

ORAL HEALTH CARE FOR PREGNANT WOMEN: ORAL HYGIENISTS' KNOWLEDGE AND PRACTICAL SKILLS

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Abstract. Oral hygienists must possess adequate knowledge about the oral care of pregnant women. They should provide comprehensive information on individual oral hygiene and perform professional procedures for these patients. The aim: This study focuses on the knowledge of oral hygienists regarding the oral health of pregnant women, aiming to analyse their understanding and practices. The goals include analysing the need for information on aspects of pregnant women's oral care among oral hygienists and evaluating the recommendations given by oral hygienists to maintain oral health. Preventing all oral diseases during pregnancy is a key part of professional and individual oral hygiene. The results can be used to plan professional development programmes for oral hygienists and to improve oral hygienists' knowledge of working with pregnant women and maintaining their oral health.

The research utilized a qualitative semi-structured interview method, conducted in April 2023 with five oral hygienists who have worked in a dental clinic for over a year. Using an interview research method, it is possible to get a more open and broader view of participants' answers, attitudes and opinions on the research problem. The research was carried out following an interview plan. Data were collected through open interviews, recorded, transcribed, and thematically analysed. This article focuses on two topics: the information needs of oral hygienists on prenatal oral care and practical recommendations. General findings are: oral hygienists recommend oral care products based on the oral health of pregnant women, give practical demonstrations of brushing techniques and teach patients how to take good care of their teeth, and pay attention to prenatal nutrition.

Keywords: Oral health care, pregnant women, oral hygienist, knowledge, practical skills

Introduction

The beginning of life in a woman's body is like a miracle for every pregnant woman. The waiting and birth of a child brings a lot of happiness, but during pregnancy a woman experiences many different experiences and changes in her body. During pregnancy, physiological, anatomical and hormonal changes take place that affect the whole body of the woman, including her oral health (Yunita Sari et al., 2020). Good oral health is very important during pregnancy, as some oral diseases can determine the health of the future baby and the woman. Prevention of all diseases that may occur during pregnancy is a key to professional and individual oral hygiene. To prevent changes in oral health, pregnant women should maintain a particularly good oral hygiene and make preventive visits to oral care professionals. According to a literature analysis conducted by the Lithuanian Institute of Hygiene in 2018, pregnant women and women who have recently given birth have inadequate knowledge of oral hygiene skills, and are less likely to take care of and take an interest in their oral and dental health. The study found that women's oral hygiene skills improved after receiving information and training on the importance of oral hygiene and nutrition for the body and the future baby, but this was also related to social status (Janonienė et al., 2018). Teaching patients during pregnancy about individual oral hygiene gives women the motivation to take better care of their oral health.

Oral hygienists are prepared to work with patients with different needs (Ministry of Health, 2019). Maintaining the oral health of pregnant women requires special attention and specific knowledge and practical training. While the documents governing the study and practice of oral hygienists ensure the acquisition of the necessary competences, there is a need to assess the preparedness of existing oral hygienists for working with pregnant women.

The study focuses on oral hygienists' knowledge and practical skills related to prenatal oral health care, prevention and oral care during pregnancy.

This article aims to analyse the knowledge and practical skills of oral hygienists in their work with pregnant women.

The object of the study is the knowledge and practical skills of oral hygienists in working with pregnant women.

Objectives of the study:

1. To analyse the need for information on aspects of pregnant women's oral care among oral hygienists.
2. To evaluate the recommendations given by oral hygienists to pregnant women for maintaining oral health.

The results can be used to plan professional development programmes for oral hygienists and to improve oral hygienists' knowledge of working with pregnant women and maintaining their oral health.

Research Methods and Conditions

A qualitative research method, semi-structured interviews, was chosen to analyse this topic, which allowed for a more in-depth analysis of the objectives of the study. The information obtained from the interviews is much more valuable, as it provides a broader picture of the problem under study and more examples (Gaizauskaite & Valaviciene, 2016).

This research method allows for a more open and broader range of responses, attitudes and opinions from participants on the research issue. The research was carried out following an interview plan.

The study was structured based on three themes: information needs on oral health care in pregnant women, dental and oral mucosal changes in pregnant women, and practical recommendations for dental and oral diseases during pregnancy. This article focuses on two themes: the need for information for oral hygienists on oral care of pregnant women and practical recommendations.

Study sample. The study population included oral hygienists who were selected by simple random sampling. Oral hygienists were contacted personally and invited to participate in the study. Those who agreed to participate in the study completed a written consent form. Inclusion criteria: Oral hygienists with more than 1 year of experience and graduates from different educational institutions.

The study process. This study was carried out in April 2023. Participants were contacted and asked if they would be willing to take part in the study, how many years they had been practising as an oral hygienist, and what institution of higher education they had graduated from. It was also decided in advance when and where the interviews would take place.

The interviews took place at the workplace of the oral hygienists - in dental clinics and offices. At the beginning of the interview, the participants were introduced to the topic and the purpose of the study. Prior to the interview, participants signed a consent form agreeing to participate in the interview. The interview lasted up to 30 minutes per participant and the answers to the research questions were recorded on a recorder. The data were then transcribed into an MS Word document and analysed.

Research ethics. The study was conducted in compliance with ethical principles. The research was conducted in a manner that respected the rights of the participants and therefore the interviews were conducted following the principles of respect, fairness, safety and self-determination.

Participants were contacted prior to the study and asked if they agreed to take part in the study. Prior to the recording of the interview, the respondents were briefed on the aim and objectives of the study, the interview process was briefly explained, and the participant consent form was completed at the meeting. It was also explained that all information obtained from them would be confidential and will be used only for the purposes of the study. In order to preserve the anonymity of the interviewees' data, the names of the participants were not mentioned in the study and a letter code (A, B, C, D, E) was assigned to them. The characteristics of the participants are presented in Table 1.

Table 1. Details of the Participants

| Oral hygienists | Higher Education Institution (HEI), They Graduated | Graduation Year | Work Place Type | Seniority |
|-----------------|--|-----------------|-----------------|-----------|
| A | Utena HEI | 2014 | Private | 8 years |
| B | Panevėžys HEI | 2020 | Private | 2 years |
| C | Panevėžys HEI | 2010 | Public | 12 years |
| D | Šiauliai HEI | 2020 | Private | 2 years |
| E | Kaunas HEI | 2014 | Private | 8 years |

Two of the participants have graduated from the same educational institution - Panevėžys Higher Education Institution, but the year of graduation differs. The other three oral hygienists graduated from Higher Education Institutions in Utena, Kaunas and Šiauliai. One oral hygienist who has been working for more than 10 years in a public clinic participated in this study, while all the other oral hygienists work in private clinics. Three participants have been practicing for more than 5 years (Table 1).

Analysis of the data. Semi-structured interview questions were designed to provide more detailed results and more accurate data for the quantitative study. The qualitative research was carried out in a deductive manner, with questions being asked to participants based on pre-defined themes. Data from the audio recordings were transcribed into text, and the interview text was coded, clustered and the results interpreted.

Research Results and Discussion

An oral hygienist needs to have a good understanding of their job and the competences to help pregnant patients avoid various oral diseases. The activities of oral hygienists consist of counselling patients on various issues based on their oral health status, performing professional hygiene procedures and educating patients.

However, in all these activities, oral hygienists must comply with the provisions of the Lithuanian medical standard MN 35:2019 "Oral hygienist" (Ministry of Health, (2019). This medical standard for oral hygienists describes the rights, duties and competences that must be observed when performing procedures. According to the insights of Professor I. Balčiūnienė (2021) on oral health, the best way to prevent oral diseases is through prevention. It is very important that pregnant patients are motivated by oral hygienists to take care of their teeth and are taught how to brush them properly. Only good and competent professionals will teach and remind their patients about oral care and not just try to perform manipulations (Balčiūnienė, 2021).

During the interviews, oral hygienists were asked to rate their knowledge of oral care during pregnancy. Respondents could choose from five answers: 'Very poor', 'Poor', 'Fair', 'Good' and 'Very good'. The results showed that two participants rated their knowledge as 'Very good' and the rest chose 'Good'. These responses indicated that oral hygienists have the knowledge needed to work with pregnant women, but it is important to note that knowledge needs to be continuously updated and improved. This will help achieve the results of the work and contribute to improving the oral health of the population.

Two themes and six sub-themes emerged from the analysis of the interview data (Figure 1).

1 Theme. Information Needs on Prenatal Oral Care

- **1.1. Oral Hygienists' Perceptions of the Information Received During the Study**
- **1.2. The Involvement of Oral Hygienists in Training Programs Focused on Enhancing Pregnant Women Oral Health**
- **1.3. Information Searches**

2 Theme. Practical Activities and Recommendations of Oral Hygienists Working with Pregnant Women

- **2.1. Individual Oral Care Products**
- **2.2. Bacterial Plaque Control Training**
- **2.3. Impact of Diet on Oral Health**

Fig. 1. Emerged Themes and Sub-themes

1 Theme. Information Needs on Prenatal Oral Care

The need for information on oral health care for pregnant women emerged through three sub-topics.

1.1. Oral Hygienists' Perceptions of the Information Received During the Study

In Lithuania, the studies of oral hygienists are strictly regulated and are carried out following the Description of the Field of Studies in Oral Care (Ministry of Education, Science and Sports, 2020). Therefore, graduating oral hygienists must have specific skills that ensure the provision of services to patients and counselling on oral health issues (Ministry of Health, 2019).

The oral hygienists who took part in the study were asked whether the knowledge they had acquired during their studies on the topic was sufficient. Only one out of five of the participants stated that the information they had received on oral care for pregnant women was sufficient:

"In my opinion, there is certainly enough information about prenatal oral care in college." (C)

Other interviewees suggested that future oral hygienists need to be made more aware of the oral care of pregnant women during their studies:

"I believe college provides general information, but there could be more detail; it's often up to each professional to seek out additional knowledge on their own." (A)

"As far as I remember, we had a general course on oral health for pregnant women, but I don't recall receiving much detailed information—just the basics like nutrition, oral care, motivation, and how often pregnant women should visit the dentist." (B)

"I think the information provided in college is kept general to help students understand the basics, but if you want more detailed knowledge about prenatal oral care, you need to seek it out on your own." (E)

The responses indicated that college students receive general information about prenatal oral care, product selection, nutrition, and professional dental care. However, participants emphasized the need for information on dental care after pregnancy and during breastfeeding.

"It seems that colleges could do with providing a lot more information to professionals, simply because there are so many pregnant women and it's really important to look after their teeth throughout pregnancy and even afterwards, when they're breastfeeding." (D)

Participants in the study noted that information is quickly lost after studying, which is why oral hygienists need to keep up-to-date with their studies. Nowadays it is very important to keep up-to-date with new research findings and tools, so it is essential to keep up-to-date with the latest information on prenatal oral care after studies.

"When you graduate, you forget about these things, so you automatically have to keep going to training, courses, read literature, take an interest..." (B).

"...the information provided at college is more generic, and more is for each professional to find out for themselves". (A)

This study revealed that the interviewees had received information about prenatal oral care during their studies, but felt that there was a lack of information and that they felt that they needed to keep up-to-date with their own knowledge.

1.2. The Involvement of Oral Hygienists in Training Programs Focused on Enhancing Pregnant Women Oral Health

All healthcare workers must periodically update their knowledge. This is a prerequisite for the legitimate practice of oral hygiene (Ministry of Health, 2019). Study participants indicated that it is important for them to know oral care of pregnant women. They were therefore asked how interested they were in this topic and whether they received any training.

"I don't do courses very often." (A)

"I haven't seen any courses or training on prenatal oral care at the moment, but I did an online course about 7 months ago, it was free, and it was also a reminder of how to motivate patients, how to take care of them, which foods to choose more to give the baby the good stuff..." (B).

"I'm in for a year once." (C)

"I'm not involved yet." (D)

"I don't really participate in any kind of specific training on oral hygiene for pregnant women..." (E)

The responses revealed that oral hygienists find opportunities to improve their knowledge and participate in training, but not all of them do so. A few participants in the study indicated that they had not received any training on prenatal oral care. These interview responses indicated that there is a continuing need for professional development for oral health professionals and that training providers need to periodically include topics on working with pregnant women and maintaining their oral health.

1.3. Information Searches

Motivating healthcare workers to improve their knowledge is essential to meet the oral health needs of the public. Continuing education and professional development helps to expand networks, deepen professional knowledge, strengthen professional identity, and provide social support and fellowship (Button et al., 2014). More recently, relevant information is not only available at specially organised events, but also through social networks and other means of information dissemination. Interviewees shared their experiences of where they get information on topical issues:

"I mostly look for information on social networks or online." (A)

"For information on prenatal oral care, if I don't know something or want to know something more interesting, I look at scientific articles in English from time to time..." (B)

"I look for information on social networks, in Lithuanian." (C)

"...I do not use some websites because of the possibility of inaccurate information on them". (D)

"If I'm looking for information, I read scientific articles or journals online." (E)

The collected responses show that oral hygienists look for information on the internet and choose reliable sources of information such as scientific publications or social networks that bring professionals together. One respondent indicated that they do not use websites because of the reliability of the information.

Oral hygienists do not only look for information in Lithuanian, as there is more research on the topic in foreign languages:

"I usually search in Lithuanian and sometimes in English if I can't find the information I need in Lithuanian." (A)

"Mostly in Lithuanian, but there's not much information in Lithuanian, then I look in English, because there's more information there." (E)

Communication with colleagues is key to getting quick answers to questions. Interviewees indicated that they get advice from their team members:

"...I learn new information from fellow doctors" (A)

"Most of the information comes from colleagues, from specialist doctors who have experience in this field..." (D)

"Sometimes I ask my colleagues, who are oral hygienists or dentists." (E)

The analysis of the interviews on the need for information on prenatal oral health care showed that there is information in Lithuanian, but there are still few scientific articles or recent studies on this topic in Lithuania. The responses show that oral hygienists communicate with their colleagues and ask for their advice.

2 Theme. Practical Activities and Recommendations of Oral Hygienists Working with Pregnant Women

One of the topics addressed in the study was the prophylaxis used by oral hygienists to prevent oral diseases during pregnancy. All interviewees were asked questions about oral care during pregnancy. Respondents talked about recommended oral care products. Three sub-themes emerged from the analysis of the responses on this topic.

2.1. Individual Oral Care Products

All respondents described the oral care products they prescribe for pregnant women. The most common recommendation is to use a soft toothbrush and toothpaste, depending on the patient's complaints or visible changes in her mouth:

"For each patient individually <...>, a soft toothbrush or a single-toothbrush <...>. floss or interdental brushes. <...> toothpaste containing fluoride, hydroxyapatite to protect the teeth from acid and sensitivity." (A)

"...a single toothbrush to make it easier to access the back teeth, as well as a regular toothbrush that is softer and with a smaller head to avoid nausea <...> the toothpastes, already taking into account the patient's dental condition, <...> to be free of any parabens, sulphates, SLS <...>". (B)

"I recommend using toothpaste and a soft toothbrush." (C)

"We unequivocally recommend using a soft toothbrush <...> toothpaste - individual according to the patient's needs, which problem areas in her mouth<...>." (D)

"I usually recommend using a soft toothbrush, interdental floss and toothpaste. Toothpaste is, of course, recommended for each patient individually according to the situation in the mouth." (E)

Personal oral hygiene helps to prevent oral health problems during pregnancy, so it is important for women to choose and use the right oral care products during this period (Naseem et al., 2016). Interviews found that oral hygienists help pregnant women choose personal oral care products, pay attention to the softness of the toothbrush, the composition and purpose of toothpaste, and recommend interdental care products. These measures are essential for personal oral hygiene, and the information and coaching provided by oral hygienists is therefore crucial for the oral health of pregnant women.

Chemical oral care products can be used as complementary measures to maintain individual oral health (Yenen & Ataçağ, 2019). Some oral hygienists said that they prescribe mouthwash for pregnant patients. Oral hygienists noted that if patients need to rinse their mouths, they recommend an alcohol-free mouthwash or sometimes prescribe a natural salt or chamomile solution that patients can make at home:

"Sometimes I recommend a rinse with a salt or chamomile solution." (A)

"...I sometimes suggest rinsing the mouth with saline if the patient has severe gingivitis, so here's a way to give the patient an alcohol-free mouthwash". (E)

One oral hygienist also mentioned that he recommends xylitol-containing chewing gum or lozenges and oral probiotics to patients:

"<...> xylitol gum or lozenges are a perfect thing to clear up the acid environment, <...> oral probiotics to fill the oral cavity with lots of good bacteria, <...> probiotics are good for protecting the teeth, the gums, and they are a source of prevention." (B)

Pregnant women need to be advised about their own oral care products, as people tend to buy products on their own without consulting a specialist. It is important to use the products you buy properly. During pregnancy, women pay less attention to oral health and prioritise other things (Liu et al., 2019). When counselling a pregnant woman, an oral hygienist should focus on the importance of oral health not only for the woman's health but also for the health of her future baby. The oral hygienist should discuss with pregnant women the oral care products they already have, and their use, and prescribe the necessary products if needed.

"When patients come in, I always ask them what they use for things like bleeding, tooth sensitivity, to soothe their gums <...>". (B)

"<...>this is usually a chamomile rinse, followed by a saline rinse (warm water with half a teaspoon of salt) to act as an antibacterial, anti-inflammatory, bacteria-killing rinse, I always like that patients know these things, homemade ones, which are healthier <...>.(B)

"<...> patients should choose what is available in the pharmacy". (D).

Summarising the responses of the interviewees, it is clear that oral hygienists take into account the oral health problems of pregnant women and prescribe the necessary personal oral care products and encourage their proper use. When prescribing toothpaste, they take into account its composition and its effect on the tooth and mucous membranes, and often recommend salt or chamomile rinses that pregnant women can make at home. They recommend xylitol-based products and oral probiotics to improve the condition of the teeth and gums.

2.2. Bacterial Plaque Control Training

Bacterial plaque is one of the most important factors that cause tooth and gum disease. It is therefore important to explain to pregnant women how to brush their teeth properly in order to break down dental plaque. According to the responses of the respondents in the study, it was found that most often pregnant women are taught how to control bacterial plaque by demonstrating mechanical cleaning movements on a dental model. However, some hygienists also described their own methods of teaching patients to control bacterial plaque:

"I usually show on a model of the teeth, because I have one in my office, or sometimes patients bring in a brush and then I show on their own teeth." (A)

"In the office, I use this technique - there are plaque disclosing tablets or drops, so before the hygiene, I disclose and show the patient the plaque, and then I use the cleaning method..." (B)

"I have a dental model in my office and I show pregnant women how to take care of their teeth, how to brush properly, how to adjust the brush to remove plaque well and how to massage the gums." (C)

"I usually show the patients on a model of their teeth what movements to use to brush their teeth, or sometimes they bring their own brush or I give them one and then I disclose their teeth with a plaque-staining material and then show them how to brush." (D)

"I tell her how to brush teeth properly and show how to brush on a model." (E)

The analysed responses show that oral hygienists either show patients how to take care of their teeth on a model or use a slightly different technique – disclosing dental plaque and demonstrating how to brush it off in the real mouth. The latter technique is more motivating for pregnant women as they can see the areas that need to be cleaned better and do it in their mouths (Saffari et al., 2020).

2.3. Impact of Diet on Oral Health

Diet determines oral health. It is also important for oral hygienists to tell patients about the importance of nutrition during and after pregnancy. When communicating with pregnant women, the focus should always be on their own health and the health of the future baby (Jevtić et al., 2015). The interviewees were asked to share their experiences and what they focus on when counseling pregnant women about nutrition.

"<...>It depends on how the patient takes care of her teeth, but all foods with sugars and carbohydrates contribute to acid formation, which is really bad for the teeth." (A)

"There is no doubt that diet during pregnancy affects the teeth. Pregnant patients often snack on a variety of foods, sometimes sweet foods that are high in sugars, carbohydrates or acidic foods are also harmful. <...>." (D)

"Diet definitely has an impact on oral health, because if a patient likes to eat a lot of sugary foods, this contributes to tooth decay." (E)

Participants in the study mentioned that diet during pregnancy affects not only the oral health of the pregnant woman, but also the health of the baby. They say that frequent snacking on foods high in sugars contributes to the development of tooth decay. It is therefore very important to avoid foods that lead to plaque build-up and poor oral health:

"I always tell my patients that a balanced, complete diet is always good. <...> Avoid acidic foods, <...> carbohydrates, sugar, flour dishes such as muffins, bread, which stick to the teeth very much, and most of the time the patient doesn't brush her teeth, which means that all day long, that food is in her mouth. <...> less foods that are high in fat, but unsaturated, and plain fats that have nothing good in them." (B)

Only one participant pointed out the frequency of eating, which is important for maintaining oral health:

"I also often advise my patients not to snack so that there are gaps between meals and less food residue in the mouth." (A)

Oral hygienists should pay more attention to the composition of food when counselling pregnant women, but also to the harm caused by snacks.

The interviewees talked about the recommended foods for pregnant women:

"I advise my patients to eat a balanced diet rich in vitamins - vegetables, fruit. I also recommend that patients eat dairy products, which contain calcium, which is needed for teeth and bones. Of course, I advise them to drink plenty of water, because water contains minerals." (A)

"I always say that dairy products are very good for the mother and the foetus, for growth, for bone development, for teeth - milk, cottage cheese, eggs, <...> fish, vegetables, fruit, <...> meat. It is important to have a wide variety of foods." (B)

"I recommend eating more foods that contain the minerals and vitamins needed by the mother and baby. I recommend healthy eating not only during pregnancy, but also after pregnancy and during breastfeeding." (D)

"I usually tell them to eat more vegetables, fruit, fish and dairy products, because they contain calcium and other substances that are necessary for strengthening the teeth and the whole body and the baby's development." (E)

An analysis of the responses showed that oral hygienists usually recommend that their patients eat more dairy products, fruit, vegetables, meat and fish. One hygienist mentioned that he recommends his patients to drink more water because it contains minerals that are necessary not only for the tooth tissues but also for the whole human body.

An interviewee pointed out that pregnant patients should eat well-processed food to avoid foodborne infectious diseases:

"Of course, the food should be well processed, <...> well baked or cooked, so that you don't catch any diseases." (B)

Only one respondent in the interview stated that diet during pregnancy does not affect oral health.

Summarising the responses of the interviewees, it was noted that oral hygienists provide pregnant women with information about nutrition, emphasise the importance of nutrition not only for the health of the mother but also for the health of the future baby, and advise them to choose a varied and well-balanced diet. The analysis of the responses showed that oral hygienists should pay more attention to the frequency of snacking when counselling pregnant women, as well as to nutrition and oral health during breastfeeding.

The significance of the study. This study showed that oral hygienists' knowledge of pregnant women's oral health is adequate. The study showed that oral hygienists are aware of the topic, but they still report a lack of scientific articles in English on oral lesions during pregnancy and how to prevent them. Therefore, in order to strengthen the competence of oral hygienists in maintaining the oral health of pregnant women, publications on the subject should be developed. In addition, oral hygienists themselves can suggest topics to organisers of events that are relevant for their professional development. According to the study, oral hygienists prescribe oral care products to pregnant patients according to their personal needs, teach patients about plaque control, motivate them and give them practical guidance on brushing their teeth, and recommend them to follow healthy eating principles.

Strengths and limitations of this study. The study provided a deeper understanding of the knowledge and practical skills oral hygienists need to work with pregnant women. Oral hygienists know and provide the necessary guidance to maintain the oral health of pregnant women. The interview method allowed for a full response, with honest and detailed answers from the participants.

The interview study conducted with 5 oral hygienists allowed identify significant statements related to the oral care of pregnant women, but this is also a limitation as it does not represent the vast majority of oral hygienists. Therefore, it would be appropriate to conduct a larger study in the future to collect information from a larger group of oral hygienists.

The novelty of the study is based on the unique research object. This knowledge will help to anticipate the need for strengthening the competences of oral hygienists.

Although the study has several strengths, it is important to consider the limitations of the study. These include the potential for response bias in the dental hygienists' self-reported data and the limited ability to generalize the findings beyond the specific region studied.

Conclusions

Oral hygienists have a good knowledge of the oral health of pregnant women, but they point out that there are few scientific articles or studies on the topic.

Oral hygienists recommend oral care products to pregnant patients based on their conditions, teach them how to take good care of their teeth, and give them nutritional advice, which shows that their knowledge and practical skills work together.

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