SHORT COMMUNICATION article

Libyan parents' knowledge and awareness of primary teeth and their importance: A study in Misurata City

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Abstract: Primary teeth play a crucial role in a child's overall oral and general health. Parental awareness and knowledge have a significant influence on children's oral hygiene behaviors and outcomes. This study aimed to assess the level of parental knowledge and awareness regarding the importance of primary teeth and oral health practices. A cross-sectional questionnaire-based survey was conducted among 350 Libyan parents attending a pediatric dental clinic. The questionnaire included items on oral hygiene practices, dietary habits, and knowledge related to primary teeth and preventive care. Data were analyzed using descriptive statistics. The majority of parents (93.4%) acknowledged the importance of primary teeth, and 91.5% agreed that children need assistance with brushing until the age of six. Additionally, 77.4% reported limiting candy intake, and 84.0% limited soft drink consumption. However, 48.1% recognized the importance of dental floss, and 64.2% were aware of the fluoride content in children's toothpaste. Most parents (98.1%) are aware of the correct frequency for toothbrush replacement, and 75.5% are also aware of the recommended dental visit intervals. While general awareness among parents is high, specific gaps remain, particularly regarding the use of dental floss and fluoride knowledge. Targeted educational programs and collaboration between dental professionals and pediatric services are essential to improve parental oral health literacy and promote better oral health outcomes in children.

Introduction

Primary teeth, often referred to as milk teeth, are essential for the overall development of a child's oral and overall health. These teeth not only facilitate functions such as chewing, speaking, and forming facial muscles but also play a critical role in maintaining space for the permanent teeth that will emerge later [1]. Despite their significant role, primary teeth often receive less attention compared to permanent teeth in terms of public health education and parental care. In several societies, including Libya, there is a substantial lack of awareness regarding the importance of primary teeth and their proper care, which can lead to various dental health issues in children, such as early tooth decay, tooth loss, and malocclusion [2]. The lack of awareness about primary teeth among parents has been recognized as a key factor contributing to these issues. Studies from various countries have demonstrated that when parents are unaware of the importance of early dental care, they are less likely to encourage proper oral hygiene habits or seek timely dental care for their children. For instance, research conducted by Johnson et al. [3] showed that parents who were well-informed about the significance

of primary teeth were more likely to engage in preventive behaviors, such as regular brushing and limiting sugary foods, which helped reduce the incidence of cavities in young children. On the other hand, studies have also shown that in many communities, there is a lack of understanding about the function and significance of primary teeth, leading to poor oral care practices and, consequently, early dental problems [4, 5].

In Libya, while there has been a growing recognition of the importance of oral health in general, studies on parental knowledge regarding primary teeth are still limited. Most of the available research has focused on the broader topic of oral health, with relatively few addressing the specific needs and understanding of primary teeth. Research conducted in Tripoli found that many parents were unaware of the critical role primary teeth play in a child's development, resulting in neglect in early dental care [6]. This lack of awareness often results in children suffering from avoidable oral health issues, such as cavities, premature tooth loss, and difficulties in speech and chewing. Furthermore, without proper dental care, children may experience long-term oral health problems that can persist in adulthood. Understanding the knowledge and awareness of parents regarding primary teeth in Misurata City is crucial in addressing these issues. Misurata, being one of the most populous cities in Libya, has its own set of social and cultural factors that may influence the way parents perceive and care for their children's oral health. While there is some general awareness about the importance of oral health, the specific knowledge about primary teeth and the associated risks of neglecting them remains underexplored. Furthermore, social factors, such as socioeconomic status, education level, and cultural attitudes toward healthcare, may play a significant role in shaping parental attitudes and behaviors concerning oral hygiene.

Recent studies indicate that raising awareness about the significance of primary teeth through targeted health education programs can significantly improve preventive behaviors among parents. These programs could help parents understand the importance of primary teeth in their child's overall health and development, and the long-term consequences of neglecting their care. According to Alshammari et al. [7], targeted education programs tailored to the specific needs and cultural context of a community can be an effective strategy in improving health outcomes and preventing oral diseases in children. By focusing on the importance of early oral care, these programs could also help reduce the burden of preventable dental conditions, ultimately leading to healthier futures for children. This study aims to assess the level of knowledge and awareness regarding primary teeth and their importance among parents in Misurata City. By examining the understanding that parents have of primary teeth, their role in the child's development, and the behaviors they engage in to promote oral health, this study seeks to provide valuable insights into the current status of parental awareness. The results of this research can contribute to the development of more effective oral health education programs and inform public health strategies that aim to improve the dental health of children in Libya.

Materials and methods

This descriptive cross-sectional study was conducted to assess the knowledge and awareness of parents in Misurata City, Libya, regarding primary teeth and their importance. Data were collected over one year, from January 2024 to January 2025, from a selection of public and private dental clinics across the city. The study targeted Libyan parents residing in Misurata City, Libya, who accompanied their children, aged two to seven years, during routine dental visits. Participants were selected according to predefined eligibility criteria. Inclusion criteria included parents of children within the specified age range who provided written informed consent. Parents working in the medical or dental field, as well as those whose children had congenital dental anomalies or systemic conditions affecting the eruption of primary teeth, were excluded to minimize potential bias. Participants were selected randomly from various public and private clinics to ensure broad representation across different demographics. The sample size was calculated using an expected prevalence (P) of 0.35 based on preliminary data, and a margin of error (d) of 0.05; the estimated sample size was 350 participants. Data were collected using a structured, self-administered questionnaire, initially developed in

English, then translated into Arabic and back-translated to English to ensure clarity and accuracy. The questionnaire included three demographic questions (age, gender, occupation), followed by 11 questions related to the knowledge and awareness of parents regarding primary teeth, oral hygiene, and preventive practices. A pilot study was conducted on 20 parents to test the reliability and clarity of the questions based on established survey design guidelines. Their responses were excluded from the final analysis [9].

Ethical approval: The approval was obtained from the Research Ethics Committee of the Faculty of Dentistry, Misurata University, Misurata, Libya, on 21-06-2024. Participants were fully informed about the study's objectives, and their confidentiality was maintained throughout. Participation was entirely voluntary, and written informed consent was obtained from all participants.

Statistical analysis: Data were entered and analyzed using SPSS Statistics version 26.0. Descriptive statistics (frequencies, means, and standard deviations) were used to summarize participant characteristics. The Chi-square test was used to assess associations between knowledge levels and demographic variables. A p-value of less than 0.05 was considered statistically significant.

Results

A total of 350 parents participated in the study. Among the respondents, 212 (60.6%) were mothers, and 138 (39.4%) were fathers. The mean age of participants was 37.8±8.9 years. The majority of the participants (44.0%) were aged between 30 and 39 years. In terms of education, most respondents (64.9%) had a university-level education or higher, indicating a generally high level of educational attainment.

As shown in **Table 1**, the demographic data reveal that the majority of respondents were mothers (60.6%), while fathers represented 39.4% of the sample. The mean age of participants was 37.8±8.9 years, with the largest group falling within the 30-39 age range (44.0%). Regarding education, most participants (44.9%) had completed a university degree, followed by 20.0% with postgraduate education. Regarding oral health knowledge, the results showed in **Table 2** that a high percentage of parents believed primary teeth are important (93.4%). However, 65.1% acknowledged that cavities can be prevented, indicating some uncertainty in this area. A majority of parents (91.5%) believed that children require help brushing their teeth until the age of six.

Table 1: Demographic characteristics of Libyan participants

Variable	Category	Frequency	Percentage
Gender	Male	138	39.4%
	Female	212	60.6%
Age group	20-29 years	58	16.6%
	30-39 years	154	44.0%
	40-49 years	102	29.1%
	≥ 50 years	36	10.3%
Education level	Primary or below	40	11.4%
	Secondary school	83	23.7%
	University degree	157	44.9%
	Postgraduate	70	20.0%

In terms of limiting sugary foods and beverages, most parents reported restricting their children's candy intake to once a day (77.4%), and 84.0% limited soft drink consumption to once a week. These findings suggest that many parents are proactive about limiting harmful foods for their children's oral health. However, 48.1% of the parents recognized the importance of dental floss in maintaining oral health, which highlights a knowledge gap that could be addressed through education. Additionally, 98.1% of parents were aware that toothbrushes

should be replaced every three months, and 75.5% knew that their child should visit the dentist every six months. Furthermore, 88.7% were aware that there is special toothpaste formulated for children, and 64.2% understood that children's toothpaste contains less fluoride than regular toothpaste.

Table 2: Parents' knowledge regarding primary teeth

Question	Yes (n, %)	No (n, %)
Do you think primary teeth are important?	327 (93.4%)	23 (06.6%)
Do you think cavities can be prevented?	228 (65.1%)	122 (34.9%)
Does the child need help brushing their teeth until the age of six?	320 (91.5%)	30 (08.5%)
Do you limit your child's candy intake to once a day?	271 (77.4%)	79 (22.6%)
Do you limit your child's soft drink intake to once a week?	294 (84.0%)	56 (16.0%)
Do you think dental floss is important for your child's oral health?	168 (48.1%)	182 (51.9%)
Do you know that a toothbrush should be changed every 3 months?	343 (98.1%)	07 (01.9%)
Do you know that your child needs to visit the dentist every 6 months?	264 (75.5%)	86 (24.5%)
Are you aware that there is a special toothpaste for children?	310 (88.7%)	40 (11.4%)
Do you know that children's toothpaste contains less fluoride?	225 (64.2%)	125 (35.8%)
Do you regularly check your child's teeth?	291 (83.3%)	59 (16.7%
Question	**Yes (n, %)**	**No (n, %)**
Do you think primary teeth are important?	327 (93.4%)	23 (06.6%)
Do you think cavities can be prevented?	228 (65.1%)	122 (34.9%)

The responses indicate a high level of awareness regarding the importance of primary teeth and general oral hygiene practices. Most parents understand the importance of proper tooth brushing and regular dental visits. However, there remains some uncertainty in areas such as cavity prevention (65.1% agreement) and the use of dental floss (48.1% agreement). This suggests that while parents are proactive in some aspects of oral health, there are knowledge gaps, particularly regarding less commonly discussed practices like flossing. A significant portion of parents are aware of the need to limit their children's consumption of sugary foods and soft drinks, with 77.4% restricting candy intake and 84.0% limiting soft drink consumption. This reflects a positive attitude toward limiting harmful foods, which is crucial for children's oral health. Despite this, fewer parents (48.1%) recognize the importance of using dental floss, which points to a potential area for further education. Additionally, the findings suggest a high awareness of basic oral hygiene practices, with 98.1% of parents knowing that toothbrushes should be changed every three months and 75.5% being aware that children should visit the dentist every six months. However, there is still room for improvement in knowledge about the fluoride content in children's toothpaste, as only 64.2% were aware of this important distinction.

Discussion

The current study investigated parental knowledge and awareness regarding the significance of primary teeth and oral health practices among a sample of 350 Libyan parents. The findings indicate a generally high level of awareness, though some areas of knowledge remain limited and warrant further educational efforts. A substantial proportion of parents (93.4%) acknowledged the importance of primary teeth. This finding is consistent with a recent study by Al-Namankany et al. [3], which reported that 89.5% of Saudi parents believed in the necessity of treating primary teeth. This is further supported by Setty and Srinivasan [9], who observed that although many parents in Bengaluru were aware of some functions of primary teeth, 39.0% demonstrated a comprehensive understanding. These results suggest a widespread recognition of the importance of primary dentition, particularly in urban and educated populations. Regarding preventive knowledge, 65.1% of respondents agreed that cavities can be prevented. This aligns with the findings of Setty and Srinivasan [9], where 52.2% of parents acknowledged the role of fluoride toothpaste in caries prevention. Although the percentage is relatively high in the current study, the data still reflect a gap in understanding the full scope of preventive oral care, highlighting the need for community-based oral health education. In terms of oral hygiene

practices, 91.5% of participants agreed that children require assistance with tooth brushing until the age of six. This is by guidelines by the American Academy of Pediatric Dentistry, which emphasize that young children lack the manual dexterity for effective brushing and require parental involvement [10]. Such high agreement may reflect the influence of increased parental access to pediatric health information.

Dietary behavior also revealed positive trends: 77.4% of parents reported limiting their children's candy consumption to once daily, and 84.0% restricted soft drink intake to once weekly. These findings are similar to those reported by León et al. [11] in Peru, where 75.3% of caregivers identified at least one cariogenic dietary habit affecting children's oral health. This suggests a growing awareness of the role of diet in dental disease prevention. However, only 48.1% of parents in the present study recognized the importance of dental floss. This finding is concerning and underscores a significant gap in oral health literacy. Previous studies, such as that by Divaris and others [12], have shown that limited parental oral health literacy is associated with poorer oral health outcomes in children. Therefore, efforts should focus not only on toothbrushing but also on educating parents about the benefits of interdental cleaning from an early age. Encouragingly, 98.1% of parents were aware that toothbrushes should be replaced every three months, and 75.5% knew their child should visit the dentist every six months. These findings are consistent with those of Al-Namankany and associates [3], who observed that higher parental education levels were significantly associated with better oral health knowledge, including dental visit frequency. Lastly, 88.7% of parents were aware of special toothpaste formulations for children, and 64.2% understood that children's toothpaste contains less fluoride than that of adults. This is in partial agreement with Setty and Srinivasan [10], who found that more than half of the surveyed parents lacked awareness of fluoride content in toothpaste. The improved awareness in the present study may reflect increased exposure to oral health campaigns and product labeling. Based on these findings, it is recommended that targeted oral health education initiatives be implemented to enhance preventive knowledge among parents. Community-based programs, the integration of oral health counseling into pediatric healthcare services, and active collaboration between schools and dental professionals are essential strategies to reinforce parental knowledge and promote consistent oral health behaviors [13-15]. Furthermore, the development of culturally appropriate educational materials and the conduction of additional research in diverse populations are crucial for ensuring the effectiveness and inclusivity of future interventions aimed at improving children's oral health outcomes.

Conclusion: This study highlights a generally high level of parental awareness regarding the importance of primary teeth and basic oral health practices, particularly in areas such as supervised brushing, dietary control, and routine dental visits. It identifies specific knowledge gaps, most notably concerning the use of dental floss and the understanding of fluoride content in children's toothpaste.

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