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Influence of parental dental health knowledge and practices on their child's oral health

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Abstract

Introduction: Parents' oral health knowledge and attitude have a direct influence on oral health care options for their children.

Aim: To evaluate attitude and knowledge level of parents toward their children's dental health practice.

Materials and methods: A questionnaire survey was conducted amongst randomly selected parents having children between the ages of 2 and 12 years from Benghazi, Libya. A questionnaire was distributed and completed by the parents to assess parent's knowledge and awareness about the primary teeth. The data was statistical analyzed and comparison of the answers from the collected information was made.

Results: One hundred and seventeen of parents completed the survey. Around 54.7% of participants were mothers and 35.9% were fathers, 9.4% were guardians, and their age was between 20 and 49 years. Although more than half of parents (59%) showed knowledge and attitude, the frequency of tooth brushing was low, only less than half of their children (40%) brushed teeth twice or more per day. Even though most of the parents had medium knowledge towards the primary teeth, dental visit was low, majority (69%) reported visiting the dentist only when child experienced of pain or toothache. And only third of parents had little knowledge about the time of eruption of first permanent molar. The majority (83.8%) would prefer to have their children's carious teeth filled.

Conclusion: Generally parent's dental health awareness and knowledge were adequate but their attitude and practice were inadequate. Educating the parents and an increase in knowledge about caring of primary teeth and their significance effect on permanent teeth will encourage parents to provide better oral health to their children.

Keywords: Children; Parental knowledge; Awareness; Oral health

1. Introduction

Primary teeth play a significant role in basic life functions and having a significant effect on permanent dentition. Primary teeth maintenance is as important as permanent teeth in children. They play an essential role in basic life functions such as mastication foods, maintaining good nutrition, good health, speech, phonetics, aesthetics, promoting self-confidence and even for space maintenance for permanent teeth. A healthy smile provides children the self-confidence they need to have positive social experiences, thus encouraging the children to be more social and active in schools and community. Primary teeth are useful to fulfill these basic needs in children. Prevention of dental caries is less cost-effective than treatment and restoration.

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During the early years, parents have a major influence on their children's dental health. Children spend most of their time with parents. Therefore, they should have knowledge about the important of their child's oral health maintenance. Parental dental health knowledge and attitudes influence the dental health maintenance and healthy behavior of their children. Parents are considered the important persons in accomplishing the best dental health results and assuring welfare for children. They are decision makers for their children's health. It is imperative that parental awareness of primary teeth seems to have a direct effect on the dental health of their children. The more positive the parents' attitude towards dental health the better is the child's oral health. Therefore, parents should have knowledge and awareness about important of caring of primary teeth in order to build confidence in their children through these teeth. Consequently it is essential to explore their knowledge, attitude and practices as it affects the dental health of their children. Children's dental health is the responsibilities of parents, meaning that children are still need their parents in preserving their dental health. Parents' attitudes and awareness have an impact in maintaining their children's dental health. As parents need to show their children teeth brushing accurately, advise them when is the right time for brushing and routinely bring children to visit the dentist for checking the health status of their teeth. The way to increase dental health knowledge amongst children would be to provide dental health education and awareness to parents. The more encouraging from the parent towards oral health the better is the child's oral hygiene. The treatment of primary teeth is not considered a main concern in most of the parents. Several parents believe that primary teeth are less important than permanent teeth because primary teeth are going to "fall out anyway". Though, primary teeth are significant to a child's growth and development. Some parents believed that management of primary teeth is not necessary as it is believed that primary teeth will shed as the child grows, without having an effect on permanent dentition. Also, majority of parents are not aware of time of eruption of first permanent molar because it erupts very slowly and quietly in distal surface of primary teeth.

Dental caries of the primary teeth is rapidly increasing compared to that seen in permanent teeth. In early childhood caries, there is a destructive spread of dental caries most commonly affecting the upper primary anterior teeth as they are the first teeth to erupt and the primary molars. This rapid spreading type of caries affecting the aesthetics of the children and then it causes psychological problems to them. Furthermore, dental caries causes pain and discomfort to the children. Moreover, dental caries may lead to loss of the primary teeth which may interfere with the development of a young child's speech and lack of confidence of the children [1-3]. The early extraction of primary teeth due to dental caries causes improper maintenance of spaces in the primary teeth leads to unorganized eruption of the permanent teeth which leading to crowding and impaction. Increase in the occurrence of dental caries in primary teeth will lead to an increase of dental caries in permanent teeth as caries prevalence was increased with age [4]. Therefore, the health of the permanent teeth depends on the health maintained in the primary dentition. Parents are the one who take care of their children therefore they should have knowledge and awareness about management and maintenance of the primary teeth. However still in developing countries like Libya the parental awareness about these primary teeth is low. Consequently there is increased prevalence of dental caries seen in children [4,5].

Parental awareness is essential in the improvement of behavior that encourages children's dental health and oral hygiene. The adoption of good dental health habits in children and concern for oral health often takes place with parents [6,7] and is affected by parental dental knowledge, attitudes and awareness about dieter habits and feeding practices, oral hygiene practice, regular dental visits, maintenance of primary teeth. Parents have an influence on dental treatment options for their children. The oral care for the children can be enhanced by improving the dental health awareness of their parents. It has been found that the more positive the parent's attitude, knowledge and awareness is toward dentistry, and then the healthier will be the dental status of their children [8]. Hence, it is important to examine and evaluate the knowledge and awareness of the parent, as these may affect their behavior towards their child's dental health. The aspect of parental impact on oral health of child has been the issue of numerous studies.

Most research articles linked parent attitudes and knowledge to their children's dental health. To date, and to the best of our knowledge, there is limited documented research on parental awareness and knowledge level on children's oral health in Benghazi, Libya. More studies on these issues are needed in the literature. Therefore, the aim of the study is to evaluate the knowledge and attitudes of parents on dental health regarding the importance, caring and maintenance of the teeth in their children.

2. Material and methods

All ethical clearance and consent were considered during the process of this study and the study was approved from the research ethical committee of Benghazi University and the consent form was filled by participants before starting the study. This cross-sectional survey study was performed in Benghazi. Sampling was done randomly. The sample was were recruited from a group of parents accompanying their children to Pediatric Dental Department for dental treatment at Faculty of Dentistry, University of Benghazi, Libya. Inclusion criteria for participation were parents of a

healthy child, aged 2 to 12 years, with primary or mixed dentition. Signed questionnaire was administered to the parents. A set of questions were formulated, developed in English and translated to the local language (Arabic). A questionnaire was used to collect the data in the form of 15 close-ended multiple-choice questions. The questionnaire was distributed to 117 parents who agreed to participate in the study after explaining the purpose of the study to the parent and giving instructions to completely fill the questionnaire. The parents were asked to tick the most appropriate correct answer from the given list of answers in order to evaluate their knowledge, attitude concerning the importance and maintenance primary teeth in their children. The first part of the questionnaire consisted of demographic data and the second part consisted of questions assessed the parental knowledge and awareness regarding primary teeth, their importance, number, their impact on the permanent teeth, and the reason for visit the dentist. Also evaluations of parents' attitude towards their preference of filled or extract the decayed primary teeth, and oral hygiene practices and time of eruption of first permanent molar. The questionnaire was designed to be easily read. The questions consisted of a combination of binary options (yes and no), multiple-choice questions and rating questions using "agree," "disagree," and "don't know". Data entry and statistical analysis were done using Statistical Package for the Social Sciences (SPSS version 22.0) for windows. Frequency distribution which includes number and percentage was calculated. The Chi-Square statistic was used for testing relationships between categorical variables. The research question that could be answered using a Chi-Square analysis would be at the level of significant 5% there is significant association between two categorical variables or not. The Chi-square test was used to compare percentages and to test the differences in parental knowledge and practices according to parental father or mother or guardian. The confidence level was set at 95%. A $P \leq 0.05$ was considered statistically significant.

3. Results

The collected date was subjected to statistical analysis. One hundred and seventeen participants completed the questionnaires, 54.7% (n=64) were mothers, 35.9% (n=42) were fathers, 9.4% (n=11) were guardians (Figure 1). Their age was between 20 and 49 years. Thirty nine percent of the parents were between 20-29 years old made up the highest percentage of the study participants. Thirty six percent were between 30-39 years old and twenty five percent were between 40-49 years old.

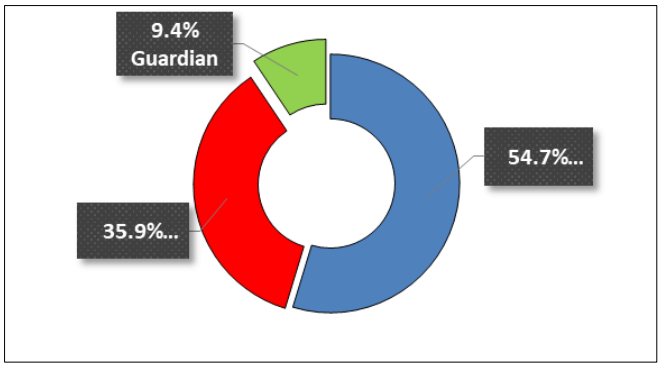

Figure 1 Distribution of the sample according to relationship of the child

As Table 1 shows, when parents were questioned regarding the importance of primary teeth in their children, most of them had knowledge of the primary teeth, and 59% of parents told that primary teeth are important and had an impact on permanent teeth. Only 41% of parents were unaware of the importance of primary teeth or do not know. This study has shown that when parents/guardian were asked, do you think it is important to treat a decayed primary teeth or prefer extraction, 98 out of 117 (83.8%) of parents/guardian thought it was important to manage primary teeth, while only 19 out 117 (16.2%) of the parents/guardian thought that it was not important to manage primary teeth and preferred extraction. Willingness to comply with extraction was agreed by only low percentage. These parents thought that treatment of primary teeth was not necessary as it would eventually shed. Approximately 59% of the parents thought dental caries in the primary teeth has an impact on the permanent teeth and not treating primary teeth will affect the permanent teeth. Whereas 19.7% thought there is no effect of them on permanent ones. They thought permanent teeth will eventually replace the primary ones. And 21.4% of the parents claimed they do not know. More than half of parents, about 64% of the mothers and 52.4% of the fathers, thought that dental caries in the primary teeth has an effect on the permanent teeth.

Most of the parents claimed visiting the dentist only when child experienced or complained of toothache. Pain constituted 69.2% of reasons for visit to dentist. The parents thought that children required treatment of teeth only

when they experience pain. And 24.8% of the parents take their children to dentist more than once per year. Only 5.1% of the parents claimed taking the children to visit the dentist once a year and 9% of them had never taken their child to visit a dentist at all. Of the parents, 44.4% have bad dental experience in the restoration of the primary teeth of their children and 55.6% of parents claimed successful tooth restoration. For frequency of brushing, 40.2% of parents reported that their children brush the teeth twice or more per day, 35.9% brush once a day, 15.4% brush once a week and 8.5% do not brush their teeth. When the parents were asked when their children started brushing their teeth, majority (68.4%) answered when the primary molars erupted, 16.2% answered when the first primary tooth erupted. When parents were asked how many primary teeth are present totally, only 38.5% of parents aware of total number of primary teeth present (20 teeth), 37.6% do not know, 12% of the parents answered 28 teeth, and also 12% answered 32 teeth. When the parents/guardians were asked when the first permanent tooth erupts, only 39.3% of them answered the correct answer, at 6 years old of the child. And 27.4% of them answered at 10 years old. There was 25.6% of the parents/guardian do not know when the first permanent tooth erupts. And 3.4% and 4.3% answered at 12 and 18 years old respectively (Table 1).

Table 1 An analysis of the parental questionnaire regarding their child's oral health

Question	**Mothers (%)**	**Fathers (%)**	**Guardians (%)**	**Total (%)**	**χ^2 p**
Which do you prefer extraction or treatment of primary teeth?					
Extraction	15.6%	14.3%	27.3%	16.2%	1.12
treatment	84.4%	85.7%	72.7%	83.8%	0.571
Does your child have bad dental experience?					
Yes	46.9%	42.9%	36.4%	44.4%	0.48
No	53.1%	57.1%	63.6%	55.6%	0.784
Whether primary teeth have an impact on permanent					
Agree	64.1%	52.4%	54.5%	59.0%	512
Disagree	18.2%	16.7%	36.4%	19.7%	0.239
I don't know	17.2%	31.0%	09.1%	21.4%	
How often do you take your child to the dentist?					
Once /year	06.3%	02.4%	09.1%	05.1%	4.157
More than once/year	25.0%	21.4%	36.4%	24.8%	0.655
When feeling pain	68.8%	73.8%	54.5%	69.2%	
Never	0.00%	02.4%	0.00%	00.9%	
How often does your child brush his teeth?					
Once/day	34.8%	45.2%	24.1%	35.9%	11.4
Twice or more/day	45.7%	35.7%	37.9%	40.2%	0.076
Once/week	8.70%	19.0%	20.7%	15.4%	
Never	10.9%	0.00%	17.2%	8.50%	
When did your child start teeth brushing?					
When the first primary tooth erupts	14.1%	19.0%	18.2%	16.2%	2.97
When the primary molars erupted	73.4%	59.5%	72.7%	68.4%	0.59
Never	12.5%	21.4%	9.1%	15.4%	
How many primary teeth does your child have?					
20 teeth	39.1%	38.1%	36.4%	38.5%	2.506

28 teeth	14.1%	07.1%	18.2%	12.0%	0.868
32 teeth	10.9%	11.9%	18.2%	12.0%	
I don't know	35.9%	42.9%	27.3%	37.6%	
When does the first permanent tooth erupt?					
6 years	45.3%	28.6%	45.5%	39.3%	6.84
10 years	26.6%	28.6%	27.3%	27.4%	0.554
12 years	04.7%	02.4%	0.00%	03.4%	
18 years	01.6%	07.1%	09.1%	04.3%	
I don't know	21.9%	33.3%	18.2%	25.6%	

4. Discussion

The oral health of a child depends on the proper management of primary teeth [1]. Untreated primary teeth can cause several complications such as pain, infections, changes in growth and development, aesthetic problems, teething troubles, malocclusion of permanent teeth, difficulties in eating and sleeping, and malnutrition [2,3]. Parents' awareness and knowledge has very crucial part in oral and dental health of children. The maintenance of children's oral health is one of the key health issues in childhood and parents have a significant role in their children's dental condition. Parental knowledge played an important part in their children dental health practices and habits, which unquestionably have a long-term effect in determining a child's dental health status [9]. In a study by Scroth et al.[10] it was found that the oral health of children was dependent on the attitude of parents towards oral health. Considering the effects of parents on children, it is necessary to assess their attitudes on the issues affecting the dental health of their children. The current study was done to evaluate the oral health knowledge, attitude, and practices of the parents in Benghazi, Libya. The age of participants was between 20 and 49 years. One hundred and seventeen parents of children aged 2-12 years, were invited to participate in the study. In this study, it was observed that more mothers (64%) accompanied their children than fathers. Similar trend was observed in another study reported that 80% of participating accompanied their children was mothers [11]. Dental visits are essential as dental diseases can be detected, treated at an early stage and prevented. Children must have their first dental examination at 1 year of age or within 6 months of the eruption of the first primary tooth. Triangle, the parent, the child and the dentist plays a significant part in the maintenance of the oral health. The dentist can guide the parent about the child's teeth growth, the prevention and causes of dental conditions and suitable management for their children's teeth. The American Academy of Pediatric Dentistry recommends that when children are six months old, after the eruption of the first primary tooth, the first visit to the dentist should be done and their oral health should be assessed by qualified pediatric dentists for communication and building up a trust [12]. In this study, approximately 69% of the parents took their child to a dentist only when the child complains of any pain. Almost similar figure was reported in a study conducted in Chennai, India reported that 65% parents stated visiting dentists only when the child complains of pain. [13]. However, same trend seen in other several studies, the majority of parents reported that visiting dentist only when need arises and the child has a toothache [11,14-19]. Unfortunately, in this study, only 24.8% of the parents take their children to dentist more than once per year.

Surprisingly, around 9% of parents in the current study had never taken their child to a dentist, our figure slightly higher than the one reported (6%) by another study [16]. But our figure much less than 18% and 19% reported in India and Turkey studies respectively[13,19], and further less than that one reported in other study that 51% of parents haven't made dental visit [18]. This might be due to insufficient awareness about the significance of early dental maintenance. Availability matters including cost, fear and anxiety, or limited resources may also be to cause. Therefore, parents must recommend their children to seek oral health assistance as early as their primary teeth begin to erupt. Often, in pediatric dental clinic the dentists notice the parental ignorance about the important of primary teeth and question the necessity of treatment to maintain these teeth. In a study conducted in India, 82% of parents reported that primary teeth are not important [14]. Also, some authors have reported that some cultures place little value on primary teeth and they provided an explanation that, they are temporary teeth and they will be replaced by permanent teeth [20,21].

Surprisingly, in this study, regarding the importance of the primary dentition, a high percentage of parents (83.8%) thought it was important to manage primary teeth even though they are going to be shed. Similar results in other studies reported that parents stated primary teeth were important and should be managed and preserved [16,22,23]. Furthermore, several studies reported that parents had a positive attitude toward oral health [11,13,15,17,18,24,25].

Unfortunately, 16.2% of the parents in this study stated that primary teeth will be eventually shed and replaced and no need to do any dental treatment and extraction of primary teeth is the best option, which is a serious concern because untreated caries of primary teeth increases the risk of having permanent dentition caries which is accompanied by altered child's growth and development children [4,5]. However, similar figure value (16%) was reported by Indian study [13]. Likewise, in a United Kingdom study, 28% of parents preferred to have decayed primary teeth extracted [26]. Moreover, higher percentage of parents preferred extraction than filling of primary teeth in other studies [14,17].

Under normal circumstances, usually, 20 primary teeth are completed at the age of 2.5-3 years. Surprisingly, in the present study, only 38.5% of parents aware of total number of primary teeth present. Awareness about the total number of primary teeth was not clear to more than half of the parents. They had no knowledge that the children have 20 primary teeth. Anyway, an Indian study reported only 30% of parents aware of total number of primary teeth [15]. Furthermore, less percentage was reported by other study, only 26% of the parents know the total number of primary teeth [19].

Though, 59% of the parents thought that treatment of primary teeth will have an impact on the permanent teeth as well. This figure is less than (71%) reported by another study [13]. However 19.7% of parents thought there is no effect of the primary teeth on permanent ones as permanent teeth will eventually replace the primary ones. A study reported that the treatment of primary teeth was considered very low in children and not much importance was given to dental caries in primary teeth [21].

Under normal circumstances, the first permanent molar begins to erupt around the age of six. In this study, in terms of parent's knowledge about the erupting age of first permanent molar was low, only less than half of parents (39.3%) answered correctly. This study reported poor knowledge in parents regarding the time of eruption of first permanent molar. Although our result was less than one that reported by Romanian study, half of parents replied accurately [27], but it was higher than what was reported in other studies [24,25,28-32]. In this study, most of parents are not aware of time of eruption of first permanent molar may be because it erupts very slowly and gently in distal surface of primary teeth without any side effects. Also, sometimes, parents think that the first permanent molar is a primary tooth.

In this study, A high percentage of children their parents were reported to brush their teeth at least once (35.9%) to twice or more daily (40.2%), almost similar results were found in other studies [11,16,17,33-35]. In another study, majority (91.1%) of parents was reported tooth brushing but with less frequency (once a day) [14]. When the parents were asked when their children started brushing their teeth, more than half (68.4%) answered when the primary molars erupted, the reason for starting brushing later could be the lack of parent's knowledge of importance of brushing soon after first primary tooth eruption. Only16.2% of parents answered correct answer, when the first one erupted. This percentage was much less than that reported in other studies; parents started cleaning their child's teeth soon after eruption of the first tooth [11,34]. It is the duty of the parents to observe tooth brushing in their children. The parent's oral hygiene information has an influence on their children dental health. So adequate training for parents is essential to improve their children's oral health habits. Unfortunately, the lack of knowledge and awareness of many of parents lead to severe damage to the child's oral health. The parent's attitude, knowledge, and involvement in the child's dental health are essential for preserving the oral health and general health of the child [36,37]. The necessity for more awareness about primary dentition maintenance and management was in agreement with other studies [38,39] viewing that more care should be given for oral health educational programs for both the parents and children. However, an increase in knowledge will encourage parents to provide even better oral health to their children. The requirement of more effective communication between dental authorities and parents in addition to community preventive and educational and awareness programs in order to train them how to take care of their child's dental health, the significance of regular dental visits could be recommended. The adoption of maintenance of oral health habits in childhood often takes place with parents, so awareness and education programs should be developed for parents to encourage them to seek preventive primary teeth health care and professional oral health counseling. Although carefulness was maintained to ensure the integrity of the study, there were some limitations for this study as it relied on a self-constructed questionnaire that didn't assess different regions in Libya and factors such as differences in maternal and paternal perception of choices of treatment since any of the parents answered the questionnaire based on who attended with the child. Other limitations were the small sample size and the wide age range.

5. Conclusion

The present study revealed that the parents' perception of their children's oral health in Benghazi, Libya is medium and they had moderate knowledge regarding the importance of primary teeth but unfortunately they do not apply their knowledge in practice. There are deficient areas of oral health awareness of number of primary teeth, regular dental visit, time of eruption of first permanent molar and hygiene practice with low tooth brushing frequency. Parental

knowledge can have an effect on oral health condition. Parents who have a good viewpoint on children's oral health are directly affecting the dental health. Therefore, it is recommended to design suitable training programs in order to improve parental knowledge and awareness concerning the importance and function of primary teeth and prevention approaches. An increase in the knowledge and awareness of parents can have a direct influence on the dental health of the child and therefore should be encouraged. It should be emphasis on the preservation of primary teeth and managing of dental caries in children should be brought to the notice of parents along with the management methods.

Compliance with ethical standards

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Disclosure of conflict of interest

There is no conflict of interests. The authors have declared that no conflicts of interest in this work. By this statement, all authors who consist of Rasmia M Huew, Rogaia B Alaskandrani, Almuetasim B Farag, Munya M Khalid have no conflict of interest regarding this manuscript publication.

Statement of ethical approval

All ethical clearance and consent were considered during the process of this study and the study was approved from the research ethical committee of Benghazi University.

Statement of informed consent

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

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