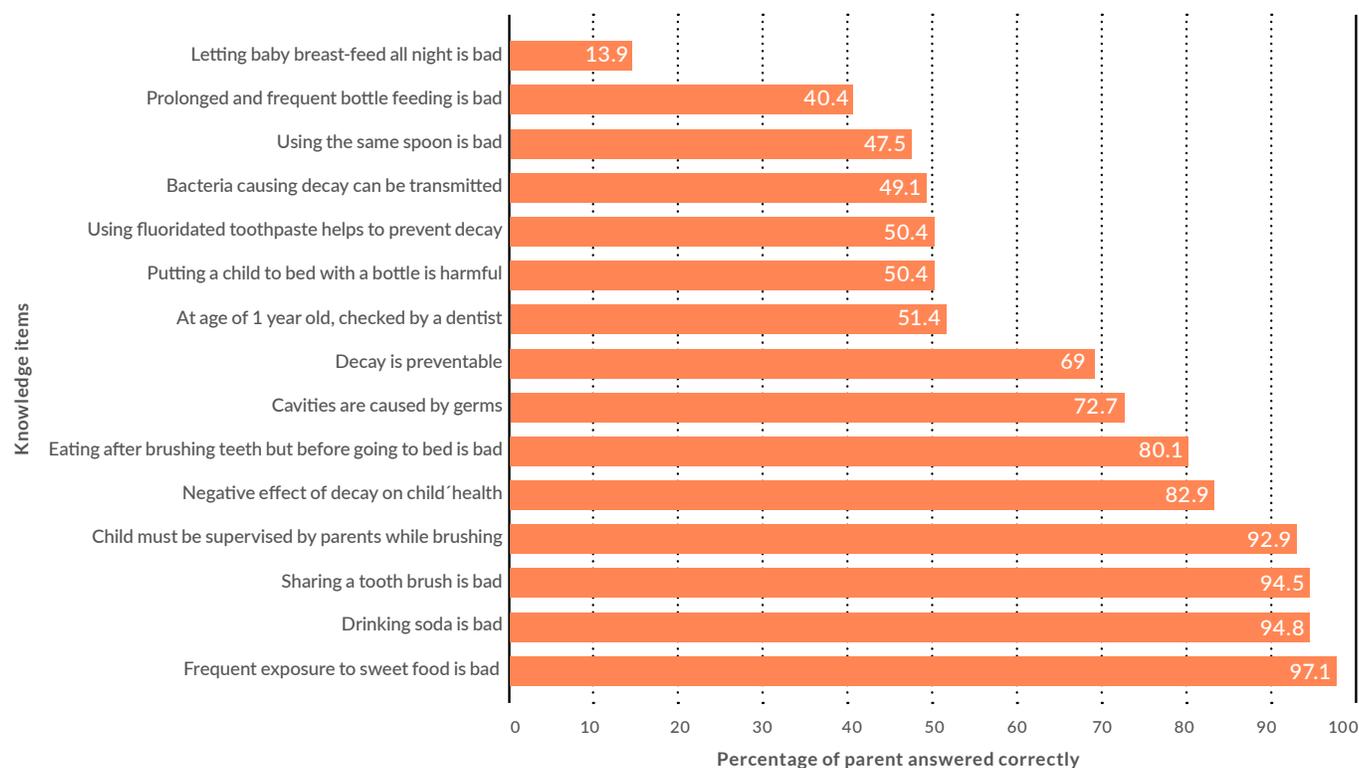


Figure 2. Distributions of parents' oral health-related attitudes (per item)

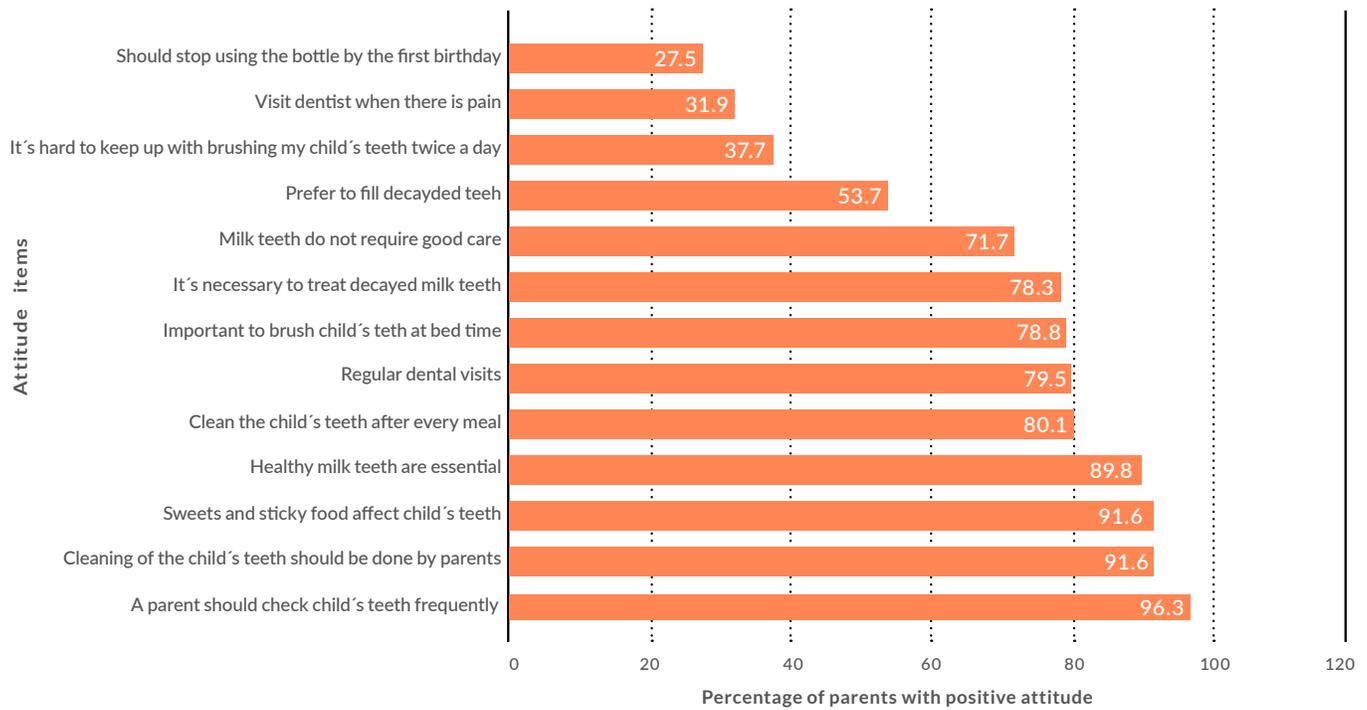


Figure 3. Distributions of parents' oral health-related practices(per item).

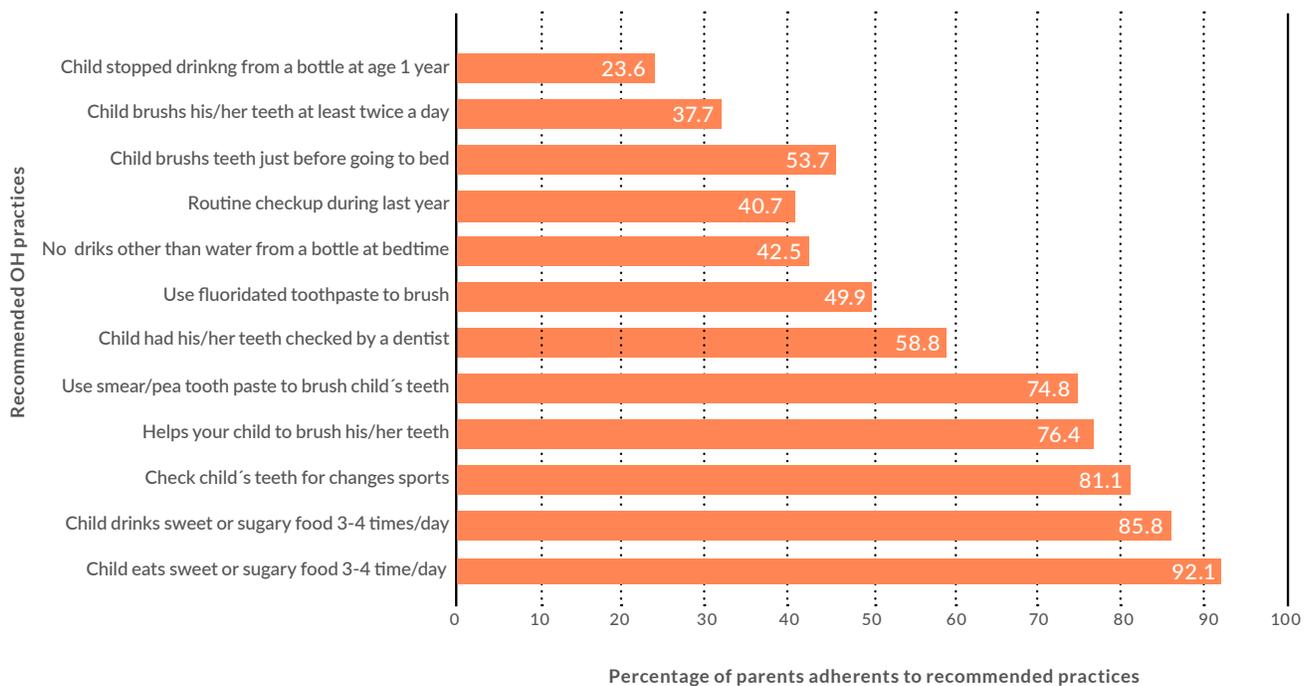


Figure 4. Parents' perceived barriers to dental care utilization.

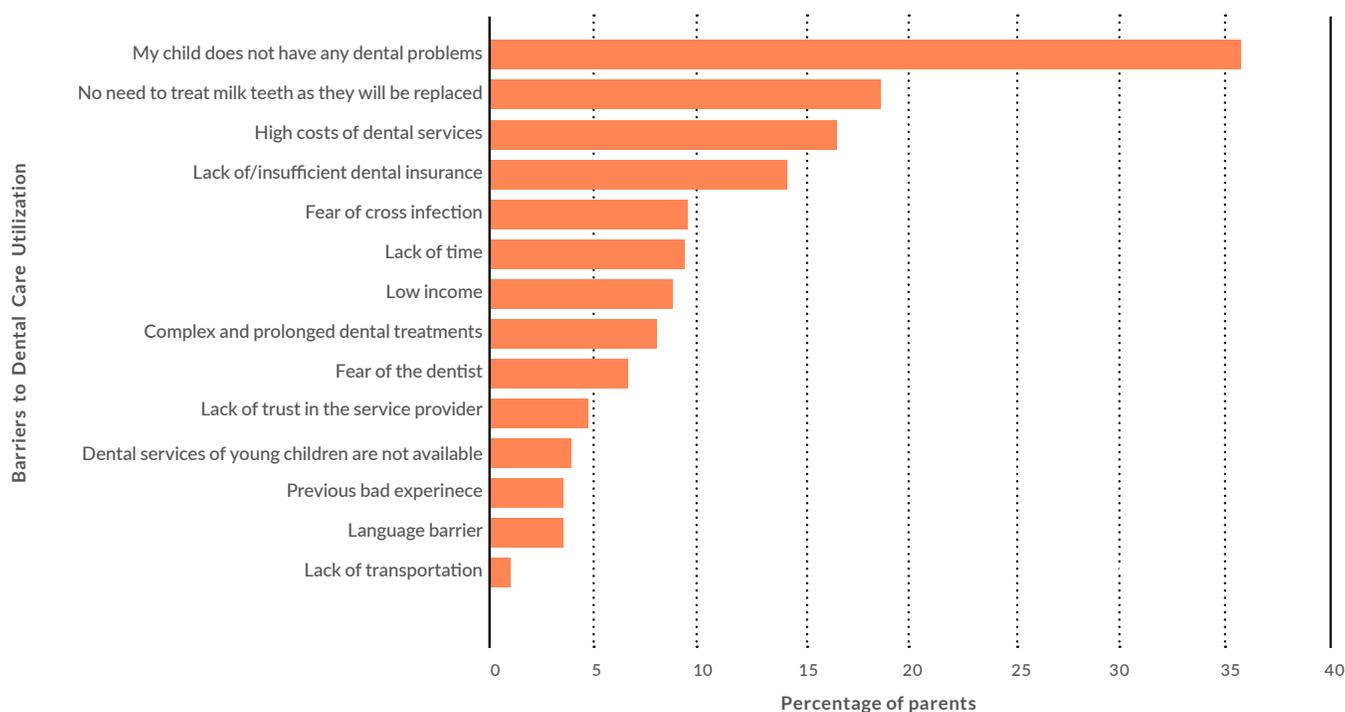


Table 1. Sociodemographic characteristics of Libyan parents included in this study.

SOCIODEMOGRAPHIC CHARACTERISTICS		n (%)	MEAN (SD)
Gender	Male	189 (49.6)	
	Female	192 (50.4)	
Income (USD)	Low income (< 200-700)	89 (25.4)	
	Middle income (701-1200)	38 (10.8)	
	High income (≥1201)	223 (63.7)	
Education level	Primary	7 (1.8)	
	Preparatory school	3 (0.8)	
	High school	26 (6.8)	
	Graduate	103 (27.0)	
	Postgraduate	238 (62.5)	
Reason for staying in Malaysia	Study	334 (87.7)	
	Working	334 (87.7)	
	Others	12 (3.1)	
Duration of stay	<1 year	11 (2.9)	
	1-3 years	173 (45.4)	
	>3 years	192 (50.4)	
Age (years)			37.5 (6.5)
Family size			5.5 (1.4)
No. of children under 7 years old			1.9 (0.9)

SD: Standard Deviaction.

Table 2. Distributions of parental KAP scores and perceptions.

KAP AND PERCEPTION	FATHERS		MOTHERS		TOTAL	
	n (%)	Mean (SD)	n (%)	Mean (SD)	n (%)	Mean (SD)
Good Knowledge	149 (78.8)	10.5 (1.8)	145 (75.5)	10.7 (1.8)	294 (77.2)	10.6 (1.8)
Poor Knowledge	29 (15.3)	6.2 (0.9)	28 (14.6)	6.3 (0.9)	57 (15.0)	6.2 (0.9)
Total Knowledge Scores	178 (50.7)	9.9 (2.3)	173 (49.2)	10.0 (2.2)	351 (91.8)	9.9 (2.3)
Negative attitude	19 (10.1)	5.1 (1.6)	12 (6.3)	5.3 (0.8)	31 (8.1)	5.2 (1.4)
Positive attitude	160 (84.7)	9.4 (1.5)	169 (88.0)	9.6 (1.5)	329 (86.4)	9.5 (1.5)
Total attitude scores	179 (49.7)	9.1 (2.0)	181 (50.2)	9.4 (1.8)	360 (94.0)	9.2 (1.9)
Good practice	147 (77.8)	7.8 (1.2)	153 (79.7)	8.0 (1.5)	300 (78.7)	7.9 (1.4)
Poor practice	25 (13.2)	4.4 (0.5)	22 (11.5)	4.5 (0.6)	47 (12.3)	4.4 (0.6)
Total practice scores	72 (49.5)	7.2 (1.7)	175 (50.4)	7.6 (1.8)	347 (90.8)	7.4 (1.7)
Good perceptions	151 (79.8)	---	158 (82.2)	---	309 (81.1)	---
Poor perceptions	38 (20.1)	---	34 (17.7)	---	72 (18.8)	---

SD: Standard Deviation.

Table 3. Relationship between Knowledge, Attitude and Practice, and Sociodemographic Characteristics.

PARAMETER		KNOWLEDGE				ATTITUDE				PRACTICE			
		B	95% CI		Sig.	B	95% CI		Sig.	B	95% CI		Sig.
Gender	Fathers	-0.072	-0.138	-0.007	0.030*	-0.05	-0.11	0.01	0.00*	-0.08	-0.148	-0.008	0.03*
	Mothers	0a	---	---	---	---	---	---	---	---	---	---	---
	Age	0.009	0.003	0.014	0.002*	0.01	0.00	0.01	0.01*	0.01	0.00	0.01	0.06
Income	Low income	0.065	0.002	0.128	0.043*	0.00	-0.06	0.06	0.99	-0.01	-0.08	0.06	0.87
	Middle income	0.023	-0.059	0.105	0.588	0.03	-0.05	0.10	0.47	-0.01	-0.09	0.08	0.81
	High income	0a	---	---	---	---	---	---	---	---	---	---	---
Education	High School	-0.02	-0.12	0.09	0.73	0.01	-0.09	0.10	0.87	-0.01	-0.13	0.11	0.84
	Graduate	-0.06	-0.13	0.01	0.22	0.04	-0.02	0.10	0.19	-0.02	-0.09	0.05	0.56
	Postgraduate	0a	---	---	---	---	---	---	---	---	---	---	---
	Family size	-0.01	-0.04	0.02	0.48	-0.03	-0.06	0.00	0.06	0.01	-0.02	0.04	0.39
	Children No.	-0.01	-0.04	0.02	0.41	0.01	-0.02	0.04	0.36	-0.01	-0.04	0.02	0.42

Sig: Significance (*p*-value). **CI:** Confidence interval. **a:** refers to the reference group (The value set as 0)

were higher compared to the fathers.

There was a statistically significant difference in knowledge, attitude scores, and age; the coefficient value of age was positive (B=0.009, 0.01), which means the older the parent is, the higher is the mean knowledge and attitude scores. Income showed statistically significant differences with knowledge only.

The mean knowledge score for those in the low-

income group 10.0 (SD=2.1) was higher than those in the high-income group 9.4 (SD=2.4). While, educational level, family size, and the number of children did not show any statistically significant relationship with KAP scores. Figure 4 presents the frequency of barriers to dental care utilization as reported by parents.

It was revealed that the highest proportion of

parents (35.7%) perceived no need for dental care, as their children do not have any dental problems, followed by parents who perceived that no need to treat primary teeth, as they will be replaced (18.6%).

The high cost of dental treatment and lack/insufficient dental insurance were ranked as third and fourth barriers as perceived by 16.5% and 14.2% of parents, respectively.

DISCUSSION.

Analysis of oral health knowledge, attitudes, and practices in a population allows us to determine the risk factors for oral diseases. Based on the socioecological model by McLeroy *et al.*,²³ the KAP is among the individual characteristics at the intrapersonal level that influence the process of behavior change and must be considered before planning or developing health behavior intervention. Thus, understanding and considering what parents know about oral health is vital, and their important role in taking care of their children's oral health should not be neglected.

In the present study, the majority of Libyan parents have an acceptable and satisfactory oral health knowledge about bacteria transmission, the role of dietary habits, the importance of parental supervision during brushing, the timing of the first dental visit, and the negative effect of caries on a child's general health.

This is most likely because of the fact that most parents included in this study had a high education level, as it is generally assumed that a well-educated person is generally more aware of overall health. It was also suggested that well-educated parents would have better knowledge and skills to promote oral health in their preschoolers, besides more opportunities to be exposed to oral health promotion messages.²³

However, it was revealed that Libyan parents had weak knowledge regarding feeding practices. As only (13.9%) of parents know that letting a baby breast-feed all night is harmful to teeth. These results were in accordance with previous studies' results, which also showed that more than half of the parents disagreed on nighttime bottles and breastfeeding as a cause of

tooth decay.^{24,25}

This might be due to a lack of awareness of detrimental feeding habits that can cause oral diseases. Besides, in Libya, infant oral health-related messages are seldom disseminated in the local media or health care setups. Parent's attitude responses towards oral hygiene measures were encouraging, as the majority of parents agreed that it is important to clean the child's teeth after every meal, and it is more important to brush a child's teeth at bedtime than in the morning.

These positive attitude scores may be attributed to their positive attitude towards concepts they had good knowledge about. In contrast to less familiar concepts such as the timing for children to stop using a bottle, towards which attitudes appeared to be less positive.

Although most of the parents (79.6%) showed a positive attitude towards regular dental visits, 64.9% of them reported that they take their child to the dentist only when there is pain. These findings were in agreement with previous studies.^{26,27} The reasons behind the poor motivation for preventive care visits despite ample awareness could be attributed to the lack of parental encouragement and motivation for regular visits. Nine out of ten parents agreed that they should check their child's teeth frequently to detect any changes or spots for decay. However, this positive attitude does not necessarily represent what parents are really practicing since bias might be introduced as the participants tend to give socially desirable responses.

On the other hand, the attitude towards the recommended timing for children to stop using a bottle by their first birthday was less positive.

This is most likely because the early stop of using bottles is a less familiar concept towards which attitudes appeared to be less positive.

Libyan parents, in general, were adherent to recommended oral health practices. However, Libyan parents showed less adherence to recommended feeding practices as only 23.6% reported that their children stopped drinking from a bottle in the first year of age.

On the contrary, 85.1% of American Indians were adherent to the recommended time to stop bottle feeding.²⁷

What is more, the majority of them (98.4%) reported that juice is the most frequent substitute for milk. Similarly, Al-Zahrani *et al.*,²⁹ reported that 92.1% of Saudi mothers disagreed with the statement that "frequently giving juice harm your child's teeth". These results are in accordance with their reported poor knowledge and attitude responses regarding feeding practices.²⁹ This could be attributed to their ignorance regarding nursing bottle use and lack of adequate dental education.

However, less than one-third of parents only reported that their child brushes twice a day and just before going to bed every night when it comes to oral hygiene practices. Although most parents had positive attitudes towards oral hygiene practices, our results confirm it is not necessarily translated into favorable practice. To tackle this, parents need to be educated and helped to realise that they are role models for their children and be encouraged to improve their child's oral hygiene practices by adopting brushing as a habit.

This study revealed that gender had a statistically significant relationship ($p < 0.05$) with all KAP scores. Mothers were found to have higher KAP scores than fathers. Our results were in accordance with the reported literature.^{24,28,29,30}

A possible explanation for this finding is the fact that in the Libyan community, mothers are the parents who are commonly in contact with children and usually more involved with the daily care, especially in this young age group compared to fathers.

However, fathers as well should be educated and helped to realize the determinant role they play in their children's oral health. The second observed significant relationship was between knowledge, attitude scores and age. It was revealed that older parents had higher knowledge and attitude scores compared to younger parents. This was similar to results obtained by many other studies.^{10,11,32} The possible explanation is the experience that older

parents may have compared to younger parents, which suggests more concentration is needed in educating younger parents.

However, the age did not show any significant relationship with practice score, which was similar to Sehrawat *et al.*,¹⁰ results. It seems that most parents are all following the most familiar and common oral health practices, regardless of their age. Surprisingly, it was found that the low-income group had the highest knowledge scores when compared with middle and low-income groups. This result was not in agreement with the reported literature, as parents with a lower socioeconomic status were heavily reported to have a lower level of oral health knowledge.^{23,24,28}

The possible explanation for such a result is that most participants in this study are well educated regardless of their monthly income. As mentioned in the demographic profile, most of them came to Malaysia mainly for study or work purposes. Unexpectedly, there was no sufficient statistical evidence that the KAP mean scores are different across educational levels.

Our results were in accordance with Carletto-Körber *et al.*,³³ findings in which the levels of educational attainment of parents did not have an impact on the type of knowledge, attitude, and practices. This may be due to participants' homogeneity, as 341 out of 381 participants were graduates and postgraduates. Nevertheless, it was observed that parents with higher education levels, *i.e.* graduates and postgraduates, had higher mean knowledge and attitude scores when compared to parents with lower education levels.

Since it was suggested that parents with higher levels of education are more likely to have positive health attitudes and pay greater attention to their children's health.^{10,12} Family size and number of children as well did not show any statistically significant relation with KAP scores. This again might be attributed to the homogeneity of recruited participants. It was observed in the present study that the majority of parents had small family sizes and few children.

Though the present study may not capture all the determinants within and across varying levels

of factors, only the most related at individual/interpersonal levels (*i.e.* family income, parental education, family size, and the number of children) were considered to help identify factors related to the at-risk population. In the current study, the lack of perceived need and low value attributed to primary teeth created the main barriers to dental service utilization among the majority of surveyed parents.

One possible explanation is that dental care might be needed if the child has a serious problem with pain since perceived need has been strongly related to oral pain symptoms. Furthermore, it has been suggested that the caregiver's perception of his/her child's oral health may have implications for early dental visits for prevention and early interventions.³⁴

In the present study, the majority (81.1%) of parents perceived their child's oral health as good. These findings may explain why most Libyan parents perceived no need for dental care visits. To further confirm this suggestion, it is crucial to investigate the relationship between their subjective perceptions and their children's objective clinical oral health status. The findings should be interpreted within the limitations of the current study. In the first instance, the findings could not be generalisable to the entire Libyans.

A larger study in the future is needed with a random sampling approach. Secondly, the questionnaire was of a novel construct to meet the study objectives and may not have been comprehensive. In an effort to reduce this limitation, the questionnaire was exposed to validation and pre-testing. Also, bias might be introduced, as parents may have over-reported dental knowledge, attitude, and practice for socially desirable answers, leading to inflated positive responses and not providing exact data, *e.g.* overestimating the frequency of tooth brushing and underestimating negative practice such as consumption of sugar.

However, the present study had several strengths as well. Although the sample is purposive, it reflects the actual picture of the Libyan population in Malaysia, and we have no reason to believe that the sample taken was very different from the rest of the population.

The sample size was sufficient to ensure that the target population is reflected with a reasonable degree of accuracy since the number of interest populations is relatively small.

Also, it had a methodological background, with the availability of comparable survey instruments. The study design, although scientifically less rigorous than the longitudinal studies, is less time and resource consuming.

Study Implication

The findings obtained from this study could be used to plan for oral health policies and programs in promoting better oral health among this population.

Based on the findings, it is suggested that oral health promotion interventions should focus on educating parents about routine preventive visits. It is also recommended that interventions focus more on misconceptions and attitudes towards the importance of primary teeth.

Furthermore, findings on preventive oral health care barriers could be used to improve the utilization among this population and help to improve their children's oral health.

CONCLUSION.

Surveyed Libyan parents exhibited satisfactory oral health knowledge, attitude, and practices, yet it became evident that they lack awareness of detrimental feeding habits which was reflected in their negative attitudes and practice. KAP scores were found to be higher among mothers, older parents, and low-income families.

Focusing on behavior change strategies, rather than providing oral health education alone with special emphasis on younger parents, may improve the children's oral health outcomes. Qualitative methods such as in-depth interviews are recommended to better understand the attitudes of the parents, especially with regard to feeding practice.

Conflict of interests:

Both authors declare no conflicts of interest.

Ethics approval:

The protocol of this study was reviewed and approved by the Medical Ethics Committee, Faculty of Dentistry, University of Malaya. (RN: DF CO 1611/0080 (P) . Permissions from the Libyan schools Management office and Libyan embassy were also granted. Consent form and survey information sheet were disseminated to respective Libyan schools.

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Authors' contributions:

BenGhasheer HF: Idea, hypothesis, performed the study in partial fulfillment of requirements for master degree, prepared the manuscript. Saub R: study design & review the manuscript.

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