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ORAL AND DENTAL HEALTH IN PREGNANCY: KNOWLEDGE OF GYNECOLOGISTS / OBSTETRICIANS, DENTISTS, FAMILY PHYSICIANS AND MIDWIVES

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ABSTRACT

Objective: *The aim of this study is to evaluate the knowledge level of gynecologists and obstetricians, family physicians, dentists and midwives about the oral-dental health in pregnancy.*

Material and Method: *The questionaire consisted of 15 questions. It was mailed to 2012 medical care practitioners. Demographic features, knowledge level about oral-dental health in pregnancy, before-after graduate education on this issue, clinical attitudes, awareness of 'Pregnancy School 'were queried.*

Results: *181 participants were asked to questionaire. The response rate was detected to be 8.6%. Significant differences were found between the profession and knowledge level (p=0.0001). Knowledge level of doctorate and master were observed to be more (p=0.0001). Knowledge level of before graduate education was detected to be more on oro-dental examination in pregnancy, clinical attitudes, effect of systemic disease, poor obstetrics outcomes (p=0.0001, p=0.0006, p=0.047, p=0.011). Knowledge level of after graduate education was found to be more in an oral-dental examination during pregnancy, clinical attitudes, awareness of 'Pregnancy School' (p=0.037, p=0.042, p=0.005, p=0.002). The medical care practitioners having an experience of ten years showed more knowledge level pregnancy on tooth decay, referral to dentists, awareness of 'Pregnancy School' (p=0.0001, p=0.031, p=0.0001, p=0.0001). No differences were found between other oral-dental health issues in pregnancy and time of profession (p>0.05).*

Conclusion: *Gynecologists and obstetricians and dentist's knowledge level about oral-dental health in pregnancy were found more high level than family physicians and midwives. There were observed that the knowledge level increased with education.*

Keywords: *Knowledge level, medical care practitioner, periodontal disease, pregnancy.*

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GEBELİKTE AĞIZ VE DİŞ SAĞLIĞI KONUSUNDA KADIN DOĞUM, AİLE VE DİŞ HEKİMİ İLE EBELERİN BİLGİ DÜZEYİ

ÖZET

Amaç: Gebelikte ağız-diş sağlığı konusunda kadın hastalıkları ve doğum, diş ve aile hekimi ile ebelerin bilgi düzeylerinin değerlendirilmesi amaçlanmıştır.

Materyal ve Metot: Anket 15 sorudan oluştu. 2012 sağlık çalışanının mail adreslerine gönderildi. Demografik özellikler, ağız-diş sağlığı konusunda bilgi düzeyleri, mezuniyet öncesi- sonrası bu konudaki eğitim durumları, klinik tutumları, 'Gebe Okulu' hizmeti farkındalıkları sorgulandı.

Bulgular: 181 katılımcı ankete cevap verdi. Katılım oranı %8,6 saptandı. Meslek grupları ile bilgi düzeyi arasında istatistiksel olarak anlamlı bir ilişki saptandı (p<0,001). Doktora ve yüksek lisans eğitimlilerde bilgi düzeyi yüksek saptandı (p<0,001). Mezuniyet öncesi eğitimlilerde gebelikte ağız-diş muayenesi, klinik tutum, ağız ve diş sağlığının sistemik hastalık ve kötü gebelik sonuçları üzerindeki etkisi hakkında bilgili oldukları saptandı. (p<0,001, p<0,001, p=0,047, p=0,011). Mezuniyet sonrası eğitimlilerde gebelikte ağız-diş muayenesi, klinik tutum, dental müdahaleler, 'Gebe Okulu' hakkında bilgili oldukları saptandı (p=0,037, p=0,042, p=0,005, p=0,002). Mesleğinin ilk 10 yılı içinde olanların gebeliğin diş çürüğü üzerindeki etkisi, gebeleri diş hekimine yönlendirme, 'Gebe Okulu' hakkında bilgili oldukları. p<0,001, p=0,031, p<0,001, p<0,001) fakat diğer ağız-diş sağlığı konusundaki bilgilerin meslek süresinden etkilenmediği saptandı (p>0,05).

Sonuç: Kadın doğum ve diş hekimlerinin gebelikte ağız-diş sağlığı konusundaki bilgi düzeylerinin aile hekimi ve ebelerden fazla olduğu bulundu. Bilgi düzeyinin eğitim ile artığı gözlendi.

Anahtar kelimeler: Bilgi düzeyi, gebelik, periodontal hastalık, sağlık çalışanı

INTRODUCTION

Oral health in humans is defined as the presence of balanced and biodiverse microbiota environment.[1] Disruption of oral microbiota, called disbiosis, leads to tooth decay and periodontal diseases as well as diabetes, cardiac diseases, obesity, poor pregnancy outcomes, rheumatoid arthritis, cancer and respiratory tract diseases.[1,2] Factors such as physiological and hormonal changes in the pregnancy, poor oral and dental care, nutrition rich in carbohydrates, disruption of oral pH due to nausea and vomiting, immunosuppression can disrupt oral and dental health, can lead to various periodontal diseases in 40% of the pregnant women or can worsen pre-existing gingivitis and periodontitis.[2-4] The relation between periodontal diseases and preterm delivery was first defined by Offenbacher in 1996 and further studies demonstrated the relation between oral-dental health and poor pregnancy outcomes such as early pregnancy loss, preterm delivery, low birth weight, preeclampsia.[5-7] False facts stating that oral and dental health problems during pregnancy are normal and unavoidable prevent women from dental visits throughout their pregnancy.[3,8] According to the data in our country 30-68.7% of the pregnant women face oral and dental health problems, although 86.3% of these women do not go to dentist.[9,10] The knowledge level of medical and dental healthcare professionals is of great importance for referring pregnant women to dentist, however, studies reviewing the level of knowledge and clinical practice approach are limited in the literatüre.[2]

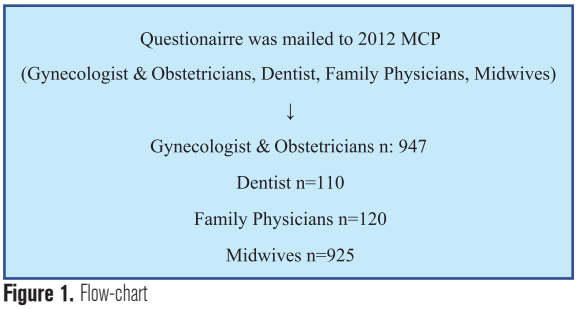

Figure 1. Flow-chart

MCP: Medical care practitioner

This study aims to evaluate the knowledge level of obstetrician and gynecologists, family practitioners and midwives.

MATERIAL AND METHOD

The study was carried out in the form of questionnaires and was conducted between November and December 2018. The questionnairre was prepared with the help of dentists and obstetricians and comprise 15 questions. It was mailed to 2012 medical care practitioners.Obstetrics and Gynecologists, Dentists, Family Physicians and Midwives) working in the Usak University Medical Faculty, Usak Research and Training Hospital, Usak University Faculty of Dentistry, Usak Public Health Center and the regional hospitals. The flow-chart shown in that Figure-1. All the study participants were asked to complete the questionnairre in one go. It was performed on 10 % of the total sample size for item clarity. The first six questions enquired about of

age, sex, time of profession, specialty, graduation and academic degree, which was followed by questions designed to assess knowledge on oral-dental health in pregnancy and effect of obstetric outcome, clinical attitudes and awareness of 'Pregnancy School 'in public hospitals, before and after graduation. It was a close-ended questionnaire and the response was recorded either in the form of Yes or No. Only one question was open-ended and was related to knowledge level. This study was approved by the Ethical Committee of Usak University Medical Faculty with 116-08-5/28.11.2018 number.

The statistical analysis was performed using SPSS21 software. Chi-Square test was used to detect the association between variables. A p value <0.05 was considered statistically significant for the analysis.

There was 'Simple Random' thecnique used this study as sampling method. Sample size was calculated with $n=\frac{Nt^2\,pxq}{d^2\,(N-1)+t^2(pxq)}$ formula. N: person number in target group, n: number of sample size, t: theroic number, p: incidence, q: infrequency, d: sampling error). N=2012, t=1.96 CI: Confidence Interval), *p*=0.05, d=0.07 were accepted and sample size was calculated: $n=2012*1.96^2*(0.05*0.95)\quad 0.05^2(2012-1)+1.96^2(0.05*0.95)=181$ than sufficient sample size was found as 181.

Questionairre reliability coefficient that Kuder Richardson-20 was detected as 0.703.

RESULTS

181 participants were asked to questionaire. The response rate was detected to be 8.6%. The questionnaires shown in that Table 1. The response rate shown in that Figure 2 and explained with the help of flow-chart.

The mean age of the participants was observed to be 40.2 (24-83)±9.4. Participants included Obstetrics and Gynecologists.n=29) 16.0%, Dentists (n=67) 37,0%, Family Physicians (n=14) 7.7%, Midwives (n=71) 39.2%. Graduate degree of the participants included University (n= 82) 45,3%, Doctorate (n=54) 29,8%, Master (n=31) 17.1% and, High School (n=14) 7.7%.

Academic ranking of the participants were as follows: Professor (n=4) 2.2%, Associate Professor (n=2) 1,1%, Teaching assistant (n=27) 14.9% and Specialist (n=98) 54.1%. Fifty (27.6%) participants did not hold any academic rank.

Significant differences were observed between profession and knowledge level of participants. For question

Table 1. The questionnaire comprising 15 questions

1-How old are you?
2-What is your profession? Obstetrics & Gynecology/Dentist/Family Physician/Midwives
3- What is your education level? University/Doctorate/Master/High School
4-What is your Academic level? Professor/Associate Professor/Teaching Assistant/High School/Not
5-Since how long have you been in your profession?
6-Have you received training in before-graduate on oral-dental health in pregnancy?
a-Yes
b-No
7-Have you participated in after-graduate education related to oral-dental health in pregnancy?
a-Yes
b-No
8-What do you think about gum bleeding, swelling and sensitivity in pregnancy?
a-It is normal due to a pregnancy .
b- It is abnormal and I will refer such a patient to a dentist.
9-Does pregnancy increase tooth decay?
a-Yes
b-No
10-Do you refer your patient to a dentist for oral-dental examination without any complaint in pregnancy?
a-Yes
b-No
11-I have enough knowledge about tooth decay, tooth pain, tooth extraction, root treatment, local anesthesia and X-ray procedure in pregnancy.
a-Yes
b-No
12-Do you know the association between periodontal disease and diabetes, cardio vascular disease, obesity, respiratory disease, poor obstetric outcome, malignancy and rheumatic disease?
a-Yes
b-No
13-Do you know the association between periodontal disease and preterm delivery, low birth weight and preeclampsia?
a-Yes
b-No
14-Are you aware of Pregnancy School in public hospitals?
a-Yes
b-No
15-Do you agree that, the information related to oral-dental health in pregnancy being given in Pregnancy School is enough?
a-Yes
b-No

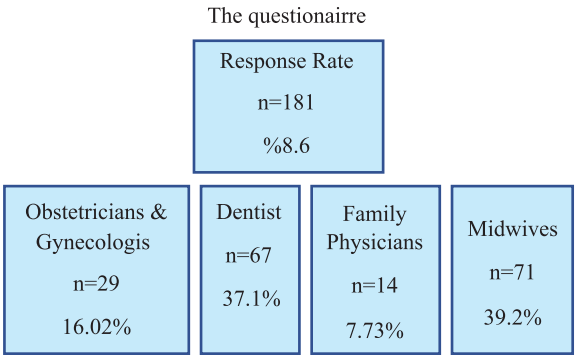

Figure 2. Response rate of questionairre

number 8 to 15 p values were 0.041/0.001/0.001/0.001/0.001/0.018/0.001 and 0.001. Participants profession and knowledge level are depicted in Figure 3.

The knowledge of oral-dental health among participants with a doctorate and master's degree (9-12. and 14-15.questions) was more than the other graduates (p=0,0001). Education status and knowledge level of the participants are shown in Figure 4.

Of the participants, 50.3% and 25.4 % received education on oro-dental health in pregnancy before and after graduation respectively. There were significant differences between before graduate level education and their knowledge level in the oral-dental examination in pregnancy, dental procedure, systemic effect and poor obstetrics outcome of oral-dental disease.10 to 13 questions) (p<0.001, p=0.0006, p=0.047, p=0.011). Before graduate level education and their knowledge level are shown in Figure 5.

There were significant differences between after graduate level education and oral-dental examination in pregnancy, dental procedure, Pregnancy School (10-11 and 13,14. questions) (p=0.037, p=0.042, p=0.005, p=0.002). After graduate level education and their knowledge level are shown in Figure 6.

The mean time of profession of participants was 15.1(1-43)±10.6 years and was categorized into four groups:1-10, 11-20, 21-30 and>30 years. There were significant differences between the participants having an experiences of ten years and pregnancy with tooth decay, referral to the dentist, awareness of Pregnancy School.9-10 and 14-15. questions) (p<0.001, p=0.031, p<0.001, p<0.001).

There were not significant differences between time of profession and knowledge of periodontal diseases, the effect of general health and poor obstetrics outcome and dental procedure (p<0.05).

Nine midwives did not respond to questions 10 and 12 at all.

DISCUSSION

In our study, obstetricians and gynecologists had the highest knowledge level in referring the patients to dentist by considering periodontal disease, dentists had the highest knowledge level knowing the fact that pregnancy does not increase tooth decay and dental-gingival checks should be performed during pregnancy and gynecologists, and dentists had the highest knowledge level about dental interventions. Family practitioners and midwives had the lowest knowledge level about the effect of periodontal diseases on systemic diseases and poor pregnancy outcomes, and dentists and midwives had the lowest pregnancy school awareness.

It was determined that professionals with postgraduate and graduate education on oral dental health had higher knowledge level; professionals with oral-dental health education before and after graduation were knowledgeable about oral-dental examination and dental interventions; professionals who had education before graduation were knowledgeable about the effect of oral-dental health on systemic diseases and poor pregnancy outcomes and professionals who had education after graduation were knowledgeable about pregnancy school.

Healthcare professionals who are within the first 10 years of their practice were found to be more knowledgeable about the effect of pregnancy on tooth decay, referring pregnant women to dentist and pregnancy school service provided by public hospitals in comparison to professionals with different years of practice, however, the knowledge on other oral and dental health issues was found to be unaffected by the period of practice. Oral and dental health problems like gingivitis, benign gingival lesions, tooth decay and periodontitis can occur during pregnancy.[4]

A relation between periodontal diseases and preterm delivery.PTD), preeclampsia.PE), abortus, early pregnancy losses, cardiovascular diseases, stroke, diabetes, Alzheimer's disease.[6,11-13] Periodontal diseases are associated with gram negative anaerobic bacteria and the substances like lipopolysaccharide, endotoxin, prostoglandine E2, tumor necrosis factor formed by these bacteria can trigger inflammation, leading to early membrane rupture and PTD, placental damage PE related to inflammation and oxidative stress.[2,13,14] In addition, cariogenic bacteria in human, especially streptococcus mutans, can be directly transferred from the saliva of the mother to the infant and increase the risk of early stage infection.[3]

American Academy of Periodontology (AAP) and European Federation of Periodontology (EFP) stated that women with periodontal diseases are at risk in terms of poor pregnancy outcomes such as preterm delivery and low birth weight and that periodontal diseases can cause systemic diseases like diabetes and cardiac diseases.[15,16]

There is tooth decay risk in relation to increased acidity of the oral cavity due to physiological changes during pregnancy, nutrition rich in carbohydrates and neglected oral-dental care, however, new dental cavity formation is caused by poor oral care and diet, instead of pregnancy.[3] Boutigny *et. al.* reported that 49% of gynecologists and 30% of dentists believed that pregnancy causes increased tooth decay.[2] These rates are consistent with our study. On the other hand, dentists address dietary habits, salivary cariogenic microorganisms and salivary pH changes, instead of pregnancy.[2]

With regards to knowledge level on poor pregnancy levels, Tarannum *et. al.* reported that knowledge levels of obstetricians, dentists and practitioners on the association of periodontal diseases with PTE and low birth weight was 63%, 67% and 56%, respectively; Govindasamy *et. al.* reported 68%, 76% and 64%, respectively, and George *et al.* reported 84%, 68.8-77%, 54% and very few number of midwives.[6,17,18] Wagner *et al.* stated that 8.4% of midwives were knowledgeable about the association between periodontal diseases and poor pregnancy outcomes.[19] The awareness of obstetricians with regards to the association between periodontal diseases and poor pregnancy outcomes were reported to be 84%, 60.9% and 64% respectively in USA, Brazil and India.[12] Zanata *et al.* stated that obstetricians have limited knowledge on these issues and were noncompliant with the current guidelines and that 43.2% of the dentists are unaware of the association between periodontal disease and preterm delivery.[20] In their study where prenatal care records were reviewed, Kurnaz *et. al.* detected that 22% if the cases were informed about oral-dental health and that 96.2-98.4% of the follow-ups were consisted of tests and ultrasonography.[21] In our study, knowledge level of family practitioners and midwives was found to be low, which is consistent with the literature. Suri *et al.* found no association between the professional practice period of obstetricians and their knowledge level for oral-dental health and referring the patients to dentist and this finding is consistent with our study.[5] Cohen *et al.* determined that professionals with more 10 years of experience are more informed in this regard.[12]

It was reported that obstetricians are aware of the association between periodontal disease and adverse pregnancy results, however, do not utilize in their

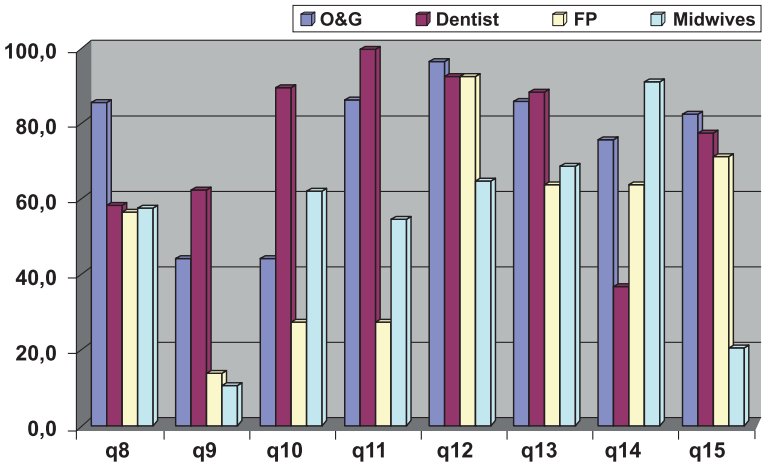

Figure 3. Profession and knowledge level.
O&G: Obstetricians and gynecologist, **FP:** family physician, **q:** question.

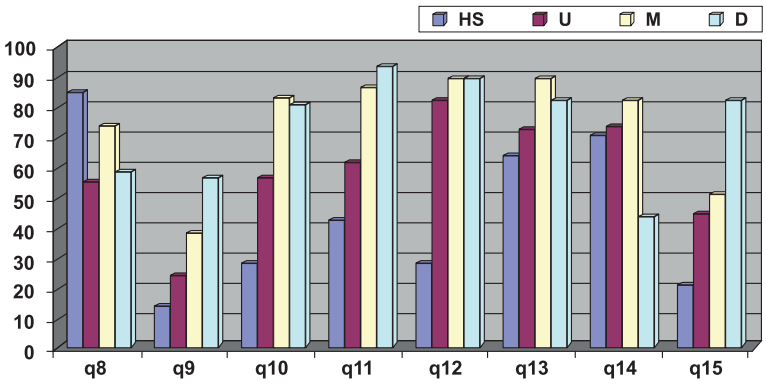

Figure 4. Graduate and knowledge level.
HS: High school, **U:** university, **M:** Master, **D:** doctorate.

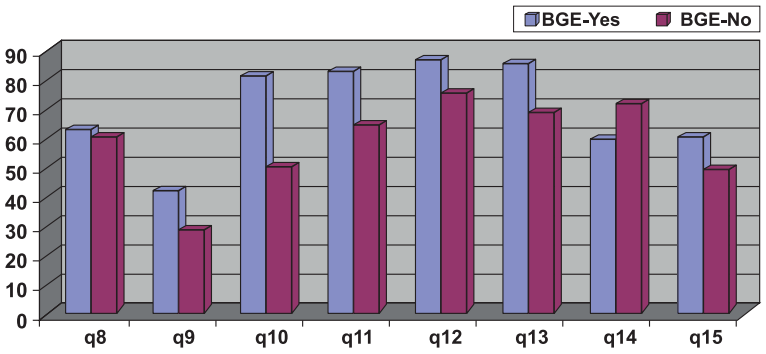

Figure 5. Before graduate education and knowledge level.
BGE: Before graduate education, **q:** question

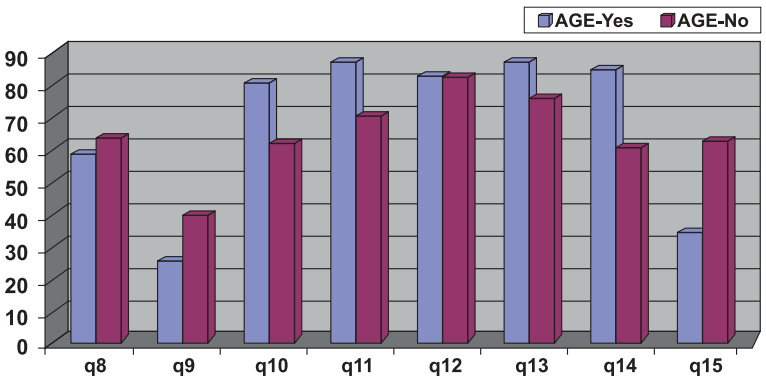

Figure 6. After graduate education and knowledge level.
AGE: After graduate education, **q:** question.

practices.[5] Suri *et al.* reported that 40% of the obstetricians performed oral-dental examination, referred the pregnant patients to the dentists when they state complaints, and Zanata *et al.* reported that 72% of the obstetricians referred patients depending on their clinical picture.[5,20] Zanata *et al.* determined that 73% of the dentists know that dental applications are safe during pregnancy, 40% of them asked for assent from the obstetrician before any dental applications, and that 81% of the dentists know they can perform procedures in case of emergency during pregnancy.[20] In our study, practical applications of obstetricians and dentists were found to be consistent with the literature. On the other hand, Cohen *et al.* reported this ratio as 33.2% for dentists. In a study conducted by Golkarı *et al.* in our country, authors stated that obstetricians, practitioner and midwives do not use their knowledge in clinical practice.[12,22] In our study, it was determined that family practitioners and midwives did not refer pregnant patients for dental care in their clinical practices, which is consistent with literature.

In the literature, Cohen *et. al.* reported the reasons for overlooking periodontal diseases as time, lack of knowledge and non-priority 75.7%, 37.8% and 22.1%, respectively.[12] George *et al.* reported the reasons (50%) as health insurance problems of pregnant women, lack of knowledge of pregnant patients, insufficient time of midwives and obstetricians, fear for legal risks associated with potential negative effects on the fetus, limited knowledge of dentists on treatment procedure for pregnant women, or lack of evidence on the effects of treatment in improving the pregnancy outcomes.[18]

In the literature, it is stated that oral health education before and after graduation from gynecology and obstetrics is limited, it is not instructed as an important subject in the practice, that high-risk pregnancies and existing medical conditions are prioritized, however, in reality, poor oral health poses additional risk in high-risk pregnancies.[18] In our country, a questionnaire about oral-dental health was administered to medicine and dentistry students to measure their knowledge on the subject and the results revealed 48.1% knowledge level for medical faculty and 90.4%-96.5% for dentistry faculty. And another study reported that 93.8% of medicine students lacked such knowledge.[23,24] In our country, knowledge level of midwifery and nursing students was found to be 58.1%.25 Medical faculty curriculum of countries like Austria, Lithuania, Slovakia, Bulgaria, Poland and Saudi Arabia include oral-dental health education.[24] The higher knowledge level of dentists than obstetricians was associated with curriculum, and midwives who had received formal education at school had higher rates of advising preventive recommendations for oral-dental health.[17,19] In the study conducted by Boutigny *et. al.* 5% of obstetricians stated that they had oral-dental health education before graduation and 11% after graduation.[2] In our study, pre-graduation education rates were consistent with the literature.

Inflammatory periodontal diseases are generally preventable.[11] The information in literature about the association of periodontal diseases and poor pregnancy outcomes is contradictory and more randomized controlled studies are required, however, The American College of Obstetricians and Gynecologists (ACOG) states that maternal periodontal treatment would not lead to unwanted fetal outcomes, instead it will improve maternal oral-dental health.[4,7,13,19,26] In addition, World Health Organization recommends oral-dental health education program for chronic diseases.[25]

In our country, practitioner and accompanying family health professional are responsible for conducting pregnancy monitoring before the delivery.[21] The Circular on Pregnancy School, Informing Classes for Pregnant Women, Preparation for Delivery and Consultancy Centers, 2/10/2018 dates and 2018/23 numbered circular published by the Ministry of Health, addresses oral-dental health in pregnancy and defines duties and responsibilities of obstetricians, family practitioners and midwives.[27]

A potential limitation of this investigation was reliance on participation rate of healthcare professionals was low. The factors for low questionnaire participation of healthcare professionals were reported as insufficient time, conspicuousness of the subject, confidentiality of the results, prejudiced perception for personal question, length of the questions and personal experience of the participants.[28] We believe that workload of professionals participated in our study or the problems encountered with the delivery of the questionnaire to the e-mail addresses have led to the low participation ratio.

CONCLUSION

Gynecologists and obstetricians and dentist's knowledge level about oral-dental health in pregnancy were found more high level than family physicians and midwives. There were observed that the knowledge level increased with education.

Obstetricians and Gynecologists, Family Physicians, post graduate educated medical care practitioners and having an experience ten years were found more awareness of Pregnancy School than dentists and midwives.

As a result of this study, the following may be suggested that; family physicians and midwives should be increased their knowledge level of oral-dental health in pregnancy by inservice education. Dentists and midwives should be informed about Pregnancy School. Prenatal care practitioners should be achieved awareness of Pregnancy School. All of these quite important to find out the negative effect of periodontal disease on general health and pregnancy outcomes.

*The authors declare that there are no conflicts of interest.

REFERENCES

1. Külekçi G. Ağız Sağlığının Yeni Tanımı: Ağız Mikrobiomu. ANKEM Derg 2013; 27: 167-172. Doi:10.5222/ankem.2013.167.
2. Boutigny H, de Moegen ML, Egea L, et al. Oral infections and pregnancy: knowledge of gynecologists/obstetricians, midwives and dentists. Oral Health Prev Dent 2016; 14: 41-47. PMID:26106653.
3. Erkan Al. Hamilelerde oral hijyen motivasyonunun çürük risk faktörleri üzerindeki etkisi. Selçuk Üniversitesi Sağlık Bilimleri Enstitüsü, Restoratif Diş Tedavisi A.D, 2015.
4. American College of Obstetricians and Gynecologist. Committee opinion oral health care during pregnancy and through lifespan. Number 59, August 2013.
5. Suri V, Rao NC, Aggarwal N. A study of obstetricians' knowledge, attitudes and practices in oral health and pregnancy. Educ Health. (Abingdon) 2014; 27: 514. PMID:24934944.
6. Govindasamy R, Narayanan M, Balaji VR, et al. Knowledge, awareness, and practice among gynecologists, medical practitioners and dentists in Madurai regarding association between periodontitis and pregnancy outcomes. J Indian Soc Periodontol. 2018; 22: 447-450. PMID:30210196.
7. Daalderop LA, Wieland BV, Tomsin K, et al. Periodontal disease and pregnancy outcomes: overview of systematic reviews. JDR Clin Trans Res 2018; 3: 10-27. PMID:30370334.
8. Detman, LA, Cottrell, BH, Denis-Luque, MF. Exploring dental care misconceptions and barriers in pregnancy, Birth, 2010; 37, 318-324. PMID:21083724.
9. Kaydırak MM, Şahin NH, Can MM, Koray M. Gebelerin ağız ve diş sağlığına ilişkin bilgi ve görüşleri. SDÜ Sağlık Bilimleri Dergisi 2018; 9 : 3 Doi: 10.22312/sdusbed.423781.
10. Özen B, Özer L, Başak F, Altun C, Açıkel C. Turkish women's self-reported knowledge and behavior towards oral health during pregnancy. Med Princ Pract 2012; 21: 318-322. PMID:22134112.
11. Cobb CM, Kelly PJ, Williams KB, et al. The oral microbiome and adverse pregnancy outcomes. Int J Womens Health 2017; 9: 551-559. PMID:28848365.
12. Cohen L, Schaeffer M, Davideau JL, Tenenbaum H, Huck O. Obstetric knowledge, attitude, and behavior concerning periodontal diseases and treatment needs in pregnancy: Influencing factors in France. J Periodontol 2015; 86: 398-405. PMID:25427617.
13. Erzincan SG, Yarımoğlu ED, Tunar OL, Gürsoy H. Periodontal Hastalıklar ve Hamilelikte Oluşan Olumsuz Sonuçlar. Yeditepe J Dent 2016; 12: 65-69. Doi: 10.5505/yeditepe.2016.66376.
14. Jaiman G, Nayak PA, Sharma S, Nagpal K. Maternal periodontal disease and preeclampsia in Jaipur population. J Indian Soc Periodontol 2018; 22: 50-54. PMID:29568173.
15. American Academy of Periodontology. https://www.perio.org.
16. European Federation of Periodontology. https://www.efp.org.
17. Tarannum F, Prasad S, Muzammil, et al. Awareness of the association between periodontal disease and pre-term births among general dentists, general medical practitioners and gynecologists. Indian J Public Health 2013; 57: 92-95. PMID:23873196.
18. George A, Shamim S, Johnson M, et al. How do dental and prenatal care practitioners perceive dental care during pregnancy? Current evidence and implications. Birth 2012; 39: 238-247. PMID:23281906.
19. Wagner Y, Heinrich-Weltzien R. Midwives' oral health Recommendations for pregnant women, infants and young children: results of a nationwide survey in Germany. BMC Oral Health 2016 Mar 18; 16: 36. PMID:26988101.
20. Zanata RL, Fernandes KB, Navarro PS. Prenatal dental care: evaluation of professional knowledge of obstetricians and dentists in the cities of Londrina/PR and Bauru/SP, Brazil, 2004.J Appl Oral Sci 2008; 16: 194-200. PMID: 19089217.
21. Kurnaz MA, Can H, Sezik HA, et al. Aile hekimleri gebeleri ne kadar ve nasıl izliyor? Türk Aile Hek Derg 2015; 19: 187-195. Doi: 10.15511/tahd.15.02187.
22. Golkari A, Khosropanah H, Saadati F. Evaluation of knowledge and practice behaviours of a group of Iranian obstetricians, general practitioners, and midwives, regarding periodontal disease and its effect on the pregnancy outcome. J Public Health Res. 2013; 5; 2. PMID:25170486.
23. Koşan Z, Akgül N, Bedir B, et al. Tıp ve diş hekimliği fakültelerinde ağız–diş sağlığı eğitimi yeterli mi? Öğrencilerin bilgi düzeylerinin karşılaştırması. Turk J Public Health 2017; 15. http://tjph.org/ojs/index.php/
24. Çalışkan D, Yaşar F, Tunçbilek A. A.Ü.T.F. 9-10 sömestr öğrencilerinin ağız ve diş sağlığı konusunda bilgi düzeyleri. Ankara Üniversitesi Tıp Fakültesi Cilt 55, Sayı 2, 2002.
25. Ayık Y, Özçelik SK, Akyüz S, Bahçecik AN. Oral and dental health knowledge of nursing and midwifery students. Clin Exp Health Sci 2017; 7: 159-165. Doi: 10.5152/clinexphealthsci.2017.330.
26. Iheozor-EjioforZ, Middleton P, Esposito M, Glenny AM. Treating periodontal disease for preventing adverse birth outcomes in pregnant women. Cochrane Database of ystematic Reviews 2017, Issue 6. Art. No.: CD005297. PMID:28605006.
27. Sağlık hizmetlerinde gebe bilgilendirme sınıfı, gebe okulu ve doğuma hazırlık ve danışmanlık merkezlerinin çalışma usul ve esasları. http://e-belge.saglik.gov.tre36fdffc-bb50-45c5-905'e-0b78bb19d9f1.
28. VanGeest JB, Johnson TP, Welch VL. Methodologies for improving response rates in surveys of physicians: a systematic review. Eval Health Prof. 2007; 30: 303-321. PMID:17986667