

# Comparison of the oral and dental health awareness of pregnant individuals: A pilot study from Turkey

Abdülkadir Türkmenoğlu<sup>1</sup>  Özgün Yıldırım<sup>2</sup>  Nur Mollaoğlu<sup>1</sup> 

1 Gazi University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Ankara, Turkey

2 Çankırı Karatekin University, Faculty of Dentistry, Çankırı, Turkey

## Abstract

**Background:** In this study, it was aimed to investigate the sociocultural and socioeconomic status of pregnant patients who applied to the department of oral and maxillofacial surgery for tooth extraction as well as their level of awareness about oral and dental health.

**Methods:** A questionnaire including a total of 16 questions about their awareness, practices, and attitudes toward oral and dental health was filled out by 193 pregnant volunteers, and the results were evaluated statistically.

**Results:** When the attitudes of pregnant women towards oral and dental health were examined according to their monthly income, it was found that there was no statistically significant difference ( $p>0.05$ ). However, it was determined that the attitudes of pregnant women with a middle income towards oral and dental health were better. In addition, it was determined that there was a statistically significant difference in the level of consciousness between those who had a dental examination during pregnancy and those who did not ( $p<0.05$ ).

**Conclusions:** Not all pregnant women are always aware that they may have problems with their oral and dental health during their pregnancy and they are not always well informed by the health personnel. It seems there is a lack of dental health controls in Turkey for pregnant individuals. This pilot study indicates that oral health screening needs to be a routine procedure of antenatal clinics in order to inform pregnant individuals in detail, regardless of their sociocultural and socioeconomic status to reach better oral health and consequently better pregnancy outcomes.

**Keywords:** Oral health; Dental health; Pregnancy.

*Cite this article as:* Türkmenoğlu A, Yıldırım Ö, Mollaoğlu N. Comparison of the oral and dental health awareness of pregnant individuals: A pilot study from Turkey. Arch Curr Med Res. 2023;4(2):83-88

## Corresponding Author:

Özgün Yıldırım, Çankırı Karatekin University, Faculty of Dentistry,  
Çankırı, Turkey  
E-Mail: ozgunyldrm89@gmail.com



Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

## INTRODUCTION

Pregnancy is a natural process that progresses through hormonal changes in the patient and may cause physical and psychological changes (1). Increasing physical and emotional changes during pregnancy may contribute to neglecting of oral hygiene and that may cause poor oral and dental health. Subsequently, inadequate oral hygiene and hormonal changes can increase the risk of oral and dental health problems such as gingivitis and periodontitis. Pregnant women may experience gingivitis that starts in the 2nd or 3rd month of pregnancy and may get severe during pregnancy (2).

Unfortunately, oral health screening is not a routine procedure in antenatal clinics in Turkey and there is no standard guideline that ensures that all pregnant women are routinely screened, treated, or referred to a dentist as part of prenatal care (3). Prevention of complications during pregnancy due to oral and dental health problems is possible by giving oral health education by enhancing the knowledge, attitudes, and practices of pregnant women (4). Thomas et al. (5) reported a higher risk of periodontal disease in pregnant women with less education and lower socioeconomic status compared to pregnant women with higher education level and higher socioeconomic status. Therefore, they concluded that more studies are needed to find out whether more intensive dental health education during pregnancy can lead to better oral health and consequently better pregnancy outcomes. Educational programs should be designed based on a comprehensive program, including informative seminars on specific risks during pregnancy, to motivate oral health and implement the necessary prophylactic measures. Improving oral health during pregnancy will also help to improve the oral health of the baby. However, in terms of dental health, many pregnant women tend to avoid seeing a dentist, because they

think they or their fetus would be harmed as a result of the radiograph, dental procedures or medication (6).

Thus, this study aimed to evaluate the sociocultural and socioeconomic status of pregnant individuals and the level of awareness regarding oral and dental health through the questionnaires.

## MATERIALS AND METHODS

### *Study design*

This study was carried out on pregnant dental patients who applied to Gazi University Faculty of Dentistry, Department of Oral and Maxillofacial Surgery for tooth extraction.

### *Ethical approval*

Ethics committee approval for the study was obtained from Gazi University Faculty of Dentistry Clinical Research Ethics Committee on 09.01.2020 (No: 21071282-050.99-).

### *Participants*

The study was conducted on 193 pregnant women various weeks of pregnancy, over 18 years old, and wanted to participate in the survey voluntarily.

### *Data collection tools*

Volunteers were asked about their awareness, practices, and attitudes toward oral and dental health.

### *Informed Consent*

The informed consent form was obtained from all the participants. Questionnaire included a total of 16 questions to determine the level of practice, attitudes, and knowledge of the volunteers (Table 1).

**Table 1. The questionnaire**

EVALUATION OF AWARENESS, PRACTICES AND ATTITUDES OF PREGNANT WOMEN TOWARDS ORAL AND DENTAL HEALTH					
Age:					
City/district where you live:					
Pregnancy Period (Week):					
<b>Number of Children:</b>					
<b>Please choose the appropriate option for you.</b>					
<b>A) SOCIOECONOMIC STATUS</b>					
Education Status: Literacy / Primary School / High school / University / Post graduate					
Working Status: Housewife / Civil servant / Self-employed / Worker / Private sector employee					
Monthly Income: 500\$ and less / 501\$-600\$ / 601\$-700\$ / 701\$ and higher					
<b>B) DENTAL HEALTH PRACTICES</b>					
1) How frequent you brush your teeth? None / 1 a day / 2 times a day / More than 2 times a day					
2) How often do you change your toothbrush? a month / in 3 months / in 6 months / a year					
3) What are the tools you use other than toothbrushes for your oral and dental care? (You can select more than one option) Floss / Decoupage brush / Mouthwash / None of them					
4) Do you brush your teeth after each meals? Always / Often / Sometimes / Never					
<b>C) ATTITUDES OF PREGNANT WOMEN TOWARDS ORAL AND DENTAL HEALTH</b>					
1) How often do you go to the dentist? 1 in 6 months / 1 in a year / When I have a complaint / I never go					
2) When was the last time you went to the dentist? In the last 6 months / 6 months-1 year / 1 year ago / none					
3) Have you ever been a dental check-up just before pregnancy or in the first weeks of pregnancy? Yes / No					
4) What are the difficulties for you to go to the dentist?					
	YES	NO			
Higher fees for dental examination and treatment					
No priority for oral and dental health					
Worried to harm the pregnancy					
Fear of dental treatment					
Not knowing the importance of oral and dental health during pregnancy					
<b>D) ORAL AND DENTAL HEALTH AWARENESS IN PREGNANTS</b>					
	I strongly disagree	I do not agree	I'm not sure	I agree	Absolutely I agree
Changing hormone levels during pregnancy can affect oral and dental health					
Poor oral and dental health during pregnancy does not affect the health of the unborn baby					
Poor oral and dental health during pregnancy can cause the baby to born prematurely.					
Poor oral and dental health during pregnancy can cause low birth weight.					
Pregnancy can cause tooth loss.					
Pregnancy can cause bleeding and swelling of the gums					
Gum disease or tooth loss during pregnancy may be due to hormonal changes.					
Gum disease or tooth loss during pregnancy can be caused by malnutrition.					

### Statistical analysis

The data obtained in the research were analyzed using the SPSS 25.0 (Statistical Package for Social Sciences) program. Descriptive statistical analysis was used to figure out the standard deviation, and minimum and maximum values. In addition, the normal distribution of the data was tested using Kolmogorov Smirnov test. The homogeneity of the variance assumption was tested by the Levene Test and the methods were determined. Parametric tests were used for normal distribution while nonparametric tests were used for non-normally distributed values. F-test (ANOVA) was used for normally distributed measurements in comparison of the more than two groups for quantitative data, and Kruskal Wallis analysis was applied for non-normally distributed measurements.

## RESULTS

The distribution of the participants by the reason for not going to the dentist is given in Table 2. While most of the volunteers stated that they were 'worried to harm the pregnancy' by going to the dentist during their pregnancy (53.9%), the least reason for not going to the dentist was stated by the volunteers that 'their oral and dental health was not their priority' (28%).

**Table 2. Distribution of difficulties going to dentist**

		n	%
Higher fees for dental examination and treatment	Yes	91	47.2
	No	102	52.8
No priority for oral and dental health	Yes	54	28.0
	No	139	72.0
Worried to harm the pregnancy	Yes	104	53.9
	No	89	46.1
Fear of dental treatment	Yes	98	50.8
	No	95	49.2
Not knowing the importance of oral and dental health during pregnancy	Yes	78	40.4
	No	115	59.6

Kolmogorov-Smirnov test was used to test whether there was a statistically significant difference in the "pregnant women's attitudes towards their oral and dental health during pregnancy" according to their monthly income.

Participants were divided into 4 groups according to their monthly income as: 500\$ and less, 501\$-600\$, 601\$-700\$, 701\$ and higher (mean  $\pm$  standard deviation: 7.61  $\pm$  1.67, 7.38  $\pm$  1.83, 7.22  $\pm$  1.72, 7.13  $\pm$  1.36, respectively). It was determined that there was no normal distribution ( $p < 0.05$ ). Kruskal Wallis test was used to analyze whether there was a statistically significant difference between the mean value of the scores obtained from the "pregnant women's attitudes towards oral and dental health" according to their monthly income. It was determined that there was no statistically significant difference according to their monthly income ( $p > 0.05$ ) (Table 3).

**Table 3. Comparison according to monthly income**

Monthly income	n	Mean	St.Dev.	X2	p
500\$ and less	38	7.61	1.67	2.342	0.505
501\$-600\$	71	7.38	1.83		
601\$-700\$	54	7.22	1.72		
701\$ and higher	30	7.13	1.36		

X2: Test statistics

In addition, the normality assumption was checked by Kolmogorov-Smirnov test to determine whether there was a statistically significant difference between the scores of the participant's awareness level for the "oral and dental health" according to their educational level. It was determined that there was a normal distribution ( $p > 0.05$ ). The homogeneity assumption was tested by Levene ( $p > 0.05$ ). There was found to be a statistically significant difference between the education levels of the participants in terms of the mean scores of the "oral and dental health awareness level in pregnant women" ( $p < 0.05$ ). Participants were divided into 3 groups according to their educational status as: Primary education or literacy, High School, University and Master's (mean  $\pm$  standard deviation: 25.83 $\pm$ 4.72, 27.64 $\pm$ 4.15, 28.97 $\pm$ 5.12, respectively). Bonferroni analysis was also performed to determine the difference and found that the oral and dental health awareness of participants with a university and a master's degree was higher than those with primary education and literate education level ( $p < 0.05$ ) (Table 4).

**Table 4. Comparison of awareness according to educational status**

Education status	n	Mean	St.Dev.	F	p	Bonferroni
Primary education or literacy	41	25.83	4.72	8.474	0.014*	
High school	78	27.64	4.15			3>1
University and Master's	74	28.97	5.12			

F: Test statistic, \*p<0.05

## DISCUSSION

Many studies have been reported on the protection of oral and dental health during pregnancy. However, research on pregnancy and pregnancy tooth loss is still ongoing. In this study, it was aimed to investigate the sociocultural and socioeconomic status of pregnant patients who applied to the department of oral and maxillofacial surgery for tooth extraction as well as their level of awareness about oral and dental health.

In the study including Michigan PRAMS 2004-2008 data, only 26% of women reported that they needed dental treatment during their pregnancy, however, only 58.4% of them were keen for treatment (7). One of the reasons why pregnant women avoid dental treatment was the higher fees for dental examination and treatment. In Turkey, the fact that the private health insurance system does not cover dental treatment fees might be one of the possible reasons why pregnant women do not go to dentists routinely. This situation may be one of the factors for a certain part of the population to find dental services expensive and avoid this service. In this study, it was found that the percentage of going to the dentist during pregnancy was 26.9%, and when pregnant women were asked about the difficulties of going to the dentist, the rate of pregnant women who did not go to the dentist due to high fees was 47.2%. Type of insurance has also been associated with the use of dental services during pregnancy. It has been reported in previous studies that pregnant women with private or state-provided general health insurance are more likely to have dental treatment or dental care during pregnancy

than pregnant women who do not have general health insurance (8,9). In one of the PRAMS studies, it was reported that the probability of receiving dental services in pregnant women with general health insurance was 53% less than those covered by private insurance (10). Besides that, this study also indicated that middle-income pregnant women had better attitudes towards their oral and dental health.

In addition, recent research has shown that health professionals may provide inadequate guidance to pregnant women on the importance of oral and dental health during pregnancy (11). If the consciousness level of the pregnant individual is increased and better cooperation is established between dentists and gynecologists, dental examinations can become routine from the beginning of the pregnancy process. In this case, the oral hygiene of pregnant individuals can be improved and the possible negative effects of periodontal disease during pregnancy can be eliminated. Strafford et al. reported that only 40% of pregnant women were advised by obstetricians to visit their dentist during pregnancy for a check-up; however, 10% of them are refused by the dentist to give dental treatment during their pregnancy because they fear to cause harm to the unborn (12). In addition, another study revealed that some gynecologists believed that x-ray devices (73%) and local anesthetics (59%) were not safe for pregnant women (13). In the present study, a total of 193 pregnant women were included, and 78 of them stated that they do not know the importance of oral and dental health during pregnancy. This result emphasizes the necessity of including dental examinations in routine health controls during pregnancy and the importance of healthcare professionals guiding pregnant women. In a survey conducted in the United States including 60 deans of different dental schools and 240 obstetrics and gynecology residency program administrators, it was determined that only 65% of the deans and administrators, and only 45% of residents were aware of the prenatal oral health guidelines. On the other hand, only 39% of the residents guided prenatal oral health (14). Accordingly, it was highly recommended that pregnant women should be given training about the importance of oral and dental health to improve their oral hygiene (15,16).

Health professionals may not be able to provide adequate counseling to pregnant women about the importance of

oral and dental health during pregnancy. According to a study that included PRAMS data for 10 states of USA between 2004-2006, only 41% of pregnant women received oral and dental health education (17). Better awareness is needed for this type of education on oral and dental health. In the present study, it was determined that there was a statistically significant difference in terms of consciousness level between those who had a dental examination during pregnancy and those who did not ( $p < 0.05$ ). It has been determined that the level of consciousness of pregnant women with primary education and literate education level is lower than those with university and higher graduate education.

This study determined that pregnant women are not adequately motivated to use available oral health services throughout their pregnancy in our country and also all over the world because they are not well informed by the healthcare professionals. Therefore, pregnant women need to be informed about preventive measures to achieve optimal oral and dental health routinely. Even more, oral health education should be given in advance, especially to women of childbearing age. The limitation of this study is that it was conducted in a single center. Multicenter studies with a higher number of participants can be conducted.

### Declarations

The authors received no financial support for the research and/or authorship of this article. There is no conflict of interest.

This study was approved by the clinical research Ethics Committee of the Gazi University Faculty of Dentistry (Date: 09.01.2020, Number: 21071282-050.99).

### REFERENCES

1. La Marca-Ghaemmaghami P, Ehlert U. Stress during pregnancy *European Psychologist* 2015;20(2):102–119.
2. Murphey C, Fowles E. Dental health, acidogenic meal, and snack patterns among low-income women during early pregnancy: a pilot study. *J Midwifery Womens Health*. 2010;55(6):587-92.
3. Mills LW, Moses DT. Oral health during pregnancy. *MCN Am J Matern Child Nurs*. 2002;27(5):275-80
4. Murphey C, Fowles E. Dental health, acidogenic meal, and snack patterns among low-income women during early pregnancy: a pilot study. *J Midwifery Womens Health*. 2010;55(6):587-92.
5. Thomas NJ, Middleton PF, Crowther CA. Oral and dental health care practices in pregnant women in Australia: a postnatal survey. *BMC Pregnancy Childbirth*. 2008;8:13.
6. Aboalshamat K, Alharbi J, Alharthi S, Alnifae A, Alhusayni A, Alhazmi R. The effects of social media (Snapchat) interventions on the knowledge of oral health during pregnancy among pregnant women in Saudi Arabia. *PLoS One*. 2023;18(2):e0281908
7. Zimmerman N, Anderson B, Larder C, Wahl R, Lyon-Callo S. Michigan Department of Community Health. Oral health during pregnancy, 2004– 2008. *MI PRAMS Delivery*. 2013;12:1–4.
8. Jiang P, Bargman EP, Garrett NA, Devries A, Springman S, Riggs S. A comparison of dental service use among commercially insured women in Minnesota before, during, and after pregnancy. *J Am Dent Assoc*. 2008;139:1173–80.
9. Thoele MJ, Asche SE, Rindal DB, Fortman KK. Oral health program preferences among pregnant women in a DB, Fortman KK. Oral health program preferences managed care organization. *J Public Health Dent*. 2008;68:174–7.
10. Gaffield ML, Gilbert BJ, Malvitz DM, Romaguera R. Oral health during pregnancy: an analysis of information collected by the pregnancy risk assessment monitoring system. *J Am Dent Assoc*. 2001;132:1009–16.
11. Topuz Ş, Güneş A, Büyükkayacı Duman N. Oral dental health of women during pregnancy. *Journal of health sciences*. 2021;30:50-5.
12. Strafford KE, Shellhaas C, Hade EM. Provider and patient perceptions about dental care during pregnancy. *J Matern Fetal Neonatal Med*. 2008;21:63–71.
13. Hashim R, Akbar M. Gynecologists' knowledge and attitudes regarding oral health and PD leading to adverse pregnancy outcomes. *J Int Soc Prevent Communit Dent*. 2014;4:166–72.
14. Curtis M, Silk HJ, Savageau JA. Prenatal oral health education in U.S. dental schools and obstetrics and gynecology residencies. *J Dent Educ*. 2013;77:1461–8.
15. Oral Health Care during Pregnancy Expert Workgroup. Oral health care during pregnancy: A national consensus statement. Washington: National Maternal and Child Oral Health Resource Center; 2012.
16. Steinberg BJ, Hilton IV, Lida H, Samelson R. Oral health and dental care during pregnancy. *Dent Clin N Am*. 2013;57:195–210.
17. 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;15:722–9.