

## PREGNANCY AND ORAL HEALTH

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## ORALNO ZDRAVLJE U TRUDNOCI

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### ABSTRACT

**Objective.** This study investigated the presence of risk factors for oral disease by evaluating oral hygiene habits among pregnant women.

**Methods.** The study included 45 pregnant women during the 8<sup>th</sup>-38<sup>th</sup> weeks of gestation that answered a questionnaire about the habits in oral hygiene. The obtained data were processed by using descriptive statistics.

**Results.** Eighty percent of pregnant women maintained their oral hygiene, out of which 64% used only the basic measures and the remaining 36% used some of the additional treatment strategies (different types of mouthwash, dental floss or interdental brushes). As much as 69% of women attended the dentist only when necessary, only when a problem occurred (pain, swelling). The habit of teeth brushing immediately after vomiting was found in 69% of women. The total of 45% of women took less than three minutes a day to maintain their oral hygiene. Approximately 60% of women noticed gum bleeding at the teeth brush during pregnancy. The total of 27% of women confirmed to have taken less attention to oral health during their pregnancy. Only 60% of pregnant women were informed about the importance of oral health during pregnancy and 40% of them had not been informed about the importance of oral health.

**Conclusion.** There should be a continuous process of application of prophylactic and therapeutic, as well as educational and health procedures, in dealing with pregnant women. When it comes to maintaining oral health, it is vital to inform pregnant women using comprehensible and practically applicable advice that will improve their awareness about the importance of oral hygiene.

**Key words:** oral health; pregnancy; primary prevention.

### INTRODUCTION

The prevalence of periodontal diseases in pregnancy in developed countries is over 90%; in the United States of America (USA) the prevalence is 35-100% (1, 2). American authors state that preterm birth as a complication of periodontal disease happens in 12% (3). For the Republic of Serbia, there are no systematized data on the prevalence of periodontal disease in pregnant women. The World Health Organization (WHO) defines oral health as a standard for health of oral tissue as well as

### SAŽETAK

**Cilj.** U studiji je ispitivano prisustvo faktora rizika za bolesti usta praćenjem oralnih higijenskih navika među trudnicama.

**Metode.** Studija je uključila 45 trudnica, od 8. do 38. nedelje gestacije, koje su odgovarale na upitnik o navikama u vezi sa oralnom higijenom. Dobijeni podaci analizirani su metodom deskriptivne statistike.

**Rezultati.** Osam desetina ispitivanih trudnica održavalo je oralnu higijenu, od kojih je 64% koristilo samo osnovne mere, a preostalih 36% i neke od dodatnih mera (tečnosti za ispiranje usta, konac za čišćenje zuba ili interdentalne četkice). Čak 69% žena posećuje stomatologa samo kada je neophodno, tj. kada postoje značajni zdravstveni problemi (bol, oticanje). Naviku pranja zuba odmah posle povraćanja ima 69% žena. Ukupno 45% trudnica oralnu higijenu održava kraće od tri minuta dnevno. Oko 60% žena primetilo je krvarenje iz desni prilikom pranja zuba tokom trudnoće. Ukupno 27% žena potvrdilo je da su tokom trudnoće obraćale manje pažnje na oralno zdravlje. Samo 60% ispitanih žena informisano je o značaju oralnog zdravlja tokom trudnoće.

**Zaključak.** Zdravlje usta trebalo bi da bude predmet kontinuirane primene profilaktičkih i terapijskih mera u radu sa trudnicama. Kada je reč o održavanju oralnog zdravlja, neophodno je da se trudnicama daju razumljivi i praktično primenljivi saveti koji će poboljšati njihovu svest o značaju oralne higijene.

**Ključne reči:** oralno zdravlje; trudnoća; primarna prevencija.

tissue related to it, which enables an individual to eat, speak and communicate with the environment without signs of acute illness, inconvenience or interference, and which contributes to the general state of health and well-being (4). Pregnancy is a period of life when dental care needs to be taken to the next level. To begin with, there are changes (hormonal status, changes in pH values of saliva, eating habits...) which increase the risk of dental disease. Another important reason is the proper intrauterine development of the mouth and teeth of a fetus. The development of oral cavity starts in the third week of pregnancy. Mineralization, in other words, calcification of deciduous teeth begins between the 12<sup>th</sup> and 16<sup>th</sup> week of gestation. The development of permanent teeth, that is the

first permanent molar, starts in the 14<sup>th</sup> week of gestation, incisors develop in the 21<sup>st</sup> week of intrauterine fetal life and a period of calcification starts around the term of birth (5). Recent research in this area has shown that pregnant women are uninformed about dental care and its importance, which is paradoxical in relation to their expressed interest in the future child’s health. The measures to protect the oral health of pregnant women are numerous and are contained in the National Program of Preventive Dental Care, which includes regular dental checkups, the use of fluorides, dietary measures and advice in the field of oral hygiene (6). The research objective is to indicate the presence of risk factors for oral disease by tracking the oral hygiene habits among the examined pregnant women.

**SUBJECTS AND METHOD**

The study included 45 pregnant women hospitalized in the Ward of Pregnancy Pathology, Gynecology and Obstetrics Clinic, Clinical Center “Kragujevac”, Kragujevac, with gestational age of 8-38 weeks, during the year 2012. After the completion of preliminary questioning and detailed explanation of the purpose and objective of this study, the examined women anonymously completed the questionnaire which had been previously created. The questionnaire had 10 questions as follows: How often do you brush your teeth? (2 times a day, once a day, once a week); Which of the indicated do you use for oral hygiene? (toothbrush, toothpaste, interdental floss, interdental brush, mouthwash); How often do you visit a dentist? (once a year, twice a year, if necessary or if there is a problem); How much time a day do you set aside for the maintenance of oral hygiene? (up to 3 minutes, 3-6 minutes, more than 6 minutes); Have you known the impact of oral health on overall health? (yes, no); Do you think that you pay less attention to oral health during the

pregnancy? (yes, no); In your opinion, has your state of oral health changed during the pregnancy compared to the period before the pregnancy? (it has deteriorated, hasn’t changed); Do you notice bleeding from the gums during brushing? (yes, I notice it in the course of pregnancy and in the pre-pregnancy period, yes, I notice it in the course of pregnancy, no, I don’t notice bleeding gums); Have you washed your teeth immediately after vomiting during pregnancy? (yes, no); Is your nutrition abounded with carbohydrates during pregnancy (sweets, juices ...)? (yes, no). The obtained data were statistically processed by using a percentage calculation after the logical processing of answers.

**RESULTS**

Out of the total number of pregnant women examined 80% maintained oral hygiene (teeth brushing) twice a day, while the other 20% did it once a day. In fact, 64% of women examined used only basic remedies (toothbrush and/or interdental floss), and the remaining 36% used some of the additional remedies (mouthwash and interdental brushes). Even 69% of the women examined visited the dentist only when necessary, that is only when a problem occurred (pain, swelling, bleeding gums), and 31% went to checkup once or twice a year. About 60% of them confirmed to be consuming more carbohydrates in the form of sweets and soft drinks during the pregnancy. 69% of the women examined confirmed to be teeth brushing immediately after vomiting (Table 1). 45% of all pregnant women took less than 3 minutes a day to maintain their oral hygiene, and 55% took more than 3 minutes, while only 1 out of 45 women examined took more than 6 minutes per day for oral hygiene. Approximately 60% of the women examined noted bleeding from the gums while brushing during pregnancy. 27% of total examined pregnant women confirmed to be

*Table 1. Habits of the examined pregnant women*

Visit to the dentist	If necessary, 69%	Yearly control, 31%
Frequency of tooth brushing	Twice a day, 80%	Once a day, 20%
Eating habits	Often uses carbohydrates in nutrition, 60%	Uses carbohydrates in nutrition commonly, 40%
Habit of teeth brushing after vomiting	Washes teeth immediately after vomiting, 69%	Washes teeth 30 minutes after vomiting, 31%

*Table 2. Individual attitude towards oral health among the examined pregnant women*

Oral health care during pregnancy	Taking less care, 27%	Doesn’t make a difference, 73%
Changing state of oral health during pregnancy	No changes, 13%	Deteriorating oral health care, 87%
Informing pregnant women about the importance of oral health in pregnancy	Not informed about the importance of oral health in pregnancy, 40%	Informed about the importance of oral health in pregnancy, 60%
The time devoted to oral health during the day	Less than 3 minutes a day for oral hygiene, 45%	More than 3 min for the oral hygiene a day, 55%
Deterioration parameter of oral health during pregnancy-bleeding gums	Notices, 60%	Doesn’t notice, 40%

paying less attention to oral health during the pregnancy. 60% of women examined realized the importance of oral health during the pregnancy and 40% were not informed about the importance of oral health in relation to the general health (Table 2).

## DISCUSSION

Good oral health of a pregnant woman indicates her acquired knowledge and attitudes about maintaining her oral health, the knowledge she will use in order to preserve child's health as well as to inform the child about it later (6). Despite the preventive dental care program for the population in Serbia, dating from 1996, the expected results in this area have not reached the expected level (7). Having examined the habits of pregnant women, we reached the conclusion that only 31% of pregnant women go to scheduled annual dental checkups when the dentist can show them preventive measures during pregnancy in order to maintain their oral health. On the other hand, there are data in the international literature to suggest that only 23% to 43% of pregnant women use dental care during pregnancy, and that as many as 54% of pregnant women have not been informed how to take care of their oral health during pregnancy. A high percentage of pregnant women, as well, haven't received adequate dental treatment during pregnancy, which can be a risk factor for preterm birth (8, 11). Out of the total number of pregnant women surveyed, 69% answered they have visited the dentist when a problem occurred, which is positive, because the incidence of preterm birth in pregnant women that have undergone required dental treatment during pregnancy is only 0.8%. Women who have postponed required dental treatment until after delivery have had an incidence of preterm birth over 10% (10).

It is recommended to wash the teeth in the morning right after getting up, and then during the day after each meal or after taking sweets between meals and at night after the last meal. It is believed that the shortest time for teeth brushing should be 2-3 minutes; otherwise, cleaning all of the retentive places in the mouth and all available teeth surfaces cannot be done effectively (4). Out of the 45 pregnant women surveyed, 80% of them brush their teeth twice a day, 55% of them spend more than three minutes a day to maintain oral hygiene and over half of women examined, about 64% use only a toothbrush and toothpaste. Pregnant women who brush their teeth less than twice a day and at the same time spend less than three minutes for the maintenance of oral hygiene are a risk group for caries and periodontal disease. Research results from 2003 indicate a high prevalence of caries of 99% of all tested age groups of pregnant women, although as many as 65% of pregnant women had had satisfactory oral hygiene. Only one woman had healthy teeth out of all patients presented in this study (1). From the above results

it may be concluded that the full effect of oral hygiene is to be achieved if it is combined with adequate nutrition, the use of fluorides in a suitable form and frequent oral health checkups (4).

Periodontal disease can have the same effect on pregnancy as smoking and alcohol (2). Changes in gingiva implicate the occurrence of gingivitis which may be manifested as bleeding from the gums, and usually starts during the second or third month of pregnancy and is exacerbated by the eighth month, when it shows a little improvement due to hormonal activity. It is an important sign that may indicate the beginning of periodontal disease with the mother and allows the bacteria to enter the bloodstream, pass through the body and enter the placenta (2). Bleeding from the gums, according to our research, is present in 60% of pregnant women; whereas, according to research from 2002, the bleeding from the gingiva is found in 32% of pregnant women with inadequate oral hygiene findings (5). The data from 1996 indicate that periodontal disease represents a statistically significant risk factor for the premature birth and inadequate fetal body weight; in fact mothers with periodontal disease are seven times more likely to give birth prematurely or to give birth to a baby with a lower body weight (9).

Oral hygiene and its maintenance habits are important factors in the development or prevention of dental caries (5). By examining the habits of pregnant women surveyed we learned that 60% of pregnant women consume more carbohydrates during pregnancy, which is certainly a risk factor for the development of caries. The literature data state that 54% of pregnant women have not been informed how to take care of their oral health during pregnancy (10). On the other hand, 60% of the women we examined were not aware of the importance of oral health and its impact on general health and 73% of them have paid less attention to oral hygiene during pregnancy. Despite these data, 87% of examined pregnant women believe that their oral health did deteriorate, which leads to the paradoxical conclusion that pregnant women frequently visit a dentist compared to the period before pregnancy. That is the only way to explain the unequivocal knowledge of the condition of oral health among pregnant women in our sample.

Damage to the tooth surface (erosion) can occur during pregnancy due to the effects of stomach acid in pregnant women who have frequent vomiting. Pregnant women often complain of increased tooth sensitivity that occurs as a consequence of the exposed dentin (9). Based on the survey we learned that 69% of pregnant women brush their teeth immediately after vomiting indicating a lack of information about preventive measures carried out in such cases. Pregnant women should be advised to avoid brushing up to 30 minutes after vomiting, because the effect of erosion, caused by acid, may be exacerbated due

to brushing already demineralized enamel. Also, consuming acidic fruits and carbonated beverages should be avoided to minimize the possibility of contact between acid and tooth tissue (9). Periodontal infection increases the risk of premature birth by stimulating the production of prostaglandin E2 (PGE2). The analysis of amniotic fluid of pregnant women with periodontal disease showed the presence of various bacterial products such as lipopolysaccharides and gram negative bacterial enzymes, which are known to stimulate the production of proinflammatory cytokines. This results in increased concentrations of tumor necrosis factor (TNF), interleukin 1- beta (IL1-beta), interleukin 6 (IL 6) and PGE2, which increases the risk of premature birth (11).

In conclusion, a continuous process of application of modern prophylactic and therapeutic, as well as educational and health procedures in dealing with pregnant women is a requisite. When it comes to maintaining oral health, it is vital to inform pregnant women using comprehensible and practically applicable advice that will improve their awareness of the importance of oral hygiene.

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