Qualitative study

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User requirement gathering for online oral health education module development: Exploring parental perspective

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Abstract

Objective: Dental caries is preventable, yet it remains a common childhood disease. As children are dependent on their parents for oral health care, oral health education for parents is essential to ensure they understand the risk factors and consequences of dental caries and their role in its prevention. This study aims to explore parents' oral health education needs to enable the development and provision of a tailored online oral health education module.

Methods: Online focus group discussions were conducted among Malaysian parents to gather information about the content, layout and presentation of oral health information parents sought for the provision of oral health care for their children. Video recordings were transcribed verbatim and thematic analysis was performed using an inductive approach.

Results: In total, 24 parents participated in the discussions and 4 main themes were uncovered. The first theme was perceived information needs related to dental caries, oral health care and the importance of deciduous teeth. The second theme was parents' preferred information resources which were social media, dentists, mobile phone applications and medical personnel. Thirdly, information delivery format and specific characteristics were recommended. The final theme was challenges and barriers faced in maintaining oral health due to parental constraints, child behaviour and external factors.

Conclusion: Parents' profound feedback and experiential standpoint stipulate the need for the development and delivery of a comprehensible and visually engaging oral health education module by healthcare professionals via social media to enable access to evidence-based information consistently.

Keywords

dental caries, oral health education, digital oral health education, parents, focus group discussion

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Introduction

According to the Federation Dentaire Internationale (World Dental Federation), oral health is multifaceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort or disease of the craniofacial complex.[1] The World Health Organisation Global Oral Health Status Report estimated that oral diseases affect 3.5 billion people worldwide and more specifically, 520 million children suffer from dental caries of their primary teeth.[2] The consequences of poor oral health in children extend beyond dental problems, as oral health is an integral part of general health.

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A child's oral health status relies heavily on the parents. A mother's dietary preferences play a role in forming her child's dietary habits, which could be either a protective factor or a risk factor for developing dental caries.[3] Parents as role models for their children, by exhibiting good oral hygiene habits will lead to their adoption by the children which plays an essential part in avoiding caries development.[4] This is supported by the Fisher-Owen model, which states that parental health status, behaviours and practices influence a child's oral health.[5]

Thus, oral health education for parents is essential to ensure they understand the risk factors and consequences of dental caries as well as their role in its prevention. Lack of oral health education and inadequate preventive measures have led to a high prevalence of dental caries while effective and timely education of parents can largely minimise the consequences of dental caries in children.[6]

There are many ways to bring awareness and communicate knowledge to the public. Verbal and written advice have been shown to positively affect oral health knowledge but are ineffective in achieving sustained behavioural changes.[7] Successful oral health promotion programmes such as oral health promotion workshops are often labour intensive and involve a significant cost.[8] The advent of the digital age has made online dental advice and 'e-health' feasible to promote oral health care. Thus, a different approach is now needed for the dissemination of oral health education to parents.

The aim of the present qualitative study was to explore and better understand parental oral health education needs and requisites with regard to the content, design, characteristics and mode of delivery for appropriate infant and child oral health care. This baseline qualitative study was part of a larger mixed methods study which involves developing, validating and delivering a tailored oral health education module via social media for parents.

Methods

This qualitative study involved focus group discussions which were conducted online via Google Meet. Convenience sampling involving parents of children attending the Faculty of Dentistry, Universiti Kebangsaan Malaysia (UKM) was employed. In convenience sampling, informants are recruited according to the aim of the study to generate as rich and varied material as possible. All potential informants were given a written information sheet about the study. Verbal and written consent was obtained prior to the focus group discussion.

Inclusion and exclusion criteria

See Table 1.

Table 1. Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Parents of children aged 0–12 years old years old attending the Faculty of Dentistry, UKM	Parents with no internet access
Proficient in Malay language	
Has a Facebook account and is well versed with its use	

Development of topic guide and practice focus group discussion

A semi-structured topic guide was constructed in the Malay language by the first author (Female, Paediatric Dentist Trainee) based on literature review and experts' opinion. The semi-structured questions ensured consistency in data collection while encouraging natural flow of discussion among parents. The questions in the topic guide were designed to elicit discussion among parents about children's oral health care, the design and content of oral health information, parental role and barriers in the oral health care of their children. Parents' understanding of the questions was determined via two practice focus group discussions whereby the response provided ensured it was interpreted as intended.

Data collection

The focus group discussions were conducted via Google Meet from December 2021 to February 2022 in Malay language. Four focus group discussions with six parents per group were carried out as a smaller group size facilitates the management of group communication and allows individualised voices to be heard.[9] The discussions were moderated by the first author, who had been trained in the facilitation of focus groups. General information about the study, including confidentiality and the voluntary nature of the study was repeated to the participants at the beginning of each session. Participants were encouraged to respond to each other and engage in an open discussion rather than just talk to the facilitator. The focus group discussions were screen-recorded using two recorders. At the end of each focus group discussion, participants were given a summary of the findings from the discussion to confirm that the researcher's understanding was consistent with their context. The total number of parents involved in the focus group discussions was determined by theoretical saturation whereby no further new codes or themes emerged from the subsequent focus group discussions.[10]

Data analysis

All focus group discussions were transcribed verbatim and transcripts were coded to form categories and themes in a coding table. The data was analysed using an inductive approach according to the basic principles of the constant comparative method.[11] The data was interpreted by the first author and repeatedly discussed with the second author. Preliminary data analysis involved highlighting substantive words and phrases in participant statements. Related codes were grouped into categories. The codes and categories were continually compared with those from previous groups to reflect the similarities and differences systematically prior to determination of the themes. Attempts were made to represent all the voices to cater for the range of vocality and opinions in the groups. From the emergent themes, a summary of the thematic analysis was constructed. The research panel reviewed the summary, and the final version was agreed upon by all the authors. For the purpose of reporting, quotes which were all in the Malay language or a mixed Malay and English language were translated to English using a forward and backward method by the authors who are bilingual. The consolidated criteria for reporting qualitative research checklist was used to ensure quality in the reporting of this study.[12]

Results

A total of 24 parents participated in the 4 focus group discussions conducted. The discussion durations ranged from 53 to 80 minutes with 70 minutes being the average length. The summary of the sociodemographic characteristics of the participants is presented in Table 2.

From the discussions, four main themes were identified which were perceived information needs, preferred information resources, information delivery and barriers or challenges encountered. From the categories and themes which emerged, a summary was conceived as shown in Table 3.

Theme 1: Perceived information need

Parents in general concurred that the content of oral health education received till date from various sources was insufficient, inaccurate or irrelevant and wished to receive specific information regarding dental caries, oral health care and the importance of deciduous teeth.

Dental caries. Although parents had a basic understanding of the causes of dental caries, they seemed unaware of the multifactorial nature of the disease.

> Way to brush teeth, how many times do I have to, need to brush my child's teeth, after that what food I should avoid, actually I follow a lot, it's just that tooth caries still happens. I also don't understand why. (Participant 6)

Table 2. Sociodemographic profile of focus group discussion participants.

Parameters	*n* (%)
Gender	
Male	4 (16.7)
Female	20 (83.3)
Age (years)	
25–29	2 (8.3)
30—34	2 (8.3)
35–39	10 (41.7)
≥40	10 (41.7)
Race	
Malay	22 (91.6)
Chinese	1 (4.2)
Indian	1 (4.2)
Highest level of education	
High school	9 (37.5)
Diploma	4 (16.7)
Degree or higher	11 (45.8)

Table 3. Summary of thematic analysis.

Themes	Categories
Perceived information needs	Dental caries Oral health care Importance of deciduous teeth
Preferred information resources	Social media Dentist Mobile phone application Medical personnel
Information delivery	Format Characteristics
Barriers or challenges	Parental constraints Child behaviour External factors

Parents wanted to know about the dental caries process beginning with its initiation, progression through various stages and its associated complications.

> When the tooth has got caries, actually what happen? Because the time my child got it … the maxillo extracted the teeth … because already got a lot of pus already, already nearly block his/her airway. (Participant 21)

Additionally, parents felt that it was essential for them to be equipped with the knowledge of the appearance of dental caries for identification at home.

> How is the appearance of the caries, meaning how will it happen, when can it happen? (Participant 24)

This information would enable early detection and treatment of dental caries and prevent the occurrence the detrimental effects of untreated carious lesions.

Oral health care. Parents desired oral health care advice that is systematised based on the age of the child. This would enable parents to immediately apply the knowledge gained and avoid the need to sort through information irrelevant to their child.

> I prefer something that is quite systematic, meaning that program is according to the age of the child so we can follow. (Participant 19)

With regard to oral hygiene, parents acknowledged the importance of daily toothbrushing but appeared to lack a clear understanding of the standard toothbrushing regime. Most parents requested for demonstration of:

> … the correct toothbrushing technique. (Participant 7)

Parents also highlighted that information about infant oral hygiene care is not readily available.

> The appropriate method for brushing teeth for baby group, because that time we didn't have much exposure and also the equipment for that is suitable for babies … . (Participant 18)

Some parents were unsure if fluoridated toothpaste should be used as the recommendation by the dentists appear to vary.

> Sometimes doctor say to me at the age of 5 we already can implement fluoride toothpaste to for kids. But when you go here, oh no need, the toothpaste for children doesn't need fluoride … . (Participant 6)

The benefits of using fluoridated toothpaste, the recommended concentrations and amount based on the age of the child should be highlighted to parents.

With respect to diet, parents recognised the importance of a balanced diet and the healthy alternatives to sugary snacks, but desired more specific dietary advise due to their child's cariogenic food preference.

> Like I know, we can replace … also with fruit, because fruit also sweet. But, if still, like these children want to still eat like chocolate, so what diet example in a day, maximum*lah* that he/she can take? (Participant 11)

It must be stressed to parents that limiting the frequency of in between meal snacking and encouraging consumption of healthy snacks is essential for caries prevention.

Some parents realised the harmful effects of prolonged milk bottle feeding but had trouble breaking the habit for their children.

> He/She is still feeding, bottle feeding you know Dr, even though already 7 years old. So, if we want to explain to him/her, it's quite difficult … . (Participant 7)

Tips and methods for weaning off bottle feeding should be furnished to parents to ensure transition to cup feeding by 18 months.

Importance of deciduous teeth. Parents seemed to have the misconception that dental care for primary teeth is not important as primary teeth would eventually fall out and be replaced by permanent teeth.

> It's okay later wait for the new teeth. The permanent teeth is there right, later erupt. (Participant 24)

Parents need to be made aware of the role of primary teeth in guiding permanent teeth into position and the negative impacts of early loss of a primary tooth. Some parents also mentioned that they would like to be informed about the tooth eruption timeline.

> Eruption of teeth from the initial stage … when he starts the first, second, third, fourth teeth and so on*lah* like that. (Participant 1)

This could serve as a guide for parents to render the recommended oral health care measures based on the age of the child.

Theme 2: Preferred information resources

Majority of the parents expressed their preference to receive oral health information from dentists or medical personnel via digital sources such as social media and mobile phone applications.

Social media. With the current trend of smartphone ownership and use of social media by the population, most parents asserted that social media should be used as a platform for oral health education delivery.

> I think almost everyone will look at social media, it doesn't matter what time … he/she will almost must see handphone, must see his/her FB. (Participant 2)

Amongst the advantages of using social media is the timely circulation of oral health information and immediate access to diverse information for everyone.

> If possible*lah* next time all the information can be updated through the website, through the Facebook, maybe parents or the awareness from the parents before the caries is developed …. (Participant 14)

Information can also be viewed at any time based on one's convenience and shared with others.

> I also sometimes have videos that are good, I just download and save in phone. So, I don't have time to watch at that time, I watch in future. (Participant 6)

> Then those videos, those infos, we can then share with other family, other friends …. (Participant 17)

Parents also found information delivered via social media to be more captivating and easily grasped.

> Ok like TikTok got a few got*lah* doctors from dentistry … like today, he/she will share way to brush teeth, and then the tomorrow he/she will share about fluoride usage …. So, things like that are indeed helpful for our understanding as mothers and fathers for ways of taking care of children's teeth cleanliness. (Participant 5)

Another reason for social media preference is the limited consultation time during dental visits. Parents believe that social media provides an alternative medium to communicate with the dentist.

> … because if we go send for check up, the time that time is so limited … Doctor rushing, we are also rushing as well. So, we can't ask more. (Participant 21)

However, parents did note that the drawback of using social mediat is that viewing the content is subject to one's interest and is determined by their needs.

> If you choose you want to see that thing, when it passess, we see*lah*. If you feel like you don't want to, you off the notification … it will still not reach you*lah* basically. (Participant 15)

Dentist. Most parents voiced out that dentists are their favoured source of information as they believed accurate and credible information would be received from them.

> The information given is likely to be valid*lah* if from Health Ministry or what is the name, the dental field …. (Participant 3)

One parent also affirmed dissemination of information by dentists would engage more parents due to its reliability.

> … like let's say*lah* doctor do live shows right, I think very good. Indeed, you can get a lot of followers especially if you inform early. (Participant 13)

A few parents fancied information to be delivered directly face to face but most parents voiced out their preference for an interactive online session.

> Doctors can do live or on Instagram or Facebook from, so that there is feedback*lah* from parents, a discussion like this, presentation like this is quite interesting. (Participant 10)

Dental collaboration with schools was also proposed as a subsidiary strategy to convey oral health information to more parents.

> One particular group has to work together with team management in terms of kindergarten to reach parents. (Participant 14)

Parents however expressed their frustration with the conflicting messages received from different dentist.

> I got go to a few clinics*lah* other than UKM, I got go to private clinic, I got go to clinic anywhere*lah*, his/her different view of doctors is different. (Participant 6)

Mobile phone application. Mobile technology is indispensable in the modern lifestyle with smartphones being a regular personal electronic device in daily life. Thus, there is a growing preference for mobile phone applications as a source of oral health education.

> I prefer for application*lah* to be developed that can be install in handphone. If just sit around anytime, if want to see, can choose*lah* what topic that we want. (Participant 23)

Amongst the application suggestions were:

> … game about … dental health care. (Participant 3)

> … reminder to my child, ok go and brush your teeth. (Participant 14)

A mobile phone application exclusively designed for oral health education would be a convenient tool for parents to obtain knowledge and learn skills pertaining to oral health care for their child.

Medical personnel. Parents emphasised the need for interdisciplinary collaboration between the medical and dental professionals for provision of anticipatory guidance to pregnant woman as good oral health for a child can be promoted by trained medical personnel.

> So why dental don't join together with maternity class for more what people say, give early exposure to parents about dental care for children. (Participant 4)

Some parents pointed out that the collaboration could also be done digitally.

> Dr, just an idea*lah*..when I was pregnant, I always also look at all these pregnancy sites you know … So like these sites, maybe you can collaborate with these sites … . (Participant 13)

Theme 3: Information delivery

Most parents stipulated that utilisation of audio-visual aids and the delivery of simple but adaptable messages would engage more parents and ease comprehension of information.

Format. Majority of the parents suggested the use of videos, infographics and slideshows to provide a more realistic picture which would facilitate better understanding and retentivity of information.

> Those people won't understand like that as long as we don't do practical … we show in terms of video, maybe those people will understand*lah* better. (Participant 3)

Provision of attractive and dynamic presentations of information would not only spark parents' interest but also ease the learning process regardless of literacy level.

> Ok Dr, if like me, reading I really don't like*lah*, so, more to graphic, audio-visual, video, that's more interesting*lah*. (Participant 5)

Parents appeared less receptive to printed oral health educational materials such as pamphlets due to lack of interest. Parents commented that:

> Too much wording, people are lazy to read. (Participant 9)

> But if pamphlet … all the things quite for me either dim or outdated*lah*, not interesting at all and everything*lah*. (Participant 14)

Moreover, parents had difficulty comprehending written information.

> This reading mostly can't really understand. (Participant 20)

Similarly, information delivered verbally was not fancied by parents due to trouble grasping the message.

> By say only way right Dr right, because it's difficult*lah*. He/she don't understand. (Participant 11)

Employing audio-visual aids directed at both the senses of hearing and sight would resonate well with parents because:

> … right now, there is no one really who wants to read, everything more to visual. (Participant 17)

Characteristics. According to most parents, simplicity and accuracy are amongst the cardinal characteristics of an effective oral health education as basic information would catch parents' attention and aid assimilation of the knowledge required for their child's oral health care.

> … make it short*lah* … Fun Fact only for a while, so people will look. (Participant 21)

Reliability of information would establish credibility with parents.

> If the information is delivered by accurate people, that is true, we will be more confident to follow. (Participant 17)

Some parents stated that resources that are in accordance with parental needs must be developed as the existing resources are too generalised.

> Exposure when the time where the child's age is as early as one year old which we usually get at the health clinic, for me, that is not very specific for that child. (Participant 20)

Oral health education must be designed with information tailored to parental needs to impart necessary information and imperative skills to parents that contributes to health-promoting decisions and behaviours. One parent also denoted that provision of information in a repeatable manner is crucial for retention and reinforcement of oral health knowledge for parents.

> Just if it's more frequent, maybe I will be remember*lah* more. If like sometimes, when I read it, once remember, so sometimes forget back, like that only*lah*. (Participant 23)

Parents specified that information needs to be timely, consistent and up to date if it is to be actioned.

> I don't see very consistent*lah* their that information. Maybe update was last year, this year never have anything else. (Participant 14)

Another parent reminded that oral health information must in simple language and avoid the use of dental jargons as these are often incomprehensible. Information free of dental jargons would avoid misinterpretations and subsequent misunderstandings.

> Use trivial term*lah* doctor, don't too very technical*lah*. Sometimes we read too detail also, we like oh no want to understand what doctor … . (Participant 23)

Theme 4: Barriers or challenges

Many barriers or challenges related to parental constraints, child behaviour and external influences were faced by parents in fulfilling the oral health care needs of their child.

Parental constraints. Most parents revealed that their lack of time either due to their career or busy daily schedules led to lack of consistent care and supervision of their child's oral health behaviours.

> Don't have enough time also got as well, working mother right. (Participant 16)

Having too many children to care for was another common excuse that hindered parents from prioritising the oral health care needs of their child.

> The mother right, if she has many children, 4 people, if she wants to what, supervise all of her children also not necessarily all of it also she has time to be able to see. (Participant 24)

As children grow, parents tend to expect them to be responsible for their own dental health. Children however may not have the manual dexterity to brush their own teeth properly and will require parental assistance or supervision.

> When a child already start 4 years old, that 5 years old, sometimes we like accidentally neglected his/her teeth. We expect like him/her that takes care … . (Participant 19)

Negligence and ignorance of parents were also evident with regard to seeking professional dental care as many parents admitted that they sought dental treatment for their child only due to pain from carious lesions.

> So basically, its more of detect, detective rather than preventive from my side. Usually my child already got caries only I bring him to clinic. (Participant 15)

Parents claimed that irregular dental visits and deferment of recommended dental treatment were due to the high cost involved.

> I think one of the issue people don't want to go dentist is because of the price itself. (Participant 6)

However, none of these excuses are acceptable as the neglect of child's oral health is associated with various negative consequences.

Child behaviour. Another barrier faced by parents is gruelling child behaviour. Some parents had trouble establishing a well-balanced diet for their children as children have a preference for certain foods and drinks.

> I think my challenge will be also is their eating habit*lah*. They, they cannot control not to eat sweet things. (Participant 22)

Some parents admitted that they tend to cave in to their child's demands due to their insistent behaviour.

> Tell don't eat lollipop, don't eat sweet things. They still want. So at one section, we also have to give in*lah*. (Participant 9)

Parents occasionally found it strenuous to brush their child's teeth due to resistant behaviour and temper tantrums.

> Our small kids we want to brush teeth, he/she doesn't allow, he/she shuts mouth … . (Participant 23)

Despite some parents expressing their frustration due to noncompliance of their child to their oral health advice, some parents disclosed their parenting strategies to encourage and motivate their child to brush their teeth such as positive reinforcement and distraction.

> Sometimes our children, want to give him/her, want to attract him/her to brush teeth, that sometimes, we do teeth brushing with cartoon*lah*, right? (Participant 2)

Parents must acknowledge their responsibilities as the main caregiver for their child and strategise to deal with and overcome the child's defiance to attain good oral health.

External factors. Parents stated that they had control over their child's oral health care routine at home but expressed their concern regarding their child's toothbrushing routine at the day care centre.

> … we are not sure at day care centre how they teach toothbrushing, whether they watch or not. The reason is that many people there right. (Participant 5)

Similarly, parents pointed out that the consumption of food and the purchases made by their children in school was also beyond their control.

> If we control, we do tell our child who has gone to the primary school to bring boiled water, drink boiled water, but actually behind us, he/she can anyway buy the sweet water because there is that vending machine indeed, right? (Participant 6)

Birthday treats and wedding door gifts were described as an additional hurdle to establish a healthy diet for their child.

> … we go to outside like wedding feast, party, birthday party, surely will have candies like that given, cake to children right? (Participant 5)

Moreover, children were often spoilt by their grandparents, relatives and friends with sugary snacks.

> But sometimes his/her uncle, his/her aunty come bringing, bringing chocolate cake, lollipop, so you can't do anything that one … . (Participant 2)

Some parents also highlighted the impact of advertisements in the mass media as well as the promotions in the supermarket which negatively influence their child's dietary wishes.

> I think one of outside food that are heavily advertised is very, very, very much worsens the situation. All kinds of food come out on advertisement, everything comes out, everyone wants to buy … . (Participant 6)

Thus, parents presumed that dental caries were outside their control due to these external influences.

Discussion

Focus groups are widely used for examining lay perspectives on health service issues because group discussions are noted to produce more critical comments than interviews do, as the participants reinforce the feelings and opinions vented by the others.[13] In this study, we engaged parents via a series of focus groups to gather information on their perspectives of oral health information and guidance required to maintain oral health of their children. Numerous limitations in the existing oral health education materials and unmet parental needs surfaced in our exploration.

Most participants felt that mainstream oral health messages were too generalised and not relevant to their child. For instance, parents were aware of the need to provide a balanced diet to their child, but they wanted specific and explicit information on dietary intake such as type, amount and frequency of food/drink along with details of the role of diet in causing and preventing cavities. Detailed and practical information that can be absorbed and maintained would lead to health-promoting behaviours among parents.[14] Similarly, parents perceived the importance of toothbrushing but there was a high level of confusion regarding the use of fluoridated toothpaste in young children as found in New Zealand.[15] It is therefore imperative to enlighten them about the benefits of fluorides in oral health to counter negative perceptions.[16]

Despite the sentiment expressed that children's oral health is important, few parents conceded that they did not pay attention to the health of primary teeth and child's complaints related to dental caries constituted the main reason for a dental visit which is comparable to a study conducted in India.[17] Delayed/problem-initiated attendance to the dental clinic is attributable to a lack of knowledge of the aetiology and progression of dental caries.[18] Parental ignorance in this matter should be overcome as primary teeth play an important role in a child's general development.

A variety of approaches were proposed on how to disseminate information to parents. Oral healthcare professionals are entrusted to provide credible oral health information. However, confusion and misunderstandings can occur when parents receive contradictory messages from healthcare professionals.[19] Some experts alter their recommendations as knowledge improves and/or policy changes, but not all professionals are up to date with such changes. A recent review highlighted a wide difference in recommended tooth brushing methods by dental associations and professionals.[20] This highlights the urgent need for achieving consensus on clear and evidence-based oral health care recommendations that could increase parents' adherence to oral health care advice.

Many participants also pointed out that social media provides an outlet for dentists to convey their information and an opportunity for parents to ask questions in an easy and fast manner by eliminating the physical barriers that traditionally impede access to healthcare support.[21] The request for more digitalised material suggests that the level of health literacy among the participants was quite high, hence information on dental care provided via social media may improve the uptake of knowledge and preventive care.

Parents' suggestions for improvement concerned the desire to receive clear, consistent, well-organised and customised oral health information early. This is supported by a study whereby a two-year oral health education intervention for mothers promoted the adoption of favourable feeding and tooth care behaviours and effectively reduced the occurrence of carious lesions in their child.[22] Parents also recommended the use of culturally appropriate and plain language to explain concepts to ease understanding of

information, facilitate the integration of knowledge into one's routine and eliminate confusion. The use of dental jargons often results in misunderstanding, poor decision-making and poor health outcomes.[23]

Previously, patients frequently used pamphlets as a source of health information.[24] However, in this study, its use was limited despite obtaining it readily as parents found it to be visually unappealing. Parents instead postulated that oral health messages employing audio-visual aids would engage their attention and studies have shown that slideshows and videos are beneficial in improving the oral health awareness of parents.[25,26] Parents also deduced that it would be useful if copies of such resources were repeated and reinforced in the community. Exposure of parents to comprehensive and interactive education using audio-visual aid one-time resulted in a reduction in caries incidence and an increase in dental utilisation, however, some attrition in information retention was noted after 18 months.[27]

The current study demonstrated that parents' predominant barriers to adhering to oral health care advice revolved around the family environment. In addition to their busy schedules and conflicting life demands, dealing with insistent child behaviour often leads to parents giving in to their unhealthy dietary demands. Therefore, it is recommended that children are given a chance to make decisions with moderate restriction by parents which would allow both parents and children to contribute to determining food choices.[28] The extra-familial barriers cited included the school, social environment, commercials and supermarkets which concurs with findings from the public health literature on factors influencing children's dietary behaviours in general.[29]

This study indicates the importance of meeting parents at a personal level. Deficits in the existing oral health education suggest the need for an improvised educational intervention for parents to improve their knowledge and expand their awareness of their role in children's oral health care. Furthermore, given the advances in technology and digitalisation, the medium and method of oral health education delivery must be up to date.

The strengths of this study are the qualitative approach employed and the language used. Focus group discussions allowed information rich in anecdotes, beliefs and opinions to be gathered in a relatively quick and inexpensive manner.[30] Utilisation of the local language as the communication medium ensured that parents understood the expectations from the researcher and were able to convey the necessary information. However, the limitation of this study was that the sample population was limited to parents attending the Faculty of Dentistry, UKM. A better population source would be the general public who would provide a better representation in terms of ethnicity, education and income levels of the Malaysian population. Carrying out this study in the Klang Valley limited the findings to the urban population and thus cannot be generalised to the rural populations.

Conclusion

The results of the current study provided rich and insightful information about parental views of oral health education and their experiential knowledge indicate the need for creative, consistent and comprehensive strategies for oral health information dissemination to parents. The responses and suggestions obtained can guide the development or improvement of future oral health education materials. Important suggestions included the provision of early, easily comprehensible and visually attractive information via social media by dental professionals working closely with medical personnel to promote children's oral health.

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References

1. Glick M, Williams DM, Kleinman D V., et al. A new definition for oral health developed by the FDI World Dental Federation opens the door to a universal definition of oral health. *Br Dent J* 2016; 221: 792–793.
2. Geneva: World Health Organisation. *Global oral health status report: towards universal health coverage for oral health by 2030*. 2022.

3. Garbin CAS, Soares GB, Dócusse FRM, et al. Oral health education in school: parents' attitudes and prevalence of caries in children. *Rev Odontol da UNESP* 2015; 44: 285–291.
4. Aliakbari E, Gray-Burrows KA, Vinall-Collier KA, et al. Facilitators and barriers to home-based toothbrushing practices by parents of young children to reduce tooth decay: a systematic review. *Clin Oral Investig* 2021; 25: 3383–3393.
5. Fisher-Owens SA, Gansky SA, Platt LJ, et al. Influences on children's oral health: A conceptual model. *Pediatrics* 2007; 120: e510–e520.
6. George A, Sousa MS, Kong AC, et al. Effectiveness of preventive dental programs offered to mothers by non-dental professionals to control early childhood dental caries: A review. *BMC Oral Health* 2019; 19: 1–9.
7. Kay E, Vascott D, Hocking A, et al. A review of approaches for dental practice teams for promoting oral health. *Community Dent Oral Epidemiol* 2016; 44: 313–330.
8. Petersen PE, Baez RJ and Ogawa H. Global application of oral disease prevention and health promotion as measured 10 years after the 2007 World Health Assembly statement on oral health. *Community Dent Oral Epidemiol* 2020; 48: 338–348.
9. Sawrikar P. *Thematic analysis of focus groups with consumers and carers of mental illness*. SAGE Publications, Ltd., 2019.
10. Hennink MM, Kaiser BN and Weber MB. What influences saturation? Estimating sample sizes in focus group research. *Qual Health Res* 2019; 29: 1483–1496.
11. Richards KA and Hemphill M. A practical guide to collaborative qualitative data analysis. *J Teach Phys Educ* 2018; 37: 225–231.
12. Tong A, Sainsbury P and Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Heal Care* 2007; 19: 349–357.
13. Hamilton AB and Finley EP. Qualitative methods in implementation research: An introduction. *Psychiatry Res* 2019; 280: 112516.
14. Yu KF, W W, Liu P, et al. Effectiveness of family-centered oral health promotion on toddler oral health in Hong Kong. *J Dent Res* 2022; 101: 286–294.
15. Roguski M and McBride-Henry K. Insights into the oral health crisis amongst pre-schoolers in Aotearoa/New Zealand: A discourse analysis of parent/caregiver experiences. *BMC Oral Health* 2020; 20: 182.
16. Whelton HP, Spencer AJ, Do LG, et al. Fluoride revolution and dental caries: Evolution of policies for global use. *J Dent Res* 2019; 98: 837–846.
17. Ramakrishnan M, Banu S, Ningthoujam S, et al. Evaluation of knowledge and attitude of parents about the importance of maintaining primary dentition - A cross-sectional study. *J Fam Med Prim Care* 2019; 8: 414–418.
18. Olatosi OO, Onyejaka NK, Oyapero A, et al. Age and Reasons for First Dental Visit Among Children in Lagos, Nigeria. *Niger Postgrad Med J* 2019; 26: 158–163.
19. Chapman A and Felton SH. *Basic guide to oral health education and promotion*. Wiley Blackwell, 2021.
20. De Oliveira BH, Grisolia BM, dos Santos APP. Children's toothbrushing practices recommended on the internet by Pediatric Dentistry Associations. *Pediatr Dent* 2016; 38: 484–488.
21. Farsi D. Social media and health care, part i: Literature review of social media use by health care providers. *J Med Internet Res* 2021; 23: e23205.
22. Jamieson L, Smithers L, Hedges J, et al. Dental disease outcomes following a 2-year oral health promotion program for Australian aboriginal children and their families: A 2-arm parallel, single-blind, randomised controlled trial. *EClinicalMedicine* 2018; 1: 43–50.
23. Hamilton A, Lamey P, Ulhaq A, et al. Commonly used terminology in oral surgery and oral medicine: the patient's perspective. *Br Dent J* 2021; 230: 823–830.
24. Zhang X, Foo S, Majid S, et al. Self-care and health-information-seeking behaviours of diabetic patients in Singapore. *Health Commun* 2019; 1–10.
25. Kajal A, Tandon S, Rai TS, et al. Efficacy of an audio-visual aid in improving knowledge and awareness towards infant oral health care for expectant mothers. *J Indian Dent Assoc* 2020; 14: 13–20.
26. Ahn JH baek, Power S, Thickett E, et al. Information retention of orthodontic patients and parents: A randomized controlled trial. *Am J Orthod Dentofac Orthop* 2019; 156: 169–177.
27. Kulkarni G V. Long-term effectiveness of parent education using the 'baby oral health' model on the improvement of oral health of young children. *Int J Dent* 2013; 1–5.
28. Mahmood L, Flores-Barrantes P, Moreno LA, et al. The influence of parental dietary behaviors and practices on children's eating habits. *Nutrients* 2021; 13: 1138.
29. Achalu P, Zahid N, Sherry DN, et al. A qualitative study of child nutrition and oral health in el salvador. *Int J Environ Res Public Health* 2019; 16: 2508.
30. O.Nyumba T, Wilson K, Derrick CJ, et al. The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods Ecol Evol* 2018; 9: 20–32.