ORIGINAL ARTICLE

Knowledge of Parents toward their Children's Oral Health: A Survey in Monastir, Tunisia

Evaluation des connaissances des parents sur la prévention bucco-dentaire : Enquête à Monastir, Tunisie

Yamina Elelmi, Chayma Ben Arbia, Fatma Masmoudi , Ahlem Baaziz

Department of Pediatric Dentistry and Prevention, Dental Faculty of Monastir Tunisia (Tunisia), Dento facial biolgical and clinical Appraoch laboratory LR12ES10, 5000 Monastir (Tunisia)

Abstract

Introduction: The establishment and preservation of optimal oral health in children are largely contingent upon the active participation of their parents and caregivers. These primary figures are instrumental in shaping children's preventive practices and facilitating necessary treatment, highlighting a critical interface for health interventions. The aim of the study was to evaluate the knowledge of parents in Monastir city, Tunisia, toward their children's oral health care and prevention of tooth decay and to determine the influence of parental socio-demographic variables on knowledge.

Methods: A cross-sectional study was conducted in the pediatrician's waiting room in Monastir, Tunisia. Ethical Clearance was obtained. The sample was made up of 195 parents. The questionnaire was completed to obtain information regarding demographic and education variables, knowledge about oral health prevention, parents', children's oral hygiene habits, and risk behaviors. The data collected were subjected to statistical analysis using the Pearson chi-square test and the ANOVA test.

Results: Sixty-three percent of parents who participated in the study had an insufficient knowledge score (score<50%). The mean knowledge score among mothers was slightly greater than fathers. The parents having fewer than three children have better knowledge, and the parents with one child have better scores. Similar results with a higher educational level were statistically significant. The majority of parents recognized many preventive dental aspects like the number of daily brushings, the nature of toothbrush of the child's dental, effective brushing time, and caries as an infectious disease. However, it was revealed that there was limited knowledge among parents about the importance of early oral health prevention.

Conclusion: The oral health knowledge among the participants was relatively low. Parents should get better education in oral health knowledge in order to influence their children to gain better oral health.

Key words: Children, Dental caries, Prevalence, Prevention, Parents.

Résumé

Introduction : L'établissement et le maintien d'une santé bucco-dentaire optimale chez les enfants dépendent largement de la participation active de leurs parents et de leurs tuteurs. Ces figures primaires jouent un rôle instrumental dans la formation des pratiques préventives des enfants et la facilitation des traitements nécessaires, soulignant une interface critique pour les interventions de santé. L'objectif de l'étude était d'évaluer les connaissances des parents de la ville de Monastir, en Tunisie, concernant les soins bucco-dentaires de leurs enfants et la prévention de la carie dentaire, et de déterminer l'influence des variables sociodémographiques parentales sur ces connaissances.

Méthodes : Une étude transversale a été menée dans la salle d'attente d'un pédiatre à Monastir, en Tunisie. L'approbation du comité d'éthique a été obtenue. L'échantillon était composé de 195 parents. Le questionnaire a été rempli pour obtenir des informations concernant les variables démographiques et éducatives, les connaissances sur la prévention de la santé bucco-dentaire, les habitudes d'hygiène bucco-dentaire des parents et des enfants, et les comportements à risque. Les données collectées ont été soumises à une analyse statistique utilisant le test du Chi-deux de Pearson et le test ANOVA.

Résultats: Soixante-trois pour cent des parents ayant participé à l'étude avaient un score de connaissances insuffisant (score < 50 %). Le score moyen de connaissances chez les mères était légèrement supérieur à celui des pères. Les parents ayant moins de trois enfants avaient de meilleures connaissances, et parmi eux, les parents avec un seul enfant avaient les meilleurs scores. Des résultats similaires avec un niveau d'éducation plus élevé étaient statistiquement significatifs. La majorité des parents reconnaissaient de nombreux aspects préventifs dentaires tels que le nombre de brossages quotidiens, la nature de la brosse à dents de l'enfant, la durée effective du brossage et la carie comme maladie infectieuse. Cependant, il a été révélé que les connaissances des parents concernant l'importance de la prévention précoce de la santé bucco-dentaire étaient limitées.

Conclusion : Les connaissances en santé bucco-dentaire parmi les participants étaient relativement faibles. Les parents devraient recevoir une meilleure éducation en matière de santé bucco-dentaire afin d'influencer leurs enfants à acquérir une meilleure santé bucco-dentaire.

Mots-clés: Enfants, Carie dentaire, Prévalence, Prévention, Parents.

Correspondance
Chayma Ben Arbia
Department of Pediatric Dentistry and Prevention, Dental Faculty of Monastir Tunisia (Tunisia)
Email: chaymaba12@gmail.com

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Introduction

Maintaining good oral health is fundamental to a child's general health and significantly impacts their quality of life [1]. Dental caries continues to be a major health issue among children [2]. In Tunisia, a 2003 national survey indicated that 57% of six-year-old children presented with at least one dental cavity in their primary dentition [3]. It is widely understood that parental involvement is crucial in establishing and maintaining good oral hygiene habits in children [4]. As primary caregivers and role models, parents play a key role in influencing their children's oral health behaviors. Therefore, parental knowledge and attitudes are vital components of effective early oral health prevention strategies [5,6].

Although the significance of parental involvement in children's oral health is well-established, there is a substantial knowledge gap regarding the specific determinants of parental knowledge and practices in Tunisia. The influence of socio-demographic factors on parental understanding and their children's long-term oral health outcomes remains largely unknown [3]. In particular, the impact of parental education, income, and access to information on their ability to prevent caries and implement effective oral hygiene practices requires further investigation. This lack of comprehensive data limits the development of targeted oral health interventions for Tunisian families [3].

This study aimed to fill these knowledge gaps by evaluating parental understanding of children's oral health and cavity prevention in Monastir, Tunisia. We will specifically determine the level of parental knowledge about oral hygiene and caries prevention; investigate the relationship between parental socio-demographic factors and their oral health knowledge; and explore how these findings can inform targeted oral health programs in the region. By examining socio-demographic influences on parental knowledge, we intend to provide insights for effective public health strategies to improve children's oral health in Tunisia.

Methods

Study design and sample

It was a cross-sectional study based on the distribution of a questionnaire to the parents of Tunisian children in the pediatrician's patient's room in Monastir city, Tunisia, across a period of two months.

The target population for this study consisted of parents of children in the city of Monastir, Tunisia. Parents attending private pediatricians' clinics in Monastir were recruited using a stratified random sampling method. Clinics were selected to ensure representation across different areas of the city, and within each clinic, parents were randomly selected. The sample was made up of 195 parents.

Conduct of the study

This study was conducted in accordance with the STROBE guidelines [7] and received ethical approval from the relevant committee. After obtaining permission from pediatricians to conduct the survey in their offices, the questionnaire was distributed to the parents.

The content of the survey questionnaire was based on the AAPD (American Academy of Pediatric Dentistry) recent guidelines and UFSBD (Union Française de Santé Bucco-Dentaire) recent guidelines [8-10]. It included 47 questions divided into three parts. The first part concerned the socio-demographic information of the parents and their children (sex, age, school level, number of children, profession, geographical origin…). The second part evaluated the knowledge of the parents toward their children's oral hygiene, and the third part evaluated their food hygiene.

The contact with the parents was made face to face, allowing not only to have a response rate of 100% but also to collect the reactions and comments made by the interviewees. The average answering time was 10 minutes. The questionnaire was tested during a trial period of 13 days with ten parents in order to test the understanding of each of the questions by the target population, which made it possible to limit the bias in the final version of the questionnaire and to be more adapted and better understood by parents.

Data collection and statistical analysis

Statistical analysis was performed using SPSS version 23 (IBM Corp., Armonk, NY). Descriptive statistics were used to summarize the demographic characteristics of the participating group and to describe the distribution of responses to the survey questions. To compare differences in parental knowledge scores across different education levels, one-way analysis of variance (ANOVA) test was conducted. Where significant differences were found, Tukey's HSD post-hoc tests were used to identify specific group differences. Multiple linear regression analysis was employed to examine the relationships between parental education, income, and access to information (independent variables) and parental knowledge scores (dependent variable). Prior to regression analysis, data were screened for outliers and multicollinearity. All statistical tests were evaluated at a significance level of $p < 0.05$.

Results

The sample included 195 parents who agreed to participate and answered all the questions. Table 1 presents the socio-demographic information of the parents. The sample was made up of 38% men and 62%women. The most represented age group was over 40 years, with 42% of parents. Nearly 72 % of respondents had a university education, 22% had a secondary education, and 5 % had only primary education. Findings showed that 20% of parents belonged to a high socio-professional level, 30% of them to a medium socio-professional level, and 23% were workers. Parents without professional activity represented 21% of the sample studied and were mostly women.

Table 1. Socio-demographic characteristics of Parents (n=195)

Variable	Number of parents	Percentage of parents
Sex		
Male	74	38
Female	121	62
Age		
< 25 years	4	2
25 to 35 years	66	34
36 to 40 years	43	22
>40 years	82	42
Study level		
University	140	72
Secondary	43	22
Elementary	10	5
Unschooling	2	1
Socio-professional level		
High level	39	20
Medium level	59	30
Worker or employee	59	30
Unemployed	37	19
Number of children per household		
1 child	37	19
2 children	62	32
3 children	62	32
4 children or more	34	17
Participation in oral health awareness campaigns	139	29
Yes	56	71
No		
Sex of parents who participated in oral health awareness campaigns	66	34
Male	129	66
Female		
Education level of parents who participated in oral health awareness campaigns		
University	171	88
Secondary	14	7
Primary	10	5

Table 2 presents the socio-demographic information of the children of the surveyed parents.

The sample was made up of 47% boys and 53% girls.

The most represented age was between 6-12 years (48%). The results showed that 43% of the children were elderly, and almost half of them (56%) had not yet consulted a dentist. Children aged between 6 and 12 years old dominated the group of children who had visited a dentist before, with a percentage equal to 74%. The most common reason for consultation mentioned by the parents was "Anomaly of eruption" (35%), then came the "Dental pain" (27%), and the "Checkup" (16%).

The knowledge of parents on oral and food hygiene was then evaluated. The answers to the questions were grouped into two categories: correct answers and wrong answers. The results are shown in Table 3. A score was then assigned to each level of knowledge: 63% of parents who participated in the study had a score of insufficient knowledge (score<50%), 37% had an average knowledge score (score between 50% and 75%). No parent in this study had a satisfactory knowledge score (score> 75%).

Table 2. Socio-demographic characteristics of children of the surveyed parents

Variable	Number of parents	Percentage of parents
Sex		
Male	91	47
Female	104	53
Age		
0 to 3 years	59	30
3 to 6 years	23	12
6 to 12 years	93	48
>12 years	20	10
Sibling order		
Elder	83	43
Second	50	26
Third	42	22
Fourth and plus	20	10
Dentist consultation		
Yes	85	44
No	110	56
Distribution according to the age of dental consultation	10	5
1 to 3 years	10	5
3 to 6 years	144	74
6 to 12 years	31	14
>12 years		
Distribution according to the reason for consultation	68	35
Anomaly of eruption	52	27
Dental pain	31	16
Check up	15	8
Dental trauma	29	14
Other		

The association between sample characteristics and parental knowledge medium score is shown in Table 4. Women had better knowledge than men (p = 0.029). The higher the level of education, the higher the parents' knowledge (p = 0.000). The participation of parents in awareness campaigns significantly improved their level of knowledge (p = 0.000). The more the number of children increased, the MORE the level of knowledge was getting weak (p = 0.001). No significant association with age could be identified by the analysis. Similarly, the socio-professional level taken into account alone no longer played a role in predicting the level of knowledge of parents in terms of oral prevention.

Table 4. Association between knowledge medium score and sample characteristics

Sample characteristics	Oral hygiene knowledge	Food knowledge	Global knowledge
Sex of parents	0.79	0.000*	0.029*
Age of parents	0.58	0.40	0.73
Level of education	0.000*	0.000*	0.000*
Profession of parents	0.000*	0.000*	0.000*
Raising awareness of oral prevention	0.000*	0.002*	0.000*
Dentist's visit	0.75	0.70	0.69
Number of children	0.002*	0.004*	0.001*

***Significant association (p < 0.05)**

Table 3. Answers grid (n = 195)

Questions	n correct answers (%)	n wrong answers (%)
Oral hygiene		
Does oral health affect the general health of the child?	181 (93%)	14 (7%)
At what age should parents start cleaning their child's teeth?	35 (18 %)	160(72 %)
Is it enough to brush the child's teeth?	86 (44 %)	109 (46 %)
What type of toothbrush does the child use?	158 (81 %)	37 (19 %)
What type of toothpaste is recommended for children?	101 (52 %)	94 (48 %)
Effective bushing time	107 (55 %)	88 (45 %)
At what age do children know how to brush their teeth independently and effectively?	127 (65 %)	68 (35 %)
Did you have the habit of cleaning your child's teeth when he was a baby with a compress soaked in water? Or saline solution?	43 (22 %)	152 (78 %)
Do you think tooth decay can be passed from person to person?	95 (49 %)	100 (51 %)
Do you think bacteria cause tooth decay?	154 (79 %)	41 (21%)
What is the main factor responsible for dental caries?	68 (35 %)	109 (65 %)
To test the temperature of your baby's food, do you taste with the same spoon or teat and/or drink in the same glass and/or blow on your child's food?	88 (45 %)	107 (55 %)
Do you know fluoride?	109 (56 %)	86 (44 %)
What is the age of the first dental consultation?	20 (10 %)	175 (80 %)
Apart from the problems, should a child consult the dentist?	64 (33 %)	131 (67 %)
Are temporary teeth as important as permanent teeth?	76 (39 %)	119 (61 %)
Can pathologies of temporary teeth affect permanent teeth?	127 (65 %)	68 (35 %)
What is the recommended age for weaning from the bottle and initiating cup drinking?	74 (38 %)	121 (62 %)
At what age should the habit of thumb sucking (or other finger, pen, etc.) be abandoned?	27 (14 %)	168 (86 %)
Food Hygiene		
Does diet play an important role in children's oral health?	191 (98 %)	4 (2 %)
How should a child's meal rate be established from 6-8 months?	37 (19 %)	158 (81 %)
Does your child consume sweets (candy, chocolate, honey, jam, cake, cookies, sweet chewing gum) or sugary drinks (juice, soft drinks)?	25 (13 %)	170 (87 %)
After diversification (beginning of stewed purees, often after the age of 6 months), is it advisable to keep one or multiple breastfeeds at night?	23 (12 %)	175 (88 %)
Is frequent milk bottle-feeding beneficial and recommended for a child's teeth after the diversification of the diet (e.g., introduction of purées, often after 6 months of age)?	66 (34 %)	129 (67 %)
From what age is breastfeeding on demand (e.g., every time the child cries) not recommended?	50 (21 %)	145 (79 %)
During the day, if the child is thirsty outside of meals, what can we give him to drink preferentially?	133 (68 %)	62 (32 %)
At night, at bedtime, what should be given to a child over 6 months old?	29 (15 %)	166 (85 %)
Can we add sugar or honey to a milk/water bottle to comfort the child (especially before a nap)?	125 (64 %)	70 (36 %)
Can we dip the teats (bottle or pacifier) in honey or sweet syrup to calm the child?	125 (64 %)	70 (36 %)
Is it better to eat a sweet food?	49 (25 %)	146 (75 %)

Discussion

The primary objective of this study was to assess parental knowledge of children's oral health care and cavity prevention in Monastir, Tunisia, and to determine the influence of parental socio-demographic variables on that knowledge.

Mothers visiting pediatric clinics comprised two-thirds of the survey participants. This sex disparity could be attributed to fathers' often heavier professional commitments and limited time. The predominant age group was 40 years and older, representing 42% of participants, with a higher proportion of males in this group. Conversely, females were more prevalent in the younger age groups (under 40). Regarding education level, approximately 72% of the participants held a university degree, indicating a significant representation of a well-educated population in this study. The distribution across socio-professional categories was relatively balanced. Parents without professional employment constituted 20% of the study population, with a higher concentration of females, which is consistent with national trends.

One-third of the study population had participated in oral health prevention awareness campaigns, with 66% of this group being female. This sex imbalance in awareness participation reflects the unequal distribution of family responsibilities, particularly those related to childcare, within Tunisian families.

Notably, parents with higher education levels demonstrated a greater likelihood of participating in awareness campaigns; 88% of those who participated had a university degree, compared to those who did not. The child population exhibited a roughly equal sex distribution, with children aged 6 to 12 years being the most represented.

Finally, 44% of the children had previously visited a dentist, primarily those aged 6 to 12 years. It was observed that as the child's birth order increased, the frequency of dental consultations decreased.

Regarding parental knowledge of children's oral health, our analysis revealed that no parent in this study achieved a satisfactory level. One-third of the parents demonstrated moderate knowledge, while the majority (63%) exhibited insufficient knowledge. This finding correlates with the study by Kumar et al. [11]. Parental knowledge varied significantly across countries. Specifically, our study showed much lower knowledge levels compared to other African countries like Ethiopia (2018, 78.2%) and South Africa (2020, around 70%) [9]. In contrast, studies in Asia, particularly India (81.12%) and Saudi Arabia (82.80%), reported considerably higher scores [13, 14]. However, results from Romania (54.26%) and Nepal (50%) were similar to our findings [15, 16]. Notably, Tunisian parents exhibited some of the lowest knowledge scores globally. These discrepancies may be attributed to varying economic conditions and access to oral health services. In developing countries, there is often a scarcity of financial and human resources for parental oral health education, compared to developed nations. Furthermore, dental care may be perceived as less critical than other health priorities, and the high cost of services can limit access.

Sex significantly influenced knowledge, with mothers demonstrating greater understanding than fathers, likely due to their increased involvement in child healthcare. This result is consistent with numerous studies [12-15, 17]. Parental education also had a significant impact, with higher education levels correlating with better knowledge scores, a finding supported by previous research [11-14, 16-18]. This suggests that more educated parents are more aware of oral hygiene, pay closer attention to their children's diet, and better comprehend oral prevention guidelines.

Parents who attended preventive oral health campaigns scored higher, possibly due to increased curiosity and interest. Therefore, continued oral prevention education is essential for knowledge retention. Interestingly, parents with fewer children displayed better knowledge, with parents of single children scoring highest. This might be due to overprotective tendencies or more available time, although an American study in Michigan and Kotha et al. [14, 19] found the opposite.

Age, socio-professional level, and geographical origin did not correlate with knowledge. Surprisingly, dental visits did not improve parental knowledge, despite dentists being a primary source of information for parents of young children. This highlights the need for dentists to be more proactive in parental education [20].

In summary, factors associated with higher parental knowledge included being a mother, having a single child, higher education, and attending oral health campaigns. Conversely, fathers of large families with lower education levels represent a priority target group for oral health education.

To improve children's oral health, a multi-faceted approach is needed. Dentists should actively educate parents during consultations, and other healthcare professionals like pediatricians and general practitioners should be trained to reinforce oral health messages. Public health initiatives should develop accessible educational materials and community programs. Efforts to improve access to affordable dental care are also essential. Ultimately, a collaborative effort among parents, healthcare professionals, and public health officials is necessary to create a healthier future for children.

Conclusion

This study revealed a concerningly low level of oral health knowledge among parents in Monastir, Tunisia. Given that parents are pivotal in establishing and maintaining children's oral hygiene, this knowledge gap underscores the urgent need for targeted interventions. Simply put, parents form a crucial link in the chain of effective oral health prevention. Therefore, strengthening the role of dentists is paramount, but it is not sufficient.

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