Awareness of Pregnant Women and Mothers of Infants in Poland in the Field of Prevention of Diseases of the Oral Cavity of Children

Aleksandra Jankowska[1], Wojciech Frąckiewicz[1], Milena Mrozińska[1], dr n. med. Monika Szmidt-Kądys[3], dr n. med. Agnieszka Kus-Bartoszek [2], dr n. med. Anna Jarząbek[2]

[1] Student Scientific Club at the Independent Laboratory of Paediatric Dentistry, Pomeranian Medical University in Szczecin, 70-111 Szczecin, Poland

[2] Independent Laboratory of Paediatric Dentistry, Pomeranian Medical University in Szczecin, 70-111 Szczecin, Poland

[3] Departament of Conservative Dentistry with Endodontics, Pomeranian Medical University in Szczecin, 70-111 Szczecin, Poland

Number of pages: 19

Number of figures: 10

Number of tables: 1

Number of references: 47

Alexandra Jankowska ORCID 0009-0006-5268-301X

Wojciech Frąckiewicz ORCID 0009-0007-0394-820X

Milena Mrozińska ORCID 0009-0004-1829-9319
Monika Szmidt-Kądys ORCID 0000-0003-1096-9993
Agnieszka Kus-Bartoszek ORCID 0000-0001-8190-2724

Anna Jarząbek ORCID 0000-0001-7717-6141
Correspondence author:

Aleksandra Jankowska

SSS at the Independent Laboratory of Paediatric Dentistry PUM

Mail: a.jankowskax@wp.pl

Phone: +48607810193

ABSTRACT

Introduction: During pregnancy, the future mother's body undergoes changes that affect the health of her oral cavity. During this period, a woman should visit the dentist and introduce proper dietary and hygiene habits. Health awareness and knowledge of the future mother regarding the prevention of oral diseases are necessary to delay the colonization of the child's oral cavity with cariogenic bacteria and thus prevent caries and its complications.

Aim of the study: The aim of the study was to assess the awareness of pregnant women and mothers of infants in Poland regarding the prevention of children's oral diseases.

Materials and methods: A survey was conducted involving 125 pregnant women and mothers of infants.

Results: The study shows that the majority of women (84.8%) were convinced of the need to visit a dentist during pregnancy. A similar percentage (88.8%) knew that both preventive and therapeutic procedures could be performed during this period. 2/3 of women answered correctly the question what oral hygiene procedures should be performed by the future mother. Only 38.4% of respondents knew that the condition of a pregnant woman's teeth may influence the development of caries in a child, and 54.4% of respondents knew about the possibility of transmission of cariogenic bacteria from the mother's oral cavity to the child's oral cavity. 52.8% of women would attend the first dental visit with their child on time, i.e. between 6 and 12 months of age. Half of the respondents believed that the use of fluoride was safe, and even fewer - 46.4% - believed that a child could use toothpaste with fluoride. The main source of knowledge about children's oral health was the Internet for the surveyed women (53.6%).

Conclusions: The study showed that health awareness and knowledge about oral health among pregnant women and mothers of infants is insufficient and requires dentists to intensify educational activities.

Keywords: caries prevention, oral hygiene, pregnant women, children

Introduction:

Pregnancy is an important period in a woman's life when she takes special care of her health and the baby she is expecting. During this period, a series of changes that are also reflected in the oral cavity. Changes that occur in the hormonal balance of a woman may cause inflammation of the oral mucosa [1,2]. Increased dry mouth, nausea and vomiting can lead to the formation of non-carious cavities, such as erosion of hard tooth tissues [3]. A changed lifestyle and a different diet can result in an increased tendency to caries disease [4,5,6]. The period of pregnancy is important because her proper behaviors and healthy habits, during this period and the first months of a baby's life, have a huge impact on the maintenance of oral health. Primary prevention includes the education of the pregnant woman and a number of actions that aim to delay the colonization of the child's oral cavity with cariogenic bacteria (Streptococcus mutans, Lactobacillus acidophilus). Basic element of primary prevention is the regular oral hygienic procedures performed by the mother, which allows to significantly reduce the amount of cariogenic bacteria in her mouth [7]. It is recommended brushing teeth twice a day with a toothpaste containing 1450 ppm F^- and flossing contact surfaces, use alcohol-free rinses with fluorine (225ppm F^-) or chlorhexidine [8], purification tongue and chewing gum with xylitol [9,10], which has a cariostatic effect, [11]. It is recommended to chew gum with xylitol in the amount of 5-10 g per day, at intervals of $\geq$ 3 hours and maintain this habit until the age of 2 [12]. Pregnant women should go to a dental appointment for oral health checks, hygienization with hygiene instruction and oral health education. Future mothers are also encouraged to undergo other treatments, such as varnishing with fluoride preparations and treatment of possible carious cavities. Women will promote oral health and prevention among family members, including their children, if they are properly informed and aware [13]. The next stage of preventive actions is primary prophylaxis which concerns the child's oral cavity, which has already been colonized with caryogenic flora and focuses on reducing the number of pathogens and their negative impact on the child's dentition. For this purpose, already in the first months of the baby's life, it is necessary to start caring for his oral cavity. In the first stage, it consists in cleaning the

toothless oral cavity with a damp gauze. After the appearance of the first teeth, it is necessary to introduce brushing with a special silicone finger cap or soft a toothbrush with a small head [14] and toothpaste with a fluoride content of 1000 ppm F^- in a trace amount of rice grain. Avoid direct contact of the mother's saliva with the baby's mouth such as, for example using the same cutlery, licking the pacifiers, because in this way the bacteria are transmitted to the baby's mouth. Studies show that the number of Streptococcus mutans in infants is positively correlated with the number of these bacteria in the mother and with the current state of her oral health [15]. The aim of the study was to assess the level of knowledge and health awareness among pregnant women as well as mothers of infants in Poland.

Materials and methods:

125 respondents participated in the survey based on their own survey. Pregnant women accounted for 63.9% and mothers of infants 36.1 %. The survey contained 22 questions and was available as a link to a Google form on the Internet (https://forms.gle/yWjJCWGkmJ7BJB3j9). The questions included in the survey concerned health-promoting behaviors in the field of oral health of women and their children, as well as the state of knowledge about caries disease and ways to prevent it.

Results:

Based on the conducted research, it was noted that 84.8% of mothers believed that pregnant women should go to a dental appointment, even if they do not have pain (Fig.1). 12.8% of respondents saw the need to visit only in case of oral pain, while 2.4% of respondents were convinced that pregnant women should not come to dental appointments.

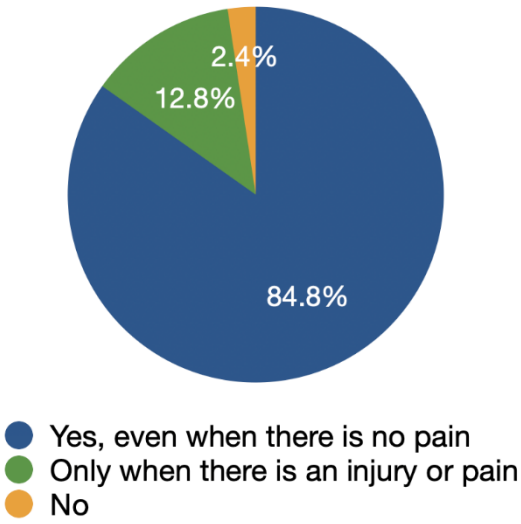

Figure 1. Should a pregnant woman visit the dentist during pregnancy?

Figure 2 presents the respondents' answers to the question of what dental procedures can be performed on pregnant women. 88.8% of respondents answered that hygienic, preventive and therapeutic procedures can be performed, while less than 5% believed that they could not be performed during this period because they were dangerous for the child.

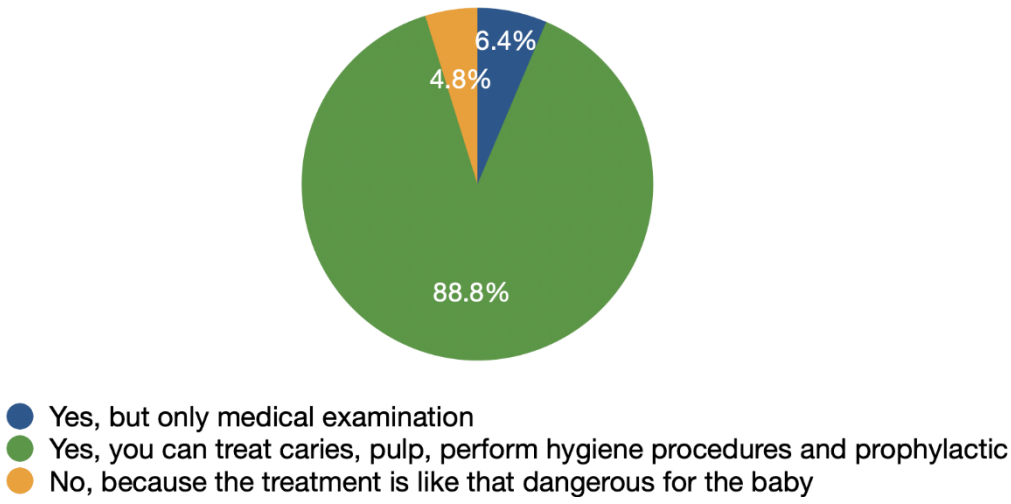

Figure 2. Can dental procedures be performed during pregnancy?

The most favorable period to report for a dental visit is the second trimester of pregnancy and this answer was given by almost 2/3 of women. Every third (36%) considered the first trimester of pregnancy to be the most favorable time (Fig. 3.).

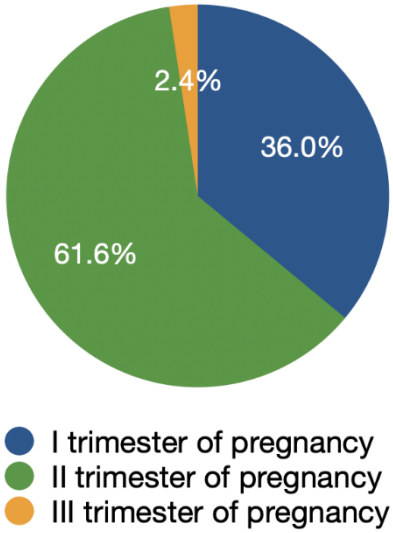

Figure 3. Which period of pregnancy is the best to the visit the dentist?

The respondents' answers on the use of local anesthesia during dental treatment during pregnancy are presented in Figure 4. 42.4% of patients would agree to perform such anesthesia. 16% of women considered this procedure dangerous for the child and would not agree to perform it. A similar percentage of respondents (16.8%) declared that they would agree to administer anesthesia only when the pain occurs. (Fig.4.)

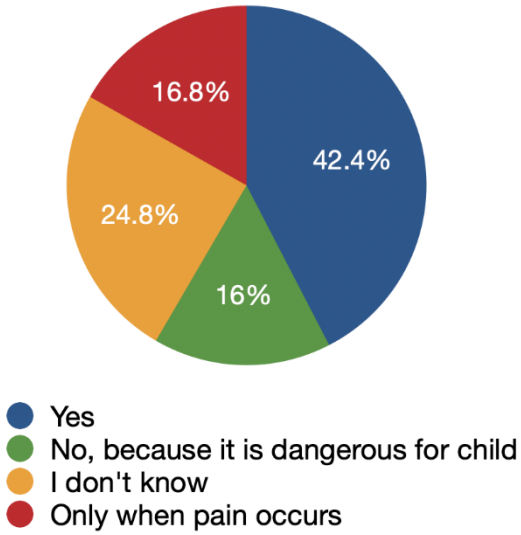

Figure 4. Would you agree to a local anesthesia for tooth treatment during pregnancy?

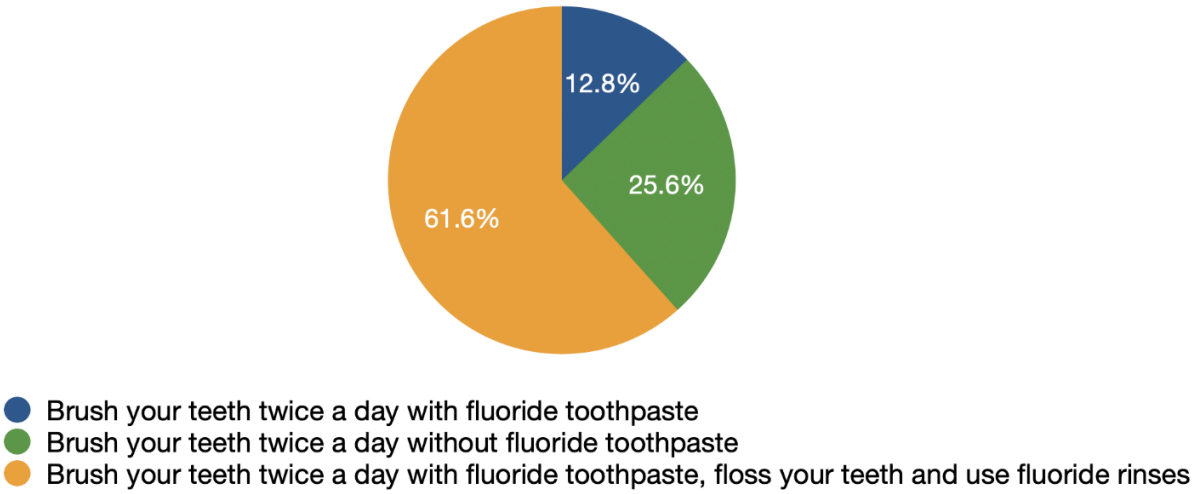

Figure 5. What oral hygiene procedures should a pregnant woman perform?

In response to the question what hygienic procedures in the oral cavity should be performed by a pregnant woman, 12.8% of respondents answered that they should only brush teeth twice a day with fluoride toothpaste, and every fourth was of the opinion that a pregnant woman should use a toothpaste without fluoride. More than 60% of women believed that a pregnant mother should brush her teeth twice a day with fluoride toothpaste, but also floss them and use fluoride rinses (Fig.5.).

Table 1. Respondents' answers

	Yes	No	I do not know
Can a pregnant woman have an X-ray taken?	23,2%	56%	20,8%
Would you agree to take an X-ray of your tooth during pregnancy?	78,4%	21,6%	
Can a woman remove teeth during pregnancy?	63,2%	10,4%	26,4%
Can the condition of a pregnant woman's teeth affect the development of caries in her child?	38,4%	25,6%	36%
Can cariogenic bacteria from the mother's mouth be transferred to the baby's mouth?	54,4%	14,4%	31,2%
Is it possible to feed the baby with the same cutlery from which the parent eats, lick cutlery and pacifiers?	10,4%	89,6%	
Can a child use fluoride toothpaste?	46,4%	26,4%	27,2%
Is it safe to use fluoride?	50,4%	16,8%	32,8%

The first dental visit of a child should take place between 6 and 12 months of age and this answer was given by more than half of the women surveyed. 40.8% of them would report for the first visit only with a 2-3-year-old child, and 6% of mothers would make the date of the child's first visit dependent on the occurrence of pain, injury or other disturbing symptom (Fig. 6.).

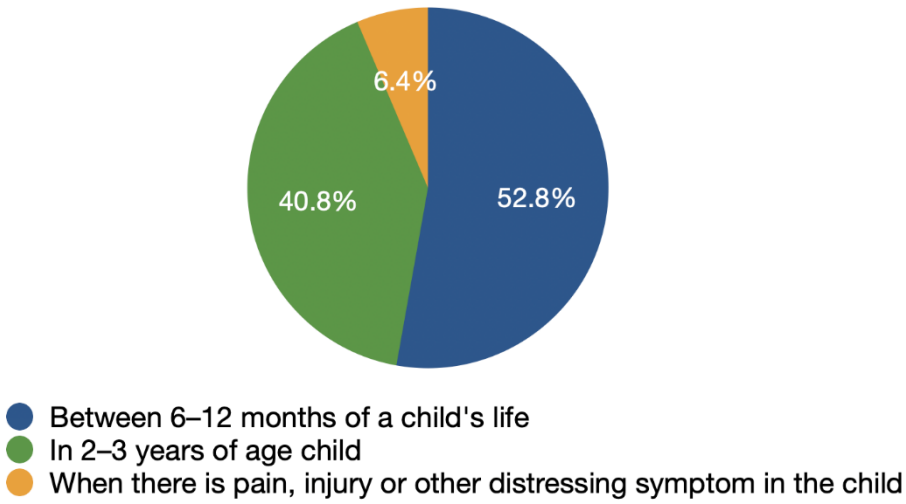

Figure 6. When should you make your child's first dental visit?

Research shows that the overwhelming majority of the surveyed mothers knew about the need to clean the child's toothless oral cavity and they knew about the introduction of toothpaste for children when the first tooth appeared (Fig. 7., Fig. 8.)

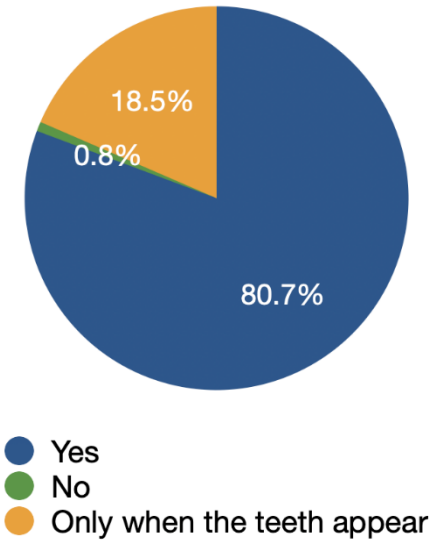

Figure 7. Should the oral cavity of a newborn and infant be cleaned?

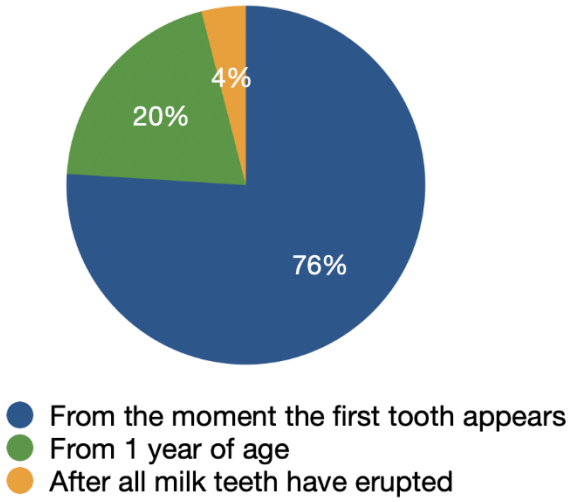

Figure 8. When should your child use children's toothpaste?

Figure 9 shows the answers of mothers to the question about the frequency of brushing their children's teeth. 74.8% believed that this treatment should be done twice a day, and 7.3% were convinced that one brushing during the day was enough.

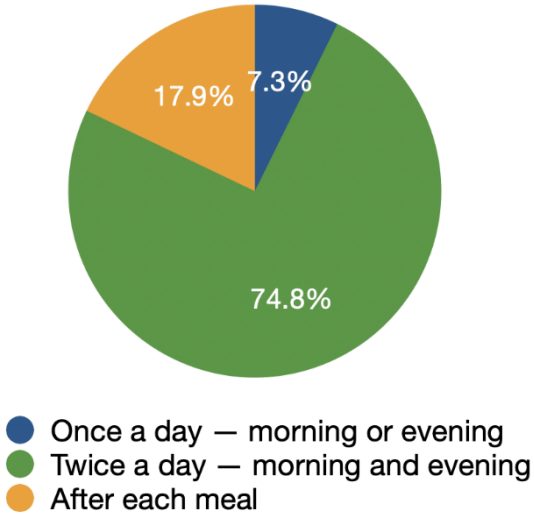

Figure 9. How often should you brush your child's teeth?

The majority of respondents (53.6%) declared that they obtained knowledge about oral health topics from the Internet. Dentists were a source of information and knowledge only for one in three mothers (Fig. 10).

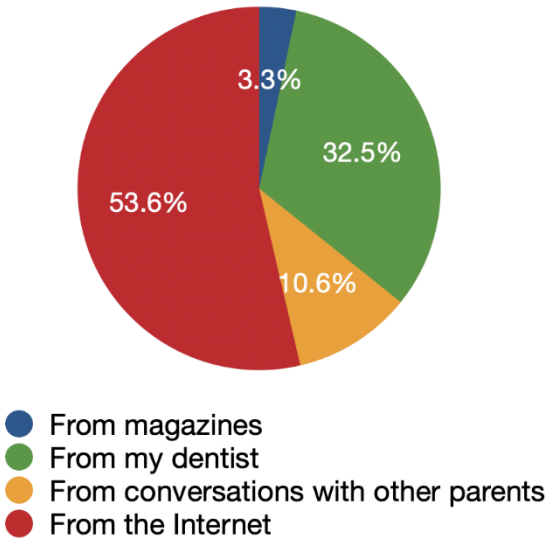

Figure 10. Where do you get your knowledge about oral hygiene for you and your child?

Discussion:

Pregnancy is an important period in a woman's life in which she takes care of her health and the child she is expecting. This concern also includes the prevention of caries disease, which is a big problem in Poland and affects 86.9% of preschoolers [16]. Untreated caries has long-term effects for life, which is why it is extremely important to educate parents as early as possible in this area. Plutzer and Spencer [17] showed that education of pregnant women is effective because their oral health promotion program in the form of three rounds of preventive counseling (pregnant, 6 and 12 months of age) significantly reduced the incidence of S-ECC in children.

Unfortunately, many authors noted in their studies a high percentage of pregnant women who did not seek dental care during pregnancy [18]. Lee et al. [19], who analyzed the results of research from the United States from 2012-2015, involving almost 76,000 women,

according to PRASM (Pregnancy Risk Assessment Monitoring System) guidelines, found that only half of them had at least 1 dental visit during their last pregnancy. On the other hand, research by Hashim [20] shows that more than half (58.3%) of patients used a dental visit during pregnancy, but for most of them the reason for the visit was toothache. However, these results turned out to be better than those obtained in Sydney by George et al. [21], because as many as 69.5% of women from their study did not receive any dental care during pregnancy. However, Petite et al. [22] noted that only 47% of the women surveyed visited the dentist's office during pregnancy, mainly for check-ups. Interestingly, the reasons for the lack of dental visits were: lack of complaints (42.7%), lack of time (25%) or lack of information about dental treatment options during pregnancy (14%). Most of the consultations and/or dental treatments were performed in the second trimester, according to these authors. The authors considered this percentage (47%) to be low, because in France (as in Poland), free dental consultations are possible for pregnant women under health insurance. Perhaps this small number of pregnant patients presenting for dental visits was due to a lack of information on the part of gynecologists and obstetricians responsible for pregnancy management [22].

Our own research shows that 85% of women knew about the need for dental check-ups and 60% of them would also choose the second trimester of pregnancy. These data may indicate higher awareness of the women in our study, but our own survey did not check whether the women actually made this visit.

Bushehab et al. [23] They noted that only 29.8% of the pregnant women surveyed regularly visited the dentist's office for check-ups. They also found that this group of pregnant women had the best hygiene habits – 93.3% of them brushed their teeth more than once a day. Among women who had their visit to the dentist more than a year ago, the percentage of brushing at least twice a day was lower (77.9%). According to these authors, frequent visits to the dentist correlate with better hygiene and more frequent hygiene procedures. They also noted that along with regular check-ups at the dentist, the health awareness and knowledge of the respondents increased.

Pregnant mothers need to be aware that during dental visits they can be carried out not only hygienization treatments, but also therapeutic. As many as 88.8% of women from their own research knew about it, and only 5% believed that therapeutic treatments could be

dangerous for their child. In turn, in a survey of 400 pregnant women, which was conducted by Bushehab et al. [23] 64% of women declared that they would undergo dental treatment during pregnancy, while 33.5% would refuse such treatment. Data from the literature indicate that the most appropriate time for dental treatment is between 13-21 weeks of pregnancy [14]. 61.6% of respondents from their own research agreed with this recommendation. On the other hand, every third (36%) believed that the best period is the first trimester. In the initial phase of pregnancy, the range of therapeutic measures should be reduced to those strictly necessary, due to the greater likelihood of miscarriages and fatigue and nausea, which cause patients to feel unwell during visits.

In our study, women were asked whether they would consent to perform local anesthesia for dental treatment during pregnancy. Only 42.4% of them would agree to such a procedure, while data from the literature show that pregnant patients can receive local anesthetics without risk, including those with vasoconstrictors, but always with aspiration [24,25]. Our women were also asked whether teeth can be removed during pregnancy. 26.4% of respondents did not know the answer, and every tenth believed that it was forbidden. Tooth extractions can be done during pregnancy, but it is best done in the second trimester [14].

The issue under discussion is the possibility of using X-rays during the imaging of tooth tissues in pregnant women. 56% of women from our own research were convinced that such radiological images cannot be performed during pregnancy, and as many as 78.4% of respondents would not agree to such a study. In another study conducted in Brazil [26] that aimed to assess pregnant women's perception of the role of health professionals in the dental care of pregnant women, the authors found that in some cases, even health professionals themselves can perpetuate fears and myths related to the dental care of a pregnant woman. Thus, pregnant women participating in the study stated that they were against X-ray examinations during pregnancy, because they heard it from their doctors, and they did not have knowledge about it. They also indicated that they were afraid of the deformity of the child. According to Doucede et al. [27] radiation doses received in most diagnostic procedures that have been performed correctly do not pose any measurable additional risk to the fetus compared to the situation without radiation. However, it should be remembered that all radiological images should be taken using special protective measures, such as a lead apron and a collar to protect the thyroid.

Another question raised the problem of whether the oral health of the mother can affect the formation and development of caries in the child. Unfortunately, no clear answer was obtained in our own research. Only 38% of respondents answered this question correctly, and 36% of women did not know the answer. This indicates an insufficient level of knowledge in the studied group. In the Gupta and Chhetry studies [28], only 14% of the mothers surveyed knew about the possibility of transmitting caries from mother to child, which was a much lower result compared to our own data. It is widely believed that children of mothers with poor oral hygiene and high levels of bacteria are more likely to develop caries disease.

In addition, research by Köhler and Andreen [29] has shown that early colonization of the oral cavity with Streptococcus Mutans bacteria before the age of 3 results in higher levels of these bacteria in the oral cavity at the age of 19, worse rates of caries and more fillings.

That is why primary prevention is so important, the basis of which is to limit the transmission of bacteria from the mother's oral cavity to the child's oral cavity. In our research, 54.4% of respondents knew how important it is to reduce bacteria in their children's mouths and as many as 89.6% were aware that they cannot feed their children the same cutlery that they used before. These data are similar to the results of monitoring studies conducted in Poland in 2020, where 59.07% of parents knew that cariogenic bacteria could be transferred to the child's oral mouth from a third party [16].

Another of the most important elements that should not be overlooked is the prevention of caries of pregnant women, including, for example, brushing teeth 2 times a day with fluoride toothpaste with a content of 1450ppm F^-. Data from the literature indicate that such a procedure reduces the occurrence of caries to a greater extent than brushing once a day or less often [30]. More than 60% of the women surveyed from our own research knew that a pregnant mother should brush her teeth twice a day with fluoride toothpaste, as well as floss the interdental spaces and use fluoride rinses. Results lower than our own were recorded by Mital et al. [31] and Gupta and Chhetry [28] - in their research, 42.5% and 36% of pregnant women declared brushing their teeth 2 times a day, respectively. A different, much higher percentage of 72% was observed by Stelmakh [32], who studies pregnant women in the Netherlands. In addition, he showed that 62% of respondents from his research used additional devices to clean the interdental spaces and these results are close to our own. Even

better hygienic behavior among pregnant women was noted by Christensen et al. [33] based on research in Denmark. As many as 96% of pregnant patients brushed their teeth twice a day and 90% used fluoride toothpaste.

The use of fluoride reduces the incidence of caries and it is thanks to its action in most industrialized countries that the incidence of caries among children has been significantly reduced [34]. In our own research, only 1/4 of respondents believed that a woman during pregnancy should not use fluoride toothpaste.

Also, do not forget about the need to clean the toothless oral cavity of the child. Nearly 80% of mothers from our own research had such knowledge. Only 18.5% of women would introduce hygienic procedures only after the first tooth erupted. A much lower percentage (48%) of parents cleaning the toothless oral cavity of their child was noted in research conducted by Grzesiak and Kaczmarek [35].

Older children should use a toothbrush and fluoride toothpaste in an age-appropriate concentration to clean their teeth [36]. 76% of respondents knew that it should be inserted as soon as the first tooth appeared, and 20% of them believed that only a one-year-old child could use fluoride toothpaste. Chala et al. [37], noted that as many as 95.9% of Moroccan mothers did not brush their child's milk teeth immediately after their eruption. As many as 53.3% of respondents considered milk teeth to be less important and that permanent teeth require care. At the same time, 60.9% of respondents from these studies were aware of the positive effect of fluoride on the prevention of tooth decay. In our study, only half of mothers believed that fluoride was safe. The fears of other mothers are unfounded, because many scientific studies provide information on the safety of fluoride and its beneficial effects on maintaining oral health [38,39].

52.8% of the surveyed mothers also knew from our own research when the first visit to their child's dental office should take place. According to most experts, it should take place between 6 and 12 months of age, i.e. in the period when the first milk teeth appear [40,41]. During this adaptive visit, the dentist examines the patient's oral cavity and gives the parents dietary and hygienic recommendations [42].

In the research of Wrzesińska et al. [43] the percentage of parents with this knowledge was much higher, at 74.6%. These were people who drew knowledge on pro-health topics from social media. These results indicate that information from the Internet can be a valuable

source of knowledge if it is provided by specialists. Slightly different results were obtained from Ben David M et al. [44]. Only 3.3% of the mothers surveyed said that the first dental visit should be made when the child is 6 months old, and 14% of respondents said that only a 12-month-old baby should attend. In the same study, more than half of the participants declared that they receive information about their child's dental care from the dentist. The results of the research of Chala et al. [37] confirmed that there are a significant number of mothers avoiding visits to the dentist with their child, even when the child has an urgent need. According to the authors, this may cause dental complications in the child and affect the general state of his health. The authors gave the economic situation of the respondents as the reason for postponing visits.

Unfortunately, the reason for the first visit to many young patients is still a pain symptom, which may indicate advanced caries disease. Such a visit is more traumatic, longer, unpleasant for a small patient and may cause anxiety, which from that moment will be associated with a dental office. In one study [45], it was noted that parents of children who came with them for their first dental appointment late and only because of pain, would go to such a visit much faster if they knew about the importance of dental treatment. Thanks to this, they could eliminate the child's stress and high financial outlays.

Data from own research indicate that the main source of parents' knowledge about fluoride was the Internet - 53.6%, and dentists only in 32.5%. The insufficient level of knowledge of the respondents from our own research indicates a great need for pro-health education, but what is important – conducted by competent and trained people. Internet sources have the ability to convincingly offer information that, unfortunately, is often wrong and inaccurate. At the same time, they are very easily accessible and spread quickly, undermining or completely refuting the knowledge confirmed by research of specialists [46]. Dentists should intensify the education of parents on prevention (not only fluoride), and parents should carefully check the sources from which they draw information [47]. For 16% of the women surveyed from the Petite et al. study [22]. media such as television, magazines and newspapers were also sources of information, indicating further possibilities of using such sources in the future.

Applications:

Follow-up visits to the dentist's office must be an indispensable part of caring for a pregnant woman. During visits, dentists should intensively educate patients and implement preventive measures in the field of oral health of mothers and their children. The results of the survey showed that the state of knowledge about the prevention of oral diseases among women in Poland is insufficient and requires an increase in expenditure and time devoted to education and health promotion.

References:

1. Livingston HM, Dellinger TM, Holder R. Considerations in the management of the pregnant patient. Spec Care Dentist. 1998;18(5):183–8.
2. Uhlen MM, Tveit AB, Stenhagen KR, Mulic A. Self-induced vomiting and dental erosion--a clinical study. BMC Oral Health. 2014 Jul 29;14:92.
3. Hartnett E, Haber J, Krainovich-Miller B, Bella A, Vasilyeva A, Lange Kessler J. Oral Health in Pregnancy. J Obstet Gynecol Neonatal Nurs. 2016;45(4):565–73.
4. Misan N, Paczkowska K, Szmyt M, Kapska K, Tomczak L, Bręborowicz GH, et al. Nutritional behavior in pregnancy. Ginekol Pol. 2019;90(9):527–33.
5. Rio R, Sampaio-Maia B, Pereira ML, Silva MJ, Azevedo Á. Pregnancy as a Period of Enhanced Risk for Non-Cavitated Caries Lesions. Oral Health Prev Dent. 2020 Apr 1;18(1):387–93.
6. Silva de Araujo Figueiredo C, Gonçalves Carvalho Rosalem C, Costa Cantanhede AL, Abreu Fonseca Thomaz ÉB, Fontoura Nogueira da Cruz MC. Systemic alterations and their oral manifestations in pregnant women. J Obstet Gynaecol Res. 2017 Jan;43(1):16–22.
7. Wagner Y, Heinrich-Weltzien R. Risk factors for dental problems: Recommendations for oral health in infancy. Early Hum Dev. 2017 Nov;114:16–21.
8. Saadaoui M, Singh P, Al Khodor S. Oral microbiome and pregnancy: A bidirectional relationship. J Reprod Immunol. 2021 Jun;145:103293.
9. Wagner Y, Heinrich-Weltzien R. Risk factors for dental problems: Recommendations for oral health in infancy. Early Hum Dev. 2017 Nov;114:16–21.
10. Nakai Y, Shinga-Ishihara C, Kaji M, Moriya K, Murakami-Yamanaka K, Takimura M. Xylitol gum and maternal transmission of mutans streptococci. J Dent Res. 2010 Jan;89(1):56–60.

11. Salli K, Lehtinen MJ, Tiihonen K, Ouwehand AC. Xylitol's Health Benefits beyond Dental Health: A Comprehensive Review. Nutrients. 2019 Aug 6;11(8):1813.
12. Söderling E, Isokangas P, Pienihäkkinen K, Tenovuo J, Alanen P. Influence of maternal xylitol consumption on mother-child transmission of mutans streptococci: 6-year follow-up. Caries Res. 2001;35(3):173–7.
13. Reis DM, Pitta DR, Ferreira HMB, de Jesus MCP, de Moraes MEL, Soares MG. [Health education as a strategy for the promotion of oral health in the pregnancy period]. Cien Saude Colet. 2010 Jan;15(1):269–76.
14. Olczak-Kowalczyk D, Szczepańska J, Kaczmarek U. Modern age dentistry Development. Otwock: Med Tour Press; 2017. 856 p.
15. Hwang SS, Smith VC, McCormick MC, Barfield WD. Racial/ethnic disparities in maternal oral health experiences in 10 states, pregnancy risk assessment monitoring system, 2004-2006. Matern Child Health J. 2011 Aug;15(6):722–9.
16. https://www.gov.pl/attachment/651a713e-ede5-4a4c-9542-0da1363d85c1
17. Plutzer K, Spencer AJ. Efficacy of an oral health promotion intervention in the prevention of early childhood caries. Community Dent Oral Epidemiol. 2008 Aug;36(4):335–46.
18. Kloetzel MK, Huebner CE, Milgrom P. Referrals for dental care during pregnancy. J Midwifery Womens Health. 2011;56(2):110–7.
19. Lee H, Tranby E, Shi L. Dental Visits during Pregnancy: Pregnancy Risk Assessment Monitoring System Analysis 2012-2015. JDR Clin Trans Res. 2022 Oct;7(4):379–88.
20. Hashim R. Self-reported oral health, oral hygiene habits and dental service utilization among pregnant women in United Arab Emirates. Int J Dent Hyg. 2012 May;10(2):142–6.
21. George A, Johnson M, Blinkhorn A, Ajwani S, Bhole S, Yeo AE, et al. The oral health status, practices and knowledge of pregnant women in south-western Sydney. Aust Dent J. 2013 Mar;58(1):26–33.
22. Petit C, Benezech J, Davideau JL, Hamann V, Tuzin N, Huck O. Consideration of Oral Health and Periodontal Diseases During Pregnancy: Knowledge and Behaviour Among French Pregnant Women. Oral Health Prev Dent. 2021;19(1):33–42.

23. Bushehab NME, Sreedharan J, Reddy S, D'souza J, Abdelmagyd H. Oral Hygiene Practices and Awareness of Pregnant Women about the Effects of Periodontal Disease on Pregnancy Outcomes. Int J Dent. 2022;2022:5195278.
24. Haas DA, Pynn BR, Sands TD. Drug use for the pregnant or lactating patient. Gen Dent. 2000;48(1):54–60.
25. Haas DA. An update on local anesthetics in dentistry. J Can Dent Assoc. 2002 Oct;68(9):546–51.
26. Codato LAB, Nakama L, Cordoni Júnior L, Higasi MS. Atenção odontológica à gestante: papel dos profissionais de saúde. Ciênc saúde coletiva. 2011 Apr;16:2297–301.
27. Doucède G, Dehaynin-Toulet E, Kacet L, Jollant B, Tholliez S, Deruelle P, et al. [Tooth and pregnancy, a public health issue]. Presse Med. 2019 Oct;48(10):1043–50.
28. Gupta N, Chhetry M. Knowledge and Practices of Pregnant Women regarding Oral Health in a Tertiary Care Hospital in Nepal. JNMA J Nepal Med Assoc. 2019;57(217):184–8.
29. Köhler B, Andréen I. Mutans streptococci and caries prevalence in children after early maternal caries prevention: a follow-up at 19 years of age. Caries Res. 2012;46(5):474–80.
30. Marinho VC, Higgins JP, Sheiham A, Logan S. Fluoride toothpastes for preventing dental caries in children and adolescents. Cochrane Database Syst Rev. 2003;2003(1):CD002278.
31. Mital P, Salvi A, Fatima A. Oral and dental health knowledge, attitude and practice among pregnant women. Sch Acad J Biosci. 2014;2(9):627–32.
32. Stelmakh V, Slot DE, van der Weijden GA. Self-reported periodontal conditions among Dutch women during pregnancy. Int J Dent Hyg. 2017 Nov;15(4):e9–15.
33. Christensen LB, Jeppe-Jensen D, Petersen PE. Self-reported gingival conditions and self-care in the oral health of Danish women during pregnancy. J Clin Periodontol. 2003 Nov;30(11):949–53.
34. Takahashi R, Ota E, Hoshi K, Naito T, Toyoshima Y, Yuasa H, et al. Fluoride supplementation (with tablets, drops, lozenges or chewing gum) in pregnant women

for preventing dental caries in the primary teeth of their children. Cochrane Database Syst Rev. 2017 Oct 23;10(10):CD011850.

35. Grzesiak I, Kaczmarek U. Pro-health knowledge of mothers and awareness of the state of health their children up to 3 years old. Dent Med Probl. 1 Jan 2004;41:59–66.
36. Huebner CE, Riedy CA. Behavioral determinants of brushing young children's teeth: implications for anticipatory guidance. Pediatr Dent. 2010;32(1):48–55.
37. Chala S, Houzmali S, Abouqal R, Abdallaoui F. Knowledge, attitudes and self-reported practices toward children oral health among mother's attending maternal and child's units, Salé, Morocco. BMC Public Health. 2018 May 11;18(1):618.
38. Pollick H. The Role of Fluoride in the Prevention of Tooth Decay. Pediatr Clin North Am. 2018 Oct;65(5):923–40.
39. Staszczyk M, Krzyściak W, Gregorczyk-Maga I, Kościelniak D, Kołodziej I, Jamka-Kasprzyk M, et al. The effectiveness of using the toothpastes with a different fluoride content on the early childhood caries (ECC) reduction – systematic review. New Medicine 4/2020, s. 143-154; DOI: 10.25121/NewMed.2020.24.4.143.
40. Mika A, Mitus-Kenig M, Zeglen A, Drapella-Gasior D, Rutkowska K, Josko-Ochojska J. The child's first dental visit. Age, reasons, oral health status and dental treatment needs among children in Southern Poland. Eur J Paediatr Dent. 2018 Dec;19(4):265–70.
41. https://iapdworld.org/parents/children-0-2-years-of-age/
42. Turska-Szybka A, Grudziąż-Sękowska J, Olczak-Kowalczyk D. Czynniki ryzyka próchnicy wczesnego dzieciństwa i indywidualna ocena poziomu ryzyka na podstawie CAMBRA. Nowa Stomatologia. 2011;16(3).
43. Wrzesińska-Narożniak W, Zboińska K, Erdmańczyk M, Sulińska M, Kus-Bartoszek A, Jarząbek A. Analiza wiedzy i zachowań prozdrowotnych rodziców korzystających z różnych źródeł informacji, dotyczących zdrowia jamy ustnej u dzieci najmłodszych. Magazyn Stomatol. 2023;R. 33(1).
44. Ben David M, Callen Y, Eliasi H, Peretz B, Odeh-Natour R, Ben David Hadani M, et al. Oral Health and Knowledge among Postpartum Women. Children (Basel). 2022 Sep 22;9(10):1449.

45. Viswanath S, Asokan S, Pollachi-Ramakrishnan G. First dental visit of children-A mixed-method approach. Int J Paediatr Dent. 2021 Mar;31(2):212–22.
46. Burgette JM, Dahl ZT, Yi JS, Weyant RJ, McNeil DW, Foxman B, Marazita ML. Mothers' Sources of Child Fluoride Information and Misinformation From Social Connections. JAMA Netw Open. 2022 Apr 1;5(4):e226414.
47. Frąckiewicz W, Niewczas G, Załęska K, Ziętek M, Ludwiczak M, Jurkowska E, et al. Impact of the COVID-19 pandemic on pro-health behaviors in the field of oral health, hygiene habits and attitude to dental care among Polish children and youth in the opinion of their parents. Pomeranian J Life Sci. 2023;69(1):13-17