

Knowledge and practice of caries prevention in mothers from Bialystok, Poland

Joanna Baginska^{1*}, Ewa Rodakowska¹

¹Department of Conservative Dentistry, Medical University of Bialystok, Poland

Corresponding Author: Joanna Baginska; Department of Conservative Dentistry, ul. M. Skłodowskiej-Curie 24a, 15-276 Bialystok, Poland, phone 48 85 748 57 60, e-mail: jbaginska@wp.pl

ABSTRACT

Introduction: Parents are directly responsible for the dental health of their offspring and can play an important role in preventing oral diseases in children.

Objective: The aim of this study was to assess knowledge and practice of mothers of young children from the area of Bialystok, Poland, on the prevention of tooth caries.

Method: 140 mothers of 3-4 year old children took part in an anonymous voluntary survey. The questionnaire used in the survey related to the knowledge of principles of dental caries prevention, the sources from which mothers obtain their knowledge and the methods of implementing oral health behavior.

Results: In the survey, 95.7% of mothers knew about the importance of regular removal of dental plaque by brushing teeth, 85.7% knew of the role of fluoride-containing toothpaste and 82.8% indicated avoiding the consumption of sweets. They were also aware that oral health required regular dental visits (89.2%). Most of them (87%) knew that deciduous teeth should be treated as permanent ones, but only 65.7% were convinced that a direct relationship of the condition of deciduous and permanent dentition exists. The survey revealed a discrepancy between the knowledge of principles of dental caries prevention and their implementation in everyday life among mothers of young children from Bialystok, Poland. There was a large percentage of 3-4 year old children who brushed their teeth 1-3 times a week (15%) or less frequently (3.6%). In the sample, 10% of 3-4 year old children visited a dentist for the last time a year ago, and another 42.8% had never been on such a visit.

Conclusion: Mothers in Bialystok, Poland, had basic knowledge of caries prevention. However, their theoretical knowledge has been not fully reflected in the way they cared for their children's teeth.

Keywords: caries, children, dental health, knowledge, mothers

Introduction

Caries is a transmissible infectious disease. Family members, especially mothers, are the primary source of infection for children. At an advanced stage, dental caries may cause a significant reduction of children's quality of life due to pain, difficulties in consumption of hard food and sleep disturbances^{1,6,8}. The main risk factors for dental caries in children are a sugar-rich diet, incorrect feeding practices and abundant dental plaque.

Parents are directly responsible for the dental health of their offspring and can play an important role in preventing oral diseases in children. They clean teeth of their children, teach them proper hygiene and dietary habits, and organize professional dental care. How the prevention of dental caries, consequently dental health care in general, is provided depends to a large extent on the awareness of parents and caregivers¹⁵. Many authors reported that caregivers of young children had multiple deficits in this area, and a poor attitude of parents toward dental habits is associated with increased caries prevalence^{4,18,20}.

The aim of this study was to assess knowledge and practice of mothers of young children from the area of Bialystok, Poland, on the prevention of tooth decay.

Material and method

Sampled population included 140 mothers of young children attending the first year of 10 randomly chosen preschools in Bialystok, Poland. The completion of the survey was voluntary, and the qualifying criterion was to have a child aged between 3 and 4 years. A questionnaire used in the study was prepared within the Oral Health Monitoring program conducted every year in Poland. Questions related to the knowledge of principles of dental caries prevention, the sources from which mothers obtain their knowledge and the methods of implementing oral health behavior.

Results

Data on the knowledge of principles of dental caries prevention are presented in Table 1. The majority of mothers who took part in the survey knew the basic preventive measures. Almost all knew that most important in the prevention of dental caries are the regular removal of dental plaque by brushing teeth (95.7% of correct answers), the use of toothpaste containing fluoride (85.7%) and avoiding the consumption of sweets (82.8%). They were also aware that oral health requires regular dental visits (89.2%). However, only slightly more than a half indicated additional ways of maintaining proper oral hygiene, such as the use of dental floss as well as rinses and gels with fluoride.

Table 2 shows opinions of the surveyed mothers on selected statements about oral health. Most of them (87%) knew that deciduous teeth should be treated as permanent ones, but only 65.7% were convinced that a direct relationship of the condition of deciduous and permanent dentition exists. We also noticed that more than one fifth of respondents did not know that they should assist their children in cleaning the teeth until the age of 10 years. Only 5 mothers expressed the opinion that the tendency to dental decay is hereditary.

The sources of knowledge for the surveyed mothers were primarily dentists (82.1%), followed by magazines (65.7%) and different kinds of guidebooks (45%). Only about 30% of them received appropriate piece of advice from general practitioners or pediatricians. Surveyed

mothers rarely benefited from the knowledge of people around them, such as mothers or friends, or from online resources (5.7%). The data is presented in Table 3.

Figures 1-4 show the behavior of surveyed mothers concerning the prevention of dental caries. Most of them declared that their children brushed the teeth at least once a day. There was, however, a large percentage of 3-4 year old children who brushed their teeth 1-3 times a week (15%) or less frequently (3.6%) (Fig.1). 60% of mothers regularly accompanied their offspring during teeth brushing, but as many as 20% saw no such need (Fig.2). 85% of parents reported that they limited the amount of sweets consumed by their children (Fig.3). In the sample, 10% of 3-4 year old children visited a dentist for the last time a year ago, and another 42.8% had never been on such a visit (Fig. 4).

Discussion

Parents of small children attending kindergartens in Bialystok, Poland, knew the basic principles of dental caries prevention, especially with regard to maintaining proper oral hygiene. Unfortunately, they had difficulty in identifying additional ways of controlling dental plaque, for example, by rinsing the mouth with water or using interdental systems (dental floss, toothpicks). Nowadays, it is believed that the mere brushing removes dental plaque inadequately, and additional ways foster the maintenance of oral health.

Many authors confirmed that the parents of pre-school children do not have sufficient knowledge of caries risk factors and ways of its prevention ^{2,11,20}. In a study of Suresh et al. ¹⁸, the caregivers' knowledge of proper diet for caries prevention was complete, but not in relation to the importance of oral hygiene practices or the importance of deciduous teeth. Mothers surveyed by Akpabio et al. ² could not give proper answers to questions concerning the age at which children should start brushing their teeth and when they should visit a dentist for the first time. In the study of Naidu and Davis ¹¹, parents did not know whether the toothpaste their children used contained fluoride and what was the appropriate concentration of fluoride for preschool children. According to Vinay et al. ²⁰, half of the surveyed parents from Bangalore, India, believed that children should have a dental visit only if they have a toothache. Also, many parents from the United Kingdom saw no need for the restoration of asymptomatic carious primary teeth ¹⁹.

Our survey revealed a discrepancy between the knowledge of principles of dental caries prevention and their implementation in everyday life among mothers of young children from Bialystok, Poland. These observations are also consistent with data from the literature according to which the parents' knowledge and attitudes do not translate into the effective prevention of dental caries in their offspring ^{9,12,20}. Almost all mothers that took part in this survey were aware that proper brushing is the basic form of preventing tooth decay. However, only 46.4% of them reported that their 3-4 year old children brushed their teeth at least 2 times a day. Skaret et al. ¹⁶ noted that habits established at the age of 3 years tended to persist during the next years. Therefore it is extremely important to teach a child proper health habits as early as possible. As many as 78.5% of our surveyed parents knew that they should supervise their children during teeth brushing, but only 60% did so on a regular basis. The others probably did not realize that proper plaque removal was difficult and required a great ability from a child. Children usually clean teeth too short, and focus mostly on the front teeth. Additionally, in case of small children, there is a likelihood of ingesting too much of fluoride toothpaste, which may lead to the development of fluorosis. In order to develop proper habits, a child should just brush teeth him- or herself first, and then a parent should check the results and correct it, if necessary. Surveyed mothers were aware that for the oral health regular dental visits were needed, but up to 42.8% of

them confirmed that their offspring have never had such control. First visit to a dentist should take place at the age of about one year, and not only in Poland, but also in other countries it often takes place later between 3 and 6 years of age¹⁰. Surveyed mothers knew that avoiding the consumption of sweets had a positive impact on dental health, and declared that they limited their children's diet, respectively 82.8% and 85% of answers. However, to determine whether attempts to reduce the amount of sugar are essential, analyses of food consumed by children should be performed. Research conducted in Poland showed that caregivers of children eating both large and small quantities of cariogenic products made a similar declaration³. Also Vinay et al.²⁰ noted that despite the good level of general knowledge of the causes of dental caries, many parents gave the children nipples covered with sugar or honey, and sweet drinks before their bedtime.

In our study, dentists were the main authority for the mothers as regards oral health. It is important that a pregnant woman has regular checkups. The dentist should not only take care of her teeth, but also explain how to care for the infant's oral cavity and how to prevent tooth decay when the baby has first teeth. Furthermore, general practitioners and pediatricians should conduct a similar education^{7,8}. Poor dental health affects the entire body of the child, may be a cause of sleep disturbances, feeding and speech problems^{1,6,8}. Rothe et al.¹⁴ demonstrated that a 30 min PowerPoint and Video presentation may improve the oral health knowledge of parents caring for an infant. In case of immigrants, the information should be transmitted in their native language⁵.

In the literature, the role of factors affecting the parents' knowledge of dental caries prevention and the implementation of appropriate health behaviors is emphasized. Many authors consider the level of parental education, the socio-economic status of the family, the place of residence and the immigrant status to be most important^{2,8,13,15,17,18}. The positive impact of educational programs directed to parents from the communities with a greater risk of developing tooth decay in children has been noted^{5,9}.

Conclusions

Mothers in our survey had basic knowledge of caries prevention. However, their theoretical knowledge has been not fully reflected in the way they cared for their children's teeth. We have concluded that they need better education on oral health promotion, with emphasis on the implementation of appropriate behavior in the daily routine. Educational activities should be promoted not only by dentists, but also by general practitioners and pediatricians.

Conflict of Interest: None declared.

References

1. Acharya S, Tandon S: The effect of early childhood caries on the quality of life of children and their parents. *Contemp Clin Dent*. 2011; 2 (2): 98-101.
2. Akpabio A, Klausner CP, Inglehart MR: Mother's / guardians' knowledge about promoting children's oral health. *J Dent Hyg*. 2008; 82 (1): 12.
3. Baginska J, Stokowska W: Dietary habits and early childhood caries intensity among young children. *Wiad Lek*. 2006; 59 (1): 5-9.

4. Dimitrova MM: A study of pregnant women's knowledge of children's feeding practice as a risk factor for early childhood caries. *Folia Med (Plovdiv)*. 2009; 51(4):40-5.
5. Ekman A, Persson B: Effect of early dental health education for Finnish immigrant families. *Swed Dent J*. 1990; 14(3):143-51.
6. Gaur S, Nayak R: Underweight in low socioeconomic status preschool children with severe early childhood caries. *J Indian Soc Pedod Prev Dent*. 2011; 29 (4): 305-309.
7. Kressin NR, et al. Pediatric clinicians can help reduce rates of early childhood caries: effects of a practice based intervention. *Med Care*. 2009, 47(11):1121-8.
8. Lewis CW, Grossman DC, Domoto PK, Deyo RA: The role of the pediatrician in the oral health of children: A national survey. *Pediatrics*. 2000; 106 (6): E84.
9. Lukes SM: Oral health knowledge attitudes and behaviors of migrant preschooler parents. *J Dent Hyg*. 2010; 84 (2): 87-93.
10. Mileva SP, Kondeva VK: Age at and reasons for the first dental visit. *Folia Med (Plovdiv)*. 2010; 52(4): 56-61.
11. Naidu RS, Davis L: Parents' views on factors influencing the dental health of Trinidadian pre-school children. *Community Dent Health*. 2008; 25 (1): 44-49.
12. Ozer S, Sen Tunc E, Bayrak S, Egilmez T: Evaluation of certain risk factors for childhood caries in Samsun, Turkey. *Eur J Paediatr Dent*. 2011; 12(2): 103-6.
13. Poutanen R, Lahti S, Tolvanen M, Hausen H; Parental influence on children's oral health-related behavior. *Acta Odont Scand*. 2006; 64 (5): 286-292.
14. Rothe V, Kebriaei A, Pitner S, Balluff M, Salama F: Effectiveness of a presentation on infant oral health care for parents. *Int J Paediatr Dent*. 2010; 20 (1): 37-42.
15. Saied-Moallemi Z, Virtanen JI, Ghofranipour F, Murtomaa H: Influence of mothers' oral health knowledge and attitudes on their children's dental health. *Eur Arch Paediatr Dent*. 2008; 9 (2): 79-83.
16. Skaret E, Espelid I, Skeie MS, Haugejorden O: Parental beliefs and attitudes towards child caries prevention: assessing consistency and validity in a longitudinal design. *BMC Oral Health*. 2008; 8: 1. doi: 10.1186/1472-6831-8-1.
17. Skeie MS, Klock KS, Haugejorden O, Riordan PJ, Espelid I: Tracking of parents' attitudes to their children's oral health-related behavior-Oslo, Norway, 2002-04. *Acta Odontol Scand*. 2010; 68 (1): 49-56.
18. Suresh BS, Ravishankar TL, Chaitra TR, Mohapatra AK, Gupta V: Mother's knowledge about pre-school child's oral health. *J Indian Soc Pedod Prev Dent*. 2010; 28 (4): 282-287.
19. Tickle M, Milsom KM, Humphris GM, Blinkhorn AS: Parental attitudes to the care of the carious primary dentition. *Br Dent J*. 2003; 195 (8): 451-455.
20. Vinay S, Naveen N, Naganandini N: Feeding and oral hygiene habits of children attending daycare centers in Bagalore and their caretakers oral knowledge, attitude and practices. *Indian J Dent Res*. 2011; 22 (4): 561-566.

Table 1. Answers provided by surveyed mothers to the question: "What are in your opinion the ways to prevent the formation of cavities? (You can indicate several answers)".

Method of caries prevention	n (%)
correct brushing of teeth	134 (95.7)
regular dental checkup	125 (89.2)
using toothpaste with fluoride	120 (85.7)
avoiding eating sweets	116 (82.8)
using dental floss	81 (57.8)
using gels and rinse with fluoride	73 (52.1)
rinsing oral cavity with water after meal	29 (20.7)
using dental sticks	25 (17.8)

Table 2. Opinion of surveyed mothers about the selected findings on oral health.

Statements	True n (%)	False n (%)	Don't know n (%)
Children should be helped with brushing their teeth up to the age of 10 years	110 (78.5)	7 (5)	23 (16.5)
Deciduous teeth don't require care because they will fall out	7 (5)	122 (87)	11 (8)
Dental caries transmits from deciduous to permanent teeth	92 (65.7)	9 (6.4)	39 (27.9)
A child inherits from his/her parents susceptibility to dental caries	5 (3.6)	79 (56.4)	56 (40)

Table 3. Sources from which mothers obtained the knowledge of oral care methods.

Source	n (%)
dentist	115 (82.1)
magazines	92 (65.7)
educational books	63 (45)
television	56 (40)
general practitioner	41 (29.3)
radio	23 (16.4)
friend	23 (16.4)
mother	15 (7.8)
other sources:.. internet	8 (5.7)
kindergarten teacher	2 (1.4)

Figure 1. Frequency of tooth brushing in children.

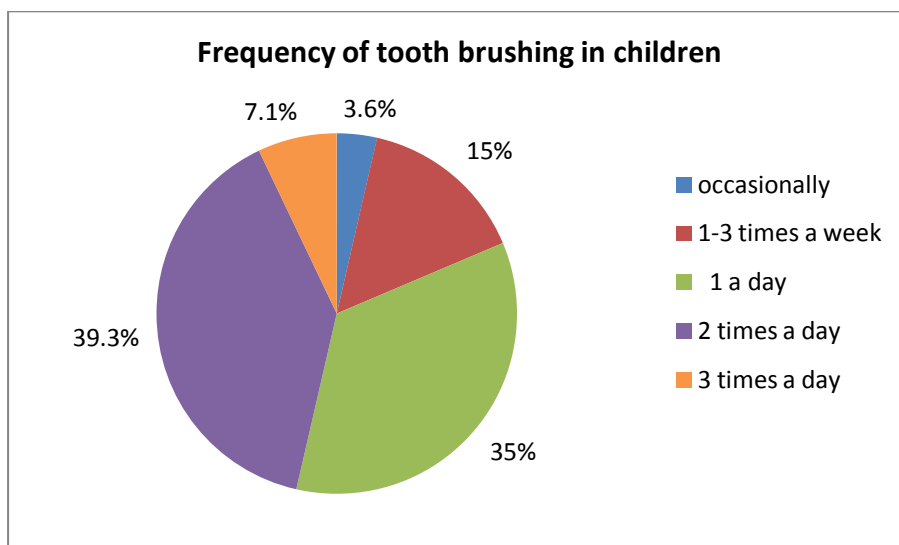


Figure 2. Parental assistance during tooth brushing.

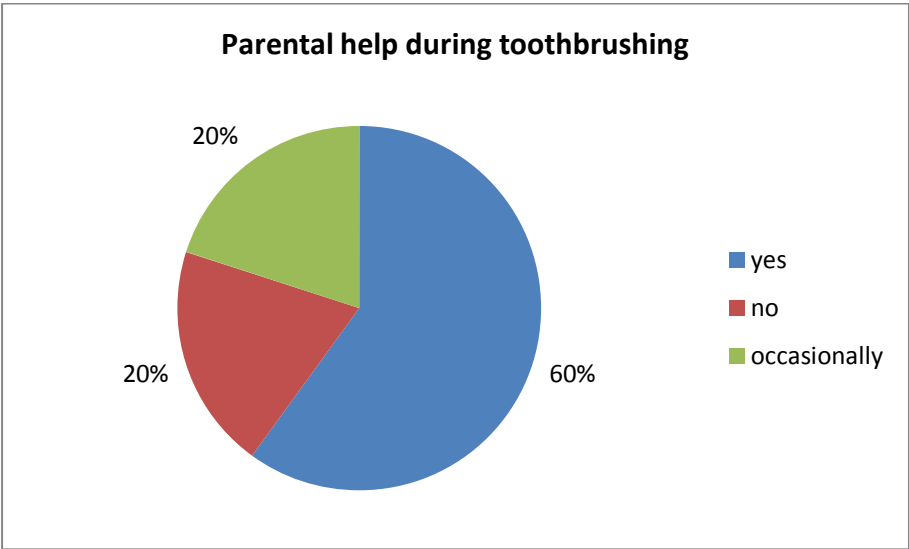


Figure 3. Date of child's last dental appointment.

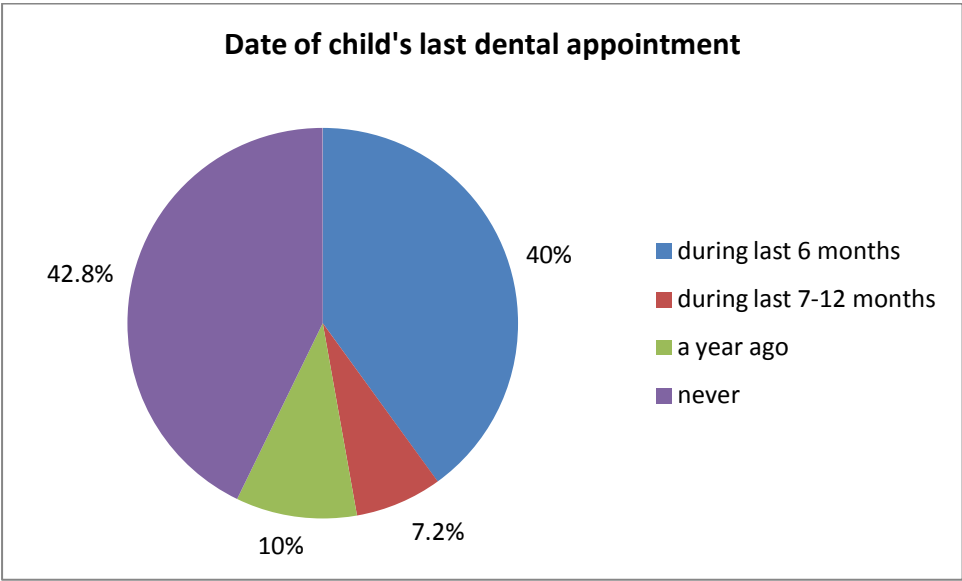


Figure 4. Limitation of sweets consumption.

