Comparison of the Oral and Dental Health Awareness Levels of Pregnant Individuals from a Sociocultural and Socioeconomic Point of View: A Pilot Study from Turkey

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Abstract

Background

Hormonal changes occur during pregnancy and their effects on oral and dental health have been investigated for a long time. 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 total of 16 questions about their awareness, practices and attitudes towards oral and dental health was filled 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).

Conclusion

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

Introduction

Pregnancy is a natural process that progresses by hormonal changes in patient and may cause physical and psychological changes [1]. Increasing physical and emotional changes during pregnancy may contribute 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 at the 2nd or 3rd month of pregnancy and may get severe during pregnancy [2].
Unfortunately, oral health screening is not a routine procedure of antenatal clinics in Turkey and there is no standard guideline that ensures that all pregnant women are routinely screened, treated or referred to a specialist 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. 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 [5].

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

**Material And Methods**

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. 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-). The study was conducted on 193 pregnant women at various weeks of pregnancy, over 18 years old and wanted to participate in the survey voluntarily. Volunteers were asked about their awareness, practices and attitudes towards oral and dental health. Questionnaire included total of 16 questions to determine the level of practice, attitudes and knowledge of the volunteers (Table 1).

**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, minimum and maximum values. In addition, the normal distribution of the data was tested using Shapiro Wilk and Kolmogorov Smirnov test. The homogeneity of the variance assumption was tested by the Levene Test and the methods were decided. Parametric tests were used for normal distribution while nonparametric tests were used for without normal distribution. 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**
Distribution of the participants according to their difficulty reason to go to the dentist is given in Table 2. While most of the volunteers was stated that they were ‘worried to harm the pregnancy’ by going to dentist during their pregnancy (53.9%), the less difficulty reason was stated by the volunteers that ‘their oral and dental health was not their priority’ (28%).

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

In addition, normality assumption was checked by Kolmogorov-Smirnov and Shapiro-Wilk tests in order to test whether there was a statistically significant difference between the scores of the participants 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 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). 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).

**Discussion**

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 was keen for treatment [6]. 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 fee 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 the 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 going to the dentist, the rate of pregnant women who did not go to the dentist due to high fees was 47.2% (Table 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 [7,8]. 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 [9]. Besides that, this study also indicated that middle income pregnant women had better attitudes towards their oral and dental health (p > 0.05) (Table 3).
Moreover, recent studies indicated that some of the dentists and gynecologists may poorly guide pregnant women about the importance of oral and dental health during pregnancy. If the consciousness level of the pregnants 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 level of pregnants 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 dentist during pregnancy for a check-up however, 10% of them refused by the dentist to give a dental treatment during their pregnancy because they fear to give a harm to unborn [10]. In addition, a further study revealed that some gynecologists believed that x-ray devices (73%) and local anesthetics (59%) were not safe for pregnant women [11]. 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 checks 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 provided the guidance for prenatal oral health [12]. Accordingly, it was highly recommended that pregnant women should given a training about the importance of oral and dental health in order to improve their oral hygiene [13,14].

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 [15]. A 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 (Table 4).

Conclusion

This study determined that pregnant women are not be adequately motivated to use available oral health services throughout their pregnancy in our country and also in all of the World because they are not well improved by the healthcare professionals. Therefore, pregnant women needs to be informed about preventive measures to achieve an optimal oral and dental health routinely. Even more, oral health education should be given in advance, especially to women at childbearing age.

Declarations

Ethics approval and consent to participate
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-). Informed consent was obtained from all the participants. This study was conducted according to the guidelines laid down in the Declaration of Helsinki.

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analysed during the current study are not publicly available (because the manuscript is still under the peer review process) but are available from the corresponding author on reasonable request.

Competing interests

None

Funding

None

Authors' contributions

Y. Ozgun, contributed to conception and design, drafted and critically revised manuscript; T. Kadir, M. Nur, contributed to conception, design, and data analysis, drafted and critically revised the manuscript. All authors gave final approval and agree to be accountable for all aspects of the work

Acknowledgements

Not applicable

References


Tables

Table 1. The questionnarie
EVALUATION OF AWARENESS, PRACTICES AND ATTITUDES OF PREGNANT WOMEN TOWARDS ORAL AND DENTAL HEALTH

Age:
City/district where you live:
Pregnancy Period (Week):

**Number of Children:**

Please choose the appropriate option for you.

A) SOCIOECONOMIC STATUS

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) DENTAL HEALTH PRACTICES

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

C) ATTITUDES OF PREGNANT WOMEN TOWARDS ORAL AND DENTAL HEALTH

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?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher fees for dental examination and treatment</td>
<td></td>
</tr>
<tr>
<td>No priority for oral and dental health</td>
<td></td>
</tr>
<tr>
<td>Worried to harm the pregnancy</td>
<td></td>
</tr>
<tr>
<td>Fear of dental treatment</td>
<td></td>
</tr>
<tr>
<td>Not knowing the importance of oral and dental health during pregnancy</td>
<td></td>
</tr>
</tbody>
</table>

D) ORAL AND DENTAL HEALTH AWARENESS IN PREGNANTS

<table>
<thead>
<tr>
<th>I strongly disagree</th>
<th>I do not agree</th>
<th>I'm not sure</th>
<th>I agree</th>
<th>Absolutely I agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing hormone levels during pregnancy can affect oral and dental health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor oral and dental health during pregnancy does not affect the health of the unborn baby</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor oral and dental health during pregnancy can cause the baby to born prematurely.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor oral and dental health during pregnancy can cause low birth weight.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy can cause tooth loss.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy can cause bleeding and swelling of the gums</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gum disease or tooth loss during pregnancy may be due to hormonal changes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gum disease or tooth loss during pregnancy can be caused by malnutrition.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Distribution of difficulties going to dentist
<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher fees for dental examination and treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91</td>
<td>47.2</td>
</tr>
<tr>
<td>No</td>
<td>102</td>
<td>52.8</td>
</tr>
<tr>
<td>No priority for oral and dental health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>54</td>
<td>28.0</td>
</tr>
<tr>
<td>No</td>
<td>139</td>
<td>72.0</td>
</tr>
<tr>
<td>Worried to harm the pregnancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>104</td>
<td>53.9</td>
</tr>
<tr>
<td>No</td>
<td>89</td>
<td>46.1</td>
</tr>
<tr>
<td>Fear of dental treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>98</td>
<td>50.8</td>
</tr>
<tr>
<td>No</td>
<td>95</td>
<td>49.2</td>
</tr>
<tr>
<td>Not knowing the importance of oral and dental health during pregnancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>78</td>
<td>40.4</td>
</tr>
<tr>
<td>No</td>
<td>115</td>
<td>59.6</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Monthly income</th>
<th>n</th>
<th>Mean</th>
<th>St.Dev.</th>
<th>( \chi^2 )</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>500$ and less</td>
<td>38</td>
<td>7,61</td>
<td>1,67</td>
<td>2,342</td>
<td>0,505</td>
</tr>
<tr>
<td>501$-600$</td>
<td>71</td>
<td>7,38</td>
<td>1,83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>601$-700$</td>
<td>54</td>
<td>7,22</td>
<td>1,72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>701$ and higher</td>
<td>30</td>
<td>7,13</td>
<td>1,36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( \chi^2 \): Test statistics

**Table 4.** Comparison of awareness according to educational status
<table>
<thead>
<tr>
<th>Education status</th>
<th>n</th>
<th>Mean</th>
<th>St.Dev.</th>
<th>F</th>
<th>p</th>
<th>Bonferroni</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary education or literacy</td>
<td>41</td>
<td>25.83</td>
<td>4.72</td>
<td>8.474</td>
<td>0.014*</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>78</td>
<td>27.64</td>
<td>4.15</td>
<td>3&gt;1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University and Master's</td>
<td>74</td>
<td>28.97</td>
<td>5.12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*F*: Test statistic, *p*<0.05