Original Article

Oral Health Literacy Status, Knowledge Levels, Beliefs, and Behaviors of Pregnant Women

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ABSTRACT

Context: Pregnancy may exacerbate the frequency and severity of some dental problems. However, most pregnant women avoid going to the dentist. **Aims:** To examine the oral hygiene and dental care behaviors of women during pregnancy, to measure their knowledge levels, to reveal their oral and dental health literacy status, and their beliefs about treatment. **Settings and Design:** The study was conducted for a period of 1 month with pregnant women over the age of 18 who presented to the obstetrics outpatient clinic and agreed to participate in the study and who had no known anomalies or complications. **Methods and Material:** A survey was completed by face-to-face interviews with 317 pregnant women of different ages and gestational weeks. Participants were asked questions regarding their sociodemographic characteristics, pregnancy characteristics, oral hygiene-related beliefs, behaviors, and knowledge levels. **Statistical Analysis Used:** The data obtained in the study were analyzed with SPSS 21.0 program. Since the kurtosis and skewness values were between +3 and -3, parametric tests were used. **Results:** In total, 317 pregnant women between the ages of 18 and 43 participated in the study. The most common beliefs are listed as; babies receive the necessary calcium from the teeth, antibiotics given during dental treatment harm the baby, and panoramic radiography taken during treatment harms the baby. 91.5% of the participants did not visit the dentist after planning a pregnancy, and 89% of them did not visit the dentist during pregnancy. The most common reason not to visit the dentist is not having a dental problem. The rate of knowing that dental infections during pregnancy will affect the baby is 50.5%. **Conclusions:** In the present study, it is seen that pregnant women do not have adequate oral hygiene. The reasons were listed as various false beliefs and lack of sufficient knowledge. Health professionals should provide information about oral hygiene to pregnant women and direct them to the dentist.

Keywords: *Belief, dental hygiene, pregnancy*

Key messages

Pregnant women do not have sufficient knowledge about dental health. They also have false beliefs. As a result, they do not maintain adequate oral hygiene during pregnancy.

Introduction

It is thought that oral vascular permeability is affected during pregnancy due to changes in hormone levels such as estrogen and progesterone.

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With a decrease in host immunity, susceptibility to oral infections may occur.[1] Therefore, pregnancy may increase the frequency and severity of oral diseases in women. Periodontal diseases, in particular, can often be exacerbated during this period due to increased estrogen levels.[2] It has previously been stated in the literature that periodontal diseases may be a risk factor for premature birth.[3] It is also suggested that periodontal diseases may cause early tooth decay in childhood, as well as preeclampsia, premature rupture of membranes, cardiovascular diseases, diabetes, and depression.[4] The source of oral bacteria such as Streptococcus mutans, which is responsible for tooth decay in children, is primarily the mother.[5] Considering these, the mother's oral hygiene is important not only for herself but also for the child.

It is critical that pregnant women have adequate knowledge and awareness about the importance of oral and dental health. Factors that cause the mother not to receive adequate oral treatment during this period may include social factors such as lack of health insurance and limited access to health services. The expectant mother's knowledge level and beliefs also play an important role. Dental treatment during pregnancy is safe, according to the American Academy of Pediatric Dentistry's Guidelines for Perinatal Oral Health Treatments.[6] However, according to previous studies, the majority of pregnant women did not visit the dentist during pregnancy because they thought that they would be given local anesthetics and antibiotics without consulting their doctors.[7] A significant proportion of pregnant women are unaware that they will need dental treatments during this period. Due to widespread beliefs in society, many pregnant women believe that tooth loss is normal during pregnancy and do not seek treatment for it.[8]

The present study aimed to examine the oral hygiene and dental care behaviors of women during pregnancy. The specific objectives were to measure the knowledge levels and to reveal their oral and dental health literacy status and their beliefs about dental disease treatment.

Subjects and Methods

The cross-sectional study was conducted at the obstetrics clinic of Çukurova University, Department of Gynecology, between 01.01.2018 and 31.01.2018. Ethical approval was obtained from the Çukurova University Ethics Committee (Date: 01.12.2017 Number: 15). All pregnant women who presented to the outpatient clinic were included in the study. Pregnant women who did not agree to participate, who had genetic and developmental anomalies during their pregnancy, and who were under 18 years of age were not included in the study. A total of 317 pregnant women participated in the study, and a face-to-face survey was conducted with the participating pregnant women. Participants were asked questions about their sociodemographic characteristics, as well as their pregnancy status, beliefs about dental care during pregnancy, oral hygiene habits, and knowledge about dental infections.

Statistical analysis

The data obtained from the study were analyzed with SPSS 21.0 (IBM Statistic Program, Chicago, IL, USA) program. It was examined whether there were any out-of-range values, and if any, incorrectly coded values were corrected. In the study, mode, mean, median, std deviation, maximum and minimum values of the answers were obtained. Kurtosis and skewness coefficients were examined to determine whether the answers conformed to normal distribution. The kurtosis and skewness values obtained from the scales being between + 3 and -3 are considered sufficient for normal distribution.[9] According to this result, it was concluded that the scores showed a normal distribution. Since the scores showed a normal distribution, parametric testing techniques were used in the study. T-test and ANOVA test were used to analyze whether the scale score differed according to demographic characteristics. While the *t*-test was used in the analysis of demographic variables with 2 groups, the ANOVA test was used in the analysis of variables with more than two groups.

Results

The average age of the women participating in the study is 28.54 ± 6.03 years (between 18 and 43 years).

Table 1: Sociodemographic characteristics of the participants

		n	%
Age	18-24	94	29.7
	25-34	163	51.4
	35 and older	60	18.9
Educational status	Illiterate	14	4.4
	Primary school	60	18.9
	Elementary school	76	24.0
	High school	103	32.5
	University	64	20.2
Employment	Employed	58	18.3
	Unemployed	259	81.7
Employment of the spouse	Employed	279	88.0
	Unemployed	38	12.0
Household income	1499 tl or less	105	33.1
	1500-2499 tl	112	35.3
	2500-3499 tl	50	15.8
	3500tl or more	50	15.8

Table 2: Beliefs of the participants about oral health during pregnancy

	Yes %	No %	Undecided %
1. A tooth for a child	42.6	30.6	26.8
2. Babies withdraw calcium from the teeth while in the womb	56.2	15.1	28.7
3. My teeth will have damage anyway since i will lose calcium in pregnancy	48.6	21.1	30.3
4. Painful teeth and gums during pregnancy improve after birth	27.4	33.4	39.1
5. Its normal to have bad breath during pregnancy	22.1	39.1	38.8
6. Its normal to have bleeding gums during pregnancy	32.8	28.4	38.8
7. Its normal to have dental caries during pregnancy	38.5	27.1	34.4
8. During pregnancy, if you have a tooth extraction or dental treatment, baby will have troubled teeth.	13.6	41.3	45.1
9. Having dental treatments during pregnancy would harm the baby.	44.5	20.5	35
10. Dentist does not examine during pregnancy	27.5	46.5	25.9
11. Local anesthesia during dental treatments harms the baby.	46.1	11.4	42.6
12. Antibiotics given during dental treatments harm the baby	54.9	11.7	33.4
13. Taking dental x-rays during dental treatment harms the baby.	53.6	7.3	39.1
14. Dental treatments are performed without consulting your gynecologist.	18.3	65.3	16.4

Table 3: Oral hygiene habits and dental visits during pregnancy

Questions	Answers		*n*	%
Brushing teeth	Never		8	2.5
	Few times in a week		44	13.9
	Once in a day		130	41.0
	Twice in a day		110	34.7
	Three times in a day		25	7.9
Flossing	Yes		47	14.8
	No		270	85.2
Using mouthwash	None		210	66.2
	Few times in a week		51	16.1
	Once in a day		41	12.9
	Twice in a day or more		15	4.8
Smoking	Yes		43	13.6
	No		274	86.4
Did you visit a dentist while you were planning a pregnancy?	Yes		27	8.5
	No		290	91.5
Did you visit a dentist during pregnancy?	Yes		35	11.0
	No		282	29.0
	Reasons	I did not have any dental problem	191	60.3
		I believed it would go away after pregnancy	13	4.1
		I have a dentophobia	13	4.1
		I believed the dental treatment would harm the baby	27	8.5
		I delayed the treatment after pregnancy	29	9.1
		Other	9	2.7

Table 1 shows the sociodemographic characteristics of the participants. About a third (32.5%) of the participants were high school graduates, and 20.2% of them were university graduates. While only 18.3% of the participants are employed, 88% of their spouses are working. In the study, 33% of individuals have a household income of 1499 TL or less, while 8.2% of individuals do not have a monthly household income.

Table 2 shows the pregnancy characteristics of the participants. The average number of pregnancies of the participants is 2.79 ± 1.81, the average number of births is 1.24 ± 1.21, and the average number of living children is 1.16 ± 1.21. The participants' gestational weeks were 6 at the earliest and 41 at the maximum, with an average of 24.11 ± 10.03 weeks.

When patients' beliefs about dental care during pregnancy were examined, the following results are found [Table 2]. The most widespread beliefs are listed as "*Babies withdraw calcium from the teeth while in the womb*" (56,2%), "*Antibiotics given during dental treatments harm the baby*" (54,9%), and "*Taking dental x-rays during dental treatment harms the baby*" (53,6%).

Table 4: The knowledge of dental care during pregnancy

Questions	Answers		*n*	%
Do you know that dental infections during pregnancy may affect the baby?	Yes		160	50.5
	Source of information	Family physician	35	11.0
		Dentist	34	10.7
		Books, magazines and newspapers	22	6.9
		TV and radio	9	2.8
		Family and friends	24	7.6
		Internet	30	9.5
		Other	6	1.9
	No		157	49.5
Would you refer to a dentist if you knew that dental infections would affect the baby?	Yes		235	74.1
	No		49	15.5
	Undecided		33	10.4
Do you know that there is a free health service in oral and dental health centers to those with social insurance?	Yes		109	34.4
	No		208	65.5

The oral hygiene habits of the participants are shown in Table 3. Accordingly, 2.5% of the participants reported that they did not brush their teeth at all. About fourteen percent (13.9%) of them stated that they brushed several times a week, 41% of them stated that they brushed once a day, 85.2% of them stated that they never used dental floss, and 66.2% of them stated that they never used mouthwash 91.5% of the participants did not go to the dentist after planning a pregnancy. Eighty-nine percent of them did not see a dentist during pregnancy. The most common reasons for not going to the dentist were not having a dental problem (60.3%), postponing the treatment until after pregnancy (9,1%), and believing that the treatment would harm the baby (8,5%). There was no significant relationship between visiting the dentist during pregnancy and education (P = 0.296), age (P = 0.620), job status (P = 0.628), spouse›s job status (P = 0.314), number of pregnancies (P = 0.820), number of births (P = 0.661), and the number of living children (P = 0.646). However, a statistically significant relationship was found between visiting the dentist during pregnancy and monthly income level (P = 0.032).

In Table 4, the knowledge of dental care during pregnancy was shown. 49,5% of the participants did not know that dental infections during pregnancy could affect the baby. Those who have this knowledge have learned it mostly from family physicians and dentists.

The proportion of those who stated that they would not visit the dentist even if dental infections would affect the baby is 15.5%, and the proportion of those who are undecided is 10.4%. The proportion of those who do not know that free health services are provided to those with social security in oral and dental health centers is 65.5%.

Discussion

The present study aimed to reveal the knowledge level of pregnant women in the Turkish population about oral and dental health and their beliefs about dental treatments during pregnancy. According to the results, most women do not visit the dentist when they are planning a pregnancy or during their pregnancy. Additionally, oral health is not given enough importance in both periods.

In the present study, the rate of those who presented to the dentist after planning pregnancy was 8.5%, and the rate of those who consulted the dentist during pregnancy was 11%. Similar to the present study, in a study conducted in the Turkish population, the rate of people consulting a dentist during pregnancy was found to be 13.7%.[7] This rate was found to be 53% in Poland, 47% in France, 30% in Australia, and 58.3% in the United Arab Emirates.[10-13]

Compared to developed countries, the rate of Turkish population consulting a dentist during pregnancy is very low. This rate is expected to be higher, especially considering that pregnant women with insurance are treated free of charge in Turkey. Thirty four point four percent (34.4%) of pregnant women in this study know that free dental services are provided to those who have insurance. Despite this, the rate of pregnant women consulting a dentist during pregnancy was found to be very low. These results are consistent with a previous study conducted in Central Jakarta, where it was reported that although 80% of the participants had public dental insurance, only 18% of them consulted a dentist during pregnancy.[14] On the contrary, in a study conducted in Canada, the rate of pregnant women with insurance to consult a dentist during pregnancy was found to be 6.6 times higher.[15] Despite the availability of free health

care, the reason for not receiving dental health care may be false beliefs, inadequate oral hygiene education, and a lack of information.

In the present study, the rate of pregnant women who knew that dental infections during pregnancy could affect the baby was 50.5%. Pregnant women stated that they received this information mostly from family physicians (23.33%) and dentists (22.66%). In a study conducted in the Republic of Croatia, pregnant women reported that they received the most information about the relationship between oral health and pregnancy from dentists (53.54%).[16] This rate was found to be higher than in the present study. In the present study, pregnant women received this information more often from their family physician.

The present study showed that false beliefs are an important factor in not consulting to the dentist. Some pregnant women believe that bad breath, bleeding gums, and tooth decay are normal during pregnancy. In addition, some of them believe that dental treatments, antibiotics, local anesthetics, and X-rays will harm the baby's general health and dental health in the future. Misconceptions such as these and lack of knowledge about dental treatments are the main obstacles for pregnant women to consult a dentist, in line with studies conducted in other countries.[17,18] In an Australian study, midwives interviewed women who had recently given birth about accessing oral health services.[17] Participants described their concerns about dental care services. Participants stated that they thought dental X-rays could be harmful to the baby. In a study conducted in Hong Kong, oral health-related information during pregnancy was investigated. Pregnant women also reported their beliefs and misconceptions about dental treatments during pregnancy. Some women stated that they considered the toothache normal during pregnancy because the baby drew the calcium.[17] In the present study, similar misconceptions and false beliefs were expressed commonly as well.

On the other hand, 27.5% of the pregnant women in the study reported that they thought the dentist would not examine them during pregnancy, and 25.9% reported that they had no idea about this. In a study conducted in the USA, obstetricians reported that 77% of their patients were rejected by dental service providers due to pregnancy.[16] Some dentists may refuse to see pregnant patients because they consider pregnancy a special condition. This situation causes pregnant women to be more afraid of visiting the dentist and to feel under pressure.[19] This finding emphasizes the importance of dentists being well-informed about dental treatments during pregnancy. Well-informed physicians can ensure that pregnant women have access to accurate information and adequate dental treatment during pregnancy.

According to the results of our study, the second most frequently reported reason for not going to the dentist during pregnancy is postponing treatments until after pregnancy. Dental treatments postponed during pregnancy may cause dental diseases to progress and treatment to become difficult. In addition, according to the American Dental Association (ADA), all emergency dental treatments can be performed at any stage of pregnancy.[19] A study in the United States investigated the safety of essential dental treatment in 823 pregnant women who were at 13 to 21 weeks gestation. They did not find an associated increased risk of adverse pregnancy outcomes or medical problems. They also stated that their study provides evidence for the use of topical and local anesthetics for the pregnant women at 13 to 21 weeks' gestation.[20]

One of the groups that can have the major impact on referring pregnant women to the dentist is obstetricians/gynecologists and family physicians. It is important for obstetricians and family physicians who examine their patients at regular intervals to be aware of oral health and to refer their patients to routine dentist check-ups. In the study of Suri *et al*.,[21] it was found that only 40% of obstetricians recommended routine dentist visits to their patients during pregnancy. In the study of Hashim *et al*.,[22] it was reported that 85.2% of obstetricians recommended routine dentist visits to their patients during pregnancy. However, in the present study, the rate of physician referral was not questioned.

The strengths of the study are that it was conducted with people in a wide age range and different gestational weeks and that questions about belief, behavior and knowledge level were asked together. However, the present study is limited because it was conducted in a single center and a cause-effect relationship could not be established since it was a cross-sectional study.

Conclusion

As a result of the present study, it was seen that misconceptions were among the most important reasons for not receiving dental health care during pregnancy. A significant relationship was found between the frequency of visiting the dentist during pregnancy and monthly income level. Although free dental health services are provided to patients with public health insurance in Turkey, it was determined that the rate of visiting the dentist is low. It is important that obstetricians and family physicians inform pregnant women about oral health and guide them for dental checkups.

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Conflicts of interest

There are no conflicts of interest.

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