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PARENTS' PRO-HEALTH AWARENESS CONCERNING ORAL HEALTH OF THEIR CHILDREN IN THE LIGHT OF SURVEY RESEARCH.

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ABSTRACT

BACKGROUND. Oral hygiene is a crucial part of caring for young children. This problem is frequently marginalized or even ignored by parents/guardians, what affects child's whole further life.
OBJECTIVES. The assessment of parents' knowledge concerning oral hygiene and prevention of dental caries in infants and young children.
MATERIALS AND METHOD. The test group consisted of parents, as well as men and women currently expecting a child. The study was conducted in a form of a survey, using an original questionnaire, which was carried out in several hospitals in Lodz and online, on a popular local forum for parents. The data obtained were analyzed statistically, allowing the assessment of health awareness of respondents and the creation of various profiles of parental knowledge on the subject investigated.
RESULTS. Most of respondents knew the age at which milk and permanent teeth erupt, gave the correct frequency of brushing child's teeth and were in favor of limiting sweets in the diet. A total of 59% correctly gave the number of deciduous teeth and 66% had heard of the "bottle tooth decay". All respondents thought that helping and controlling a child while brushing their teeth is indispensable, but they did not know the best time to start using the toothpaste with fluoride. The information about child's oral hygiene was more often looked for by women (67%) than by men (29%). The study also showed that if a training on the given subject was organized, 60% of respondents would be willing to participate in it.
CONCLUSION. In the test group, pro-health awareness is insufficient to maintain the oral health of the offspring and requires constant developing.

Keywords: *oral health behaviors, oral health, prophylaxis of dental caries, parent questionnaire survey.*

INTRODUCTION

Oral hygiene is an important part of childcare. This underestimated problem is often neglected by young parents, which leads to the poor state of children's oral health. In many countries, cyclical dental epidemiological surveys that track and monitor the prevalence of dental caries are conducted (1). Every year in Poland projects aimed at education, promotion and prevention of oral health care are implemented, especially targeted at young children and their guardians – these are programs such as "Childhood without caries" or "Aquafresh Academy". Likewise, a monitoring program of oral health condition of the Polish population, which also includes children, is carried out in our country (2). Parents have significant influence on child's personality, including positive attitude towards the oral hygiene through proper health education (3). In recent years, more and more attention is being paid to oral health during pregnancy, which is an exceptional period both for mother and her future baby (4).

In this paper, we assume that the knowledge as well as corresponding parental behavior regarding proper oral hygiene is very important in improving health of children from an early age to school age. The objectives established by the WHO regarding the lack of tooth decay in children may be achieved to a considerable extent through high levels of health awareness in parents and small child educators. Therefore, the aim of this study was to evaluate the level of knowledge of men, women

and parents of preschool children about oral hygiene and caries prevention in infants and young children.

MATERIALS AND METHODS

The study was conducted through a questionnaire, completed by 146 randomly selected men and women. They were divided into two comparison groups: the first group included people who already had children and the second group consisted of people expecting a baby. The study participants were patients of maternity hospitals in Lodz or young mums and dads from the Lodz region. The questionnaire consisted of 31 questions, 10 of them were analyzed for the purpose of this publication. Questions concerned the knowledge about the deciduous and permanent teeth, prevention of dental caries and methods of taking care of oral health. The data obtained were subject to statistical analysis, searching for relationships between the groups. The Pearson's Chi-square test was used. The level of significance was at $p < 0.05$.

Examining the parents' pro-health awareness, we focused on:

- respondents' self-assessment of their knowledge of oral hygiene,
- awareness of the existence of "bottle tooth" decay,
- knowledge of the starting time of caring for babies' oral hygiene and using toothbrushes,
- knowledge of the number of deciduous teeth,
- knowledge of the eruption time of deciduous and permanent teeth,
- knowledge of the time of the first dental examination of the child,
- knowledge of the influence of primary dentition caries on conditions of permanent teeth.

In the figures and tables, the following symbols were used:
kd - women with children
kb - women without children (either expecting a baby or with babies up to 6 months of age)
md - men with children
mb - men without children (either expecting a baby or with babies up to 6 months of age)
$\chi 2$ - Pearson's chi-square statistic test
p - statistical significance (* - $p<0.05$; *** - $p<0.001$)

RESULTS

Among the surveyed people, there were 66.4% of women and 33.6% of men, 28.1% of participants already had children, 71.9% were expecting a baby (or having baby up to 6 months of age). The structure of the study population are shown in the table I.

Table I The structure of the study population

	Parents		Responders who are ewxpecting baby		Summary	
	n	%	n	%	n	%
women	70	47.9	27	18.5	97	66.4
men	35	24.0	14	9.6	49	33.6
summary	105	71.9	41	28.1	146	100.0

1. How do you assess your knowledge of oral health in young children? (high, average, low)

Statistically significant differences were found in the declared knowledge among women (kd) and men having children (md) ($\chi 2 = 6.352$, $p=0.011725$), who estimated the level of their knowledge on child's oral hygiene as high (37.1% vs. 5.7%).

Statistically more men waiting for a child admitted that their knowledge of hygiene was on a low level (35.7% of respondents). The same answer was given only by 5.7% of men already having children.

Most of fathers claimed to possess an average knowledge of the aforementioned issue. There was a statistically significant difference in comparison to men who were still waiting for a child ($\chi 2 = 4.3$, $p = 0.038112$ for mb and $\chi 2 = 5.104$, $p = 0.023871$ for md).

Most parents and future parents assessed the level of their knowledge of child's oral health as average, 6.2% of respondents estimated their awareness as low, and only 22.6% as high. The last group was formed mainly by women already having a child. In general, women tend to evaluate their knowledge higher than men. A similar situation is observed with people already having a baby. It may be due to the fact that those respondents have already come across the studied issues. As we might expect, women who already have children consider themselves to be the best-educated. Opposed to this, males waiting for the child are the most conscious of their own ignorance.

2. Have you ever heard of "bottle tooth decay"? (yes/no question)

62.3% of respondents had heard about bottle-tooth decay. Among them, the majority were people already having a baby, especially mothers. There was a statistically significant difference between groups of women with and without children ($\chi^2 = 13.838$, $p = 0.000199$). Among the total number of people with children, most of them had heard of this type of caries in milk teeth (statistically significant difference was demonstrated $\chi 2 = 13.186$, $p = 0.000282$). The situation was reversed among the childless respondents.

The analysis revealed statistically significant differences between women and men ($\chi2$=27.662; p=0.000000). 77.3% women and only 32.7% men were familiar with the "bottle-tooth decay". The least aware were childless men and the most aware - women having children. The results are shown in the figure 1.

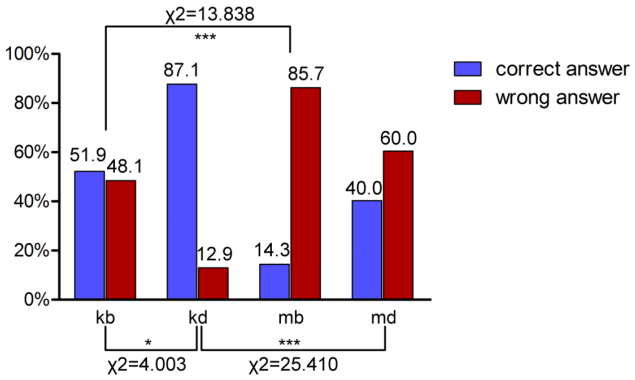

Fig. 1 Have you ever heard of „bottle-tooth" decay? („yes" or „no") – a comparison of parents who have children with men and women currently expecting a child.

3. When should we start taking care of child's oral hygiene?

Respondents were asked about the best age to start taking care of child's oral hygiene. The chart shows that the correct answer was given by only 59.6% of respondents, of which the majority were women. In this study, no statistically significant differences were found.

4. When do the milk teeth start to erupt?

86.3% of respondents correctly answered the question about the eruption time of the first primary tooth. Statistical dependence was demonstrated among women and men in both compared groups. The correct answer was given by 95.9% of the surveyed women, and only by 67.4% of men.

Statistically significant differences were demonstrated in the comparison of knowledge according to gender in a group of people waiting for a child ($\chi2$ = 5.293, p = 0.021411) and in compiling responses of women with children with the results of men already having offspring ($\chi2$ = 12.807, p = 0, 000345). The results are shown in the Figure 2.

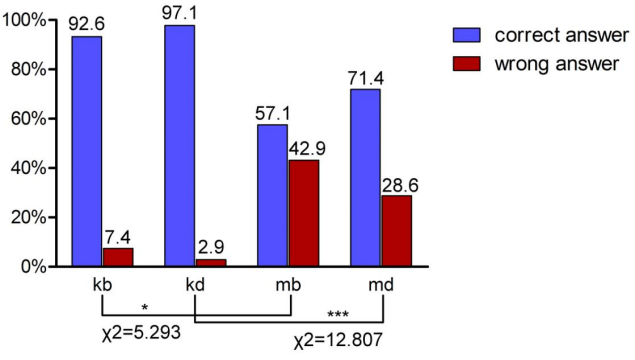

Fig. 2 When do the milk teeth start to erupt?– a comparison of parents who have children with men and women currently expecting a child.

5. How many milk teeth does a child have?

50.7% of respondents gave the wrong answer to the question about the number of milk teeth. A statistically significant difference was demonstrated while comparing by the sex ($\chi2$=5.836, p=0.015701) and by having children by women ($\chi2$ = 18.891, p=0.000014). Most of the incorrect answers were provided by men (as much as 63.3% of incorrect answers) and those without children (82.9% of incorrect answers). The results are shown in the Figure 3.

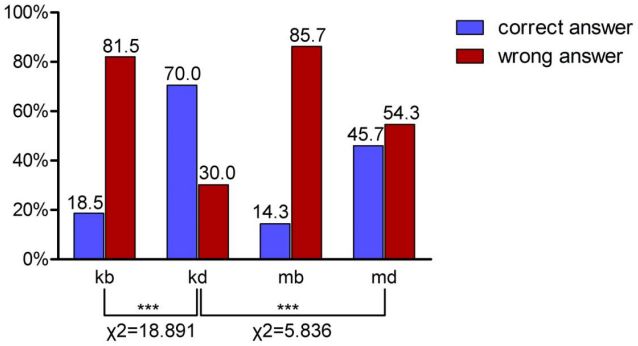

Fig. 3 How many milk teeth does a child have? – a comparison of parents who have children with men and women currently expecting a child.

6. When do the permanent teeth start to erupt?

The next question concerned the eruption time of permanent teeth. A total of 83.6% of the respondents gave the correct answer to this question, including more than 91% of women who already had a child. No statistical significance was shown in analyzing responses by having children, however it was obtained in the analysis of the responses of men and women.

7. Toothbrushing by a child

More than 96% of participants responded that the parent should help a child while brushing their teeth. The statistical analysis didn't show any significant differences between men and women nor between persons with children and people waiting for a child.

8. When should a child begin to use toothpaste with fluoride?

It is disappointing that the majority of respondents incorrectly answered a question about the introduction of fluoride toothpaste for daily brushing. Parents and future parents responded that toothpaste with fluoride could be used with the beginning of brushing, and not from the moment of the eruption of the first tooth.

There were no statistically significant differences in the analysis by sex or having children. The results are shown in the Figure 4.

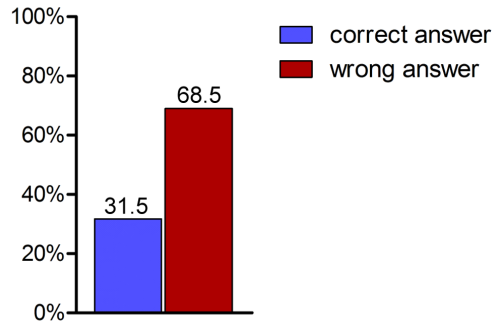

Fig. 4 When should a child begin to use toothpaste with fluoride?

9. When should we first visit dental office with the child?

60.3% of respondents answered incorrectly the question "When should we first visit dental office with the child?". Among the most often chosen responses there were such as: "When all the milk teeth emerge.". It is far too late, bearing in mind that the incisors appear in the mouth several months earlier. The analysis of this question did not show any statistical significance.

10. Can primary tooth decay affect the condition of permanent teeth? (true / false / hard to say)

The majority of respondents (80.1%) believe that the decay of primary teeth can affect the condition of permanent teeth. In this group there were more people who already had children than those who expected a child. Also, there were no statistically significant differences in the answers given by different groups of respondents.

DISCUSSION

The most common disease of the masticatory system in Poland is dental caries (1). It affects people of all ages, although in some age groups more frequently (5, 6). According to the definition given by the World Health Organization (WHO), dental caries is a local pathological process of extracorporeal origin, leading to enamel decalcification, dental hard tissue breakdown and ultimately to cavity creation (5, 7). According to WHO recommendations, epidemiological studies on oral health are carried out periodically and mainly concern the dental caries intensity in selected age groups: 6, 12, 18 years and 35-44, 65-74 years (1, 8). Poland is one of the few countries in Europe which has failed to reduce the prevalence of tooth decay in children, in spite of the WHO recommendations for year 2000, aimed at reducing the prevalence of dental caries among 6-year-old children to 50% (8). Another WHO recommendation for year 2015 is to reduce the prevalence of dental caries to 30% in 6-year-old children (7, 9). The nationwide study on oral health of 3-year-old children carried out in Poland in 2002 showed that tooth decay was present in 55.2% of patients and affected an average of 2.9 teeth (10). Furthermore, studies conducted in 2009 revealed that 46% of mothers of 3-year-old children have never visited dental office with their children, and 56.3% are not interested in their children's dental condition (11). The American Academy of Pediatric Dentistry (AAPD) distinguishes early childhood caries (ECC), also known as bottle tooth decay (1, 12), the occurrence of which depends largely on the parents' health behavior. The exceptionally rapid development of dental caries, which affects one by one the whole groups of teeth appearing in the mouth can already be seen in children from less than 1 year old up to 3 years old (13).

The significance of bad habits and incorrect health behaviors is being emphasized in the literature. They are formed in the earliest years of a child's life and in later periods are difficult to change (8, 14). For many adult patients, experiences connected with dental treatment are not positive, which may negatively affect the attitude towards the doctor also in children of such patients. Many attitude-shaping behavioral methods have been developed, which positively affect the safe and effective treatment of oral diseases (14, 15).

The impact of health-oriented attitude in women during pregnancy is also worth emphasizing. Research conducted by *Marchi et al.* in California in 2002-2007 shows that 65% of pregnant women has not visited a dental office during pregnancy (4). According to the research of *Ludwin et al*., pregnant women have no knowledge of the causal relationship between oral health and the course of the pregnancy (16). The primary risk factors for early childhood caries are the mistakes in the oral care of small children. It is a problem that can be eliminated. An important role in reducing the prevalence of dental caries is played not only by dentists but also by gynecologists, family doctors and pediatricians, with whom parents interact more frequently than with dental practitioners (17). Studies conducted by *Grzesiak et al.,* showed that oral hygiene procedures in the toothless child's mouth are performed only by 48% of mothers, after the eruption of the first tooth – by 71% of them, and with the presence of nearly all teeth in the mouth - by 98% of women (18).

SUMMARY

1. Despite the huge technological, psychological and pharmacological progress in dentistry, the level of

knowledge of young parents on proper prevention and oral hygiene in children is still alarmingly low.
2. Parents visit dental office far too late, when caries is already active in their child's mouth.
3. Fathers' knowledge on prevention and oral hygiene in children is much lower than mothers'.
4. 62.3% of respondents, particularly women with children, are familiar with the problem of bottle caries.
5. 95.9% of women and only 67.4% of men correctly answered the question concerning the eruption time of primary teeth.
6. Almost 51% of respondents incorrectly stated the number of all primary teeth. Worse knowledge was exhibited by men (63.3% of incorrect answers) and people without children (82.9%).

CONCLUSION

Special trainings for parents on the prevention of oral diseases, particularly caries, in children are needed. They should be carried out not only by dentists, but also by pediatricians, family physicians, nurses and medical personnel in antenatal classes. Proper health behaviors should be also promoted in the media.

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