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Evaluation of the Awareness of Physicians and Dentists of the Relationship between Periodontal Status and Systemic Diseases

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Research Article

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ABSTRACT

Aim: It is important that physicians and dentists have knowledge about the relationship between systemic and periodontal diseases and work collaboratively when necessary. The aim of this study was to evaluate the awareness of physicians and dentists of the relationship between periodontal status and systemic diseases.
Materials and Methods: A 14-item questionnaire was sent to 6974 participants via social media and e-mail. The questionnaire items were related to periodontal disease and information about diabetes, cardiovascular disease, pregnancy and medication. Responses were obtained from 167 physicians and 228 dentists, and these were compared between the groups.
Results: The vast majority of participants (97%) agreed that periodontal disease is a complication of diabetes mellitus. More than half of the physicians (69%) thought periodontitis was a risk factor for cardiovascular disease. Physicians had significantly less awareness than other groups about drugs that can cause gingival growth. The awareness of physicians about possible complications of pregnancy related to periodontal disease was significantly low. Almost all of the dentists thought that the second trimester of pregnancy was the best time for dental treatments, while this rate was 40% for specialist physicians and 30% for general practitioners.
Conclusion: Physicians should consider that there may be a bidirectional relationship between periodontal status and systemic diseases. For physicians and dentists to be able to increase their awareness and update their knowledge it would be beneficial to have regular training programs and courses could be organized.

Keywords: Periodontal Situation; Systemic Disease; Awareness; Oral Health.

Tıp ve Diş Hekimlerinin Periodontal Durum ve Sistemik Hastalıklar Arasındaki İlişki Farkındalığının Değerlendirilmesi

Süreç

Geliş: 14/10/2021
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ÖZ

Amaç: Tıp hekimleri ve diş hekimlerinin sistemik hastalık ve periodontal hastalıklar arasındaki ilişkiye yönelik bilgi sahibi olması ve gerekli durumlarda iş birliği içinde çalışması önemlidir. Çalışmamızda hekimlerin periodontal durum ve sistemik hastalıklar arasındaki ilişkiye yönelik farkındalıklarının değerlendirilmesi hedeflendi.
Gereç ve Yöntem: Çalışmamızda 14 sorudan oluşan bir anket, 6974 katılımcıya sosyal medya ve mail aracılığıyla gönderildi, 395 kişi (167 tıp hekimi, 228 diş hekimi) anketi tamamladı. Anket periodontal hastalık ile diyabet, kardiyovasküler hastalık, gebelik ve ilaç kullanımı hakkındaki bilgilerle alakalı sorulardan oluşuyordu.
Bulgular: Katılımcıların büyük çoğunluğu (%97) periodontal hastalığın diyabetin bir komplikasyonu olduğunu konusunda hemfikirdi. Hekimlerin yarısından fazlası (%69) periodontitisin kardiyovasküler hastalıklar için bir risk faktörü olduğunu düşünüyordu. Dişeti büyümesi yapabilecek ilaçlar konusunda pratisyen tıp hekimlerinin farkındalıkları diğer gruplardan anlamlı derecede düşüktü. (p<0,001). Periodontal hastalığa bağlı olası gebelik komplikasyonları yönünden de pratisyen tıp hekimlerinin farkındalıkları anlamlı derecede düşüktü (p<0,001). Diş hekimlerinin tamamına yakını diş tedavileri için gebelikte 2. trimesterin en uygun zaman olduğunu düşünürken, uzman tıp hekimlerinde bu oran %40, pratisyen tıp hekimlerinde ise %30'lardaydı.
Sonuçlar: Hekimler periodontal durum ve sistemik hastalıklar arasında çift yönlü bir ilişki olabileceğini düşünmelidir. Hekimlerinin farkındalıklarını arttırıp bilgilerini güncellemelerinin ayrıca konu ile alakalı sürekli eğitim programları ve kursların düzenlenmesinin yararlı olduğunu düşünmekteyiz.

Anahtar Kelimeler: Periodontal Durum; Sistemik Hastalık, Farkındalık; Ağız Sağlığı.

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Introduction

Oral health is a basic component necessary for the general health and quality of life of an individual. Periodontal disease is a complex, multifactorial, inflammatory disease of the tissues that support the teeth.[1] Although there is a two-way relationship between oral health and general health, they are inseparable parts of each other. The relationship between oral and systemic diseases has been examined in several studies in both dentistry and medical fields. Recent studies have reported findings that periodontal disease is a risk factor for diabetes, atherosclerotic cardiovascular disease, and premature and low birthweight infants.[2-4]

The International Diabetes Federation and the World Dental Federation have reported a two -way relationship between oral health and diabetes and have stated that there is a need to develop the awareness of this in related healthcare professionals.[5] The American Academy of Periodontology recommends periodontal examination for pregnant patients and those planning to become pregnant and that the appropriate treatment is applied when needed.[6] The editors of Periodontology and American Cardiology journals have published a consensus including some clinical recommendations for periodontologists and cardiologists to reduce the risk of atherosclerotic cardiovascular disease in individuals with periodontitis.[7] Therefore, it is important that medical physicians and dentists have sufficient knowledge of the two-way relationship between the periodontal status and systemic disease and when necessary work in collaboration with periodontologists.

It is also important that dentists update their knowledge and inform patients of the link between periodontal disease and systemic diseases of the oral signs of systemic diseases and of the effect of oral health on quality of life. Education on improving the oral health and general health of patients will enable dentists to better understand the link between oral and systemic diseases. Similarly, the referral of patients to medical physicians by dentists when necessary will ensure better collaboration.[8]

That medical physicians have knowledge and awareness of the link between periodontal disease and systemic disease is also very important. Taking a dental anamnesis of patients in suspicious circumstances and consultation with periodontologists is necessary to improve the two-way relationship between oral health and systemic diseases. The early recognition of problems related to the gingiva by clinicians and referral of the patient to the dentist is of great importance in respect of oral health and general health.[9,10]

Various studies have evaluated the awareness and approaches of dentists and clinicians worldwide to the relationship between periodontal status and systemic diseases.[1,8,11-13] However, there are very few studies on this subject in Turkey. No study could be found in literature that has evaluated the periodontal awareness of clinicians and dentists together. Therefore, the aim of this study was to evaluate the follow-up approaches of dentists and medical physicians related to oral health and their awareness of the relationship between periodontal status and systemic status. To the best of our knowledge, this is the first study to have evaluated the awareness of dentists and medical physicians at the same time in Turkey.

Materials and Methods

Approval for this study conducted between February 2021 and April 2021 was granted by the Non-interventional Clinical Research Ethics Committee of XX University (decision no:09, session no: 2021/05). All procedures were conducted in compliance with the 2013 revision of the 1975 Helsinki Declaration. There were two groups as dentists and medical practitioners in our study. The specialization status of all physicians and dentists were questioned, and their specialization branches were not taken into account. The study sample comprised 167 medical physicians and 228 dentists.

Following a scan of similar studies and the literature related to the evaluation of awareness of the relationship between periodontal disease and systemic disease, a self-reported questionnaire was formed.[14-17] (Table 1) The questionnaire was prepared online using Google forms and distributed online via social networks (Facebook) and Apple store (WhatsApp, Telegram). As the number of medical physicians included was low, the online link to the questionnaire was sent to the institutional e-mail addresses of randomly selected medical faculties.

Table 1. The questionnaire used in the survey.

Questionnaire
1: Can periodontal disease be a complication of diabetes? (Yes/ No)
2: Do you think diabetes patients need to go to a routine dental check-up? (Yes/ No)
3: Does periodontal disease have an effect on the glucose level of diabetic patients? (Yes/ No)
4: Does periodontal therapy have an effect on the glucose level of diabetic patients? (Yes /No)
5: Is periodontitis an independent risk factor for cardiovascular diseases? (Yes /No)
6: Does periodontal therapy have an effect on reducing systemic inflammation? (Yes /No)
7: Some antihypertensive, anticonvulsant, immunosuppressive, and oral contraceptive preparations may cause gingival enlargement. (Yes /No)
8: Is it necessary to interrupt the use of medication before gingival treatment in a patient using 100 mg of acetylsalicylic acid? (Yes/ No)
9: Do you believe active periodontal disease is associated with preterm birth and low birth weight? (Yes/ No)
10: In which trimester of pregnancy is it appropriate to perform elective dental treatment? (1st trimester, 2nd trimester, 3rd trimester)

The questionnaire consisted of 2 pages. The introductory section explained the aim of the study, the importance of the subject and that the researchers could be contacted by telephone or email for any questions or explanations required. After reading this introductory section, the participants confirmed participation in the study. The second page of the questionnaire comprised 4 items to be completed by the participant of age, gender, specialist status and professional experience, followed by 10 questions related to the relationship between periodontal disease and systemic disease.

Statistical analysis

Data obtained in the study were analysed statistically using Jamovi software (version 1.0.4) (accessed from https://www.jamovi.org). Descriptive statistics were applied to the responses concerning gender, age range, branch, professional experience, and other questions. The Pearson Chi-square test was applied to determine the effects of demographic characteristics on the responses to the questions. A value of $p<0.05$ was accepted as statistically significant.

Results

From the initial 6974 participants, 395 completed the questionnaire (5.66%). The distribution of demographic characteristics is shown in Table 2. The questionnaire respondents comprised 59% females and 41% males with a mean age of 36.3±8.4 years. The study participants were 13% medical physician practitioner, 29% specialist medical physician, 38% dentists and 19% specialist dentists. The responses of the participants to the questions related to the relationship between periodontal disease and systemic disease are presented in table form and there was seen to be a consensus among the majority of the physicians on this subject (Table 2). The distribution of the responses according to age and gender are presented in Tables 3 and 4. No statistically significant difference was determined in the responses to the questions according to different age groups ($p>0.05$). When the responses were examined according to gender, the responses of female physicians to questions 2, 3 and 4 were seen to be significantly different to the responses of male physicians ($p<0.05$). Almost all of the female physicians stated that it was necessary for diabetic patients to have routine dental checks and that the glucose level of diabetic patients was affected by periodontal disease and periodontal treatment.

The responses to questions according to branch are shown in Table 5. The physicians of all branches stated that periodontal disease could be a complication of diabetes, that diabetic patients should have routine dental checks and that the glucose level of diabetic patients had an effect on periodontal disease and periodontal treatment ($p>0.05$). The specialist medical physicians and the dentists considered that periodontal treatment reduced systemic inflammation at a statistically significant level compared to the other participants ($p=0.03$).

Table 2. Descriptive statistics of the demographic characteristics of the participants and their answers to the questions

Characteristics and questions	N = 395	Characteristics and questions	N = 395
Age range		4	
20<30	106 (27%)	Yes	267 (68%)
30<40	148 (37%)	No	128 (32%)
40<	141 (36%)	5	
Gender		Yes	274 (69%)
Female	235 (59%)	No	121 (31%)
Male	160 (41%)	6	
Branch		Yes	382 (97%)
Physicians	52 (13%)	No	13 (3.3%)
Specialist medical physicians	115 (29%)	7	
Dentist	152 (38%)	Yes	387 (98%)
Specialist dentist	76 (19%)	No	8 (2.0%)
Professional experience		8	
<5 years	103 (26%)	Yes	172 (44%)
5-10 years	103 (26%)	No	223 (56%)
10< years	189 (48%)	9	
1		Yes	263 (67%)
Yes	384 (97%)	No	132 (33%)
No	11 (2,8%)	10	
2		1st trimester	23 (5,8%)
Yes	383 (97%)	2nd trimester	287 (73%)
No	12 (3,0%)	3rd trimester	85 (22%)
3			
Yes	277 (70%)		
No	118 (30%)		

(n = 395)

Table 3. The distribution of the responses according to age, Chi square test

	N	20<30(N=106)	30<40(N=148)	40<(N=141)	Result of statistics
1 : Yes	395	1.0 103/106	1.0 141/148	1.0 140/141	X^2=4.31, p=0.12
2 : Yes	395	1.0 103/106	1.0 146/148	1.0 134/141	X^2=3.22, p=0.20
3 : Yes	395	0.7 75/106	0.7 106/148	0.7 96/141	X^2=0.46, p=0.80
4 : Yes	395	0.7 71/106	0.7 102/148	0.7 94/141	X^2=0.19, p=0.91
5 : Yes	395	0.7 78/106	0.7 99/148	0.7 97/141	X^2=1.34, p=0.51
6 : Yes	395	1.0 103/106	1.0 142/148	1.0 137/141	X^2=0.43, p=0.81
7 : Yes	395	1.0 103/106	1.0 145/148	1.0 139/141	X^2=0.61, p=0.74
8 : Yes	395	0.4 39/106	0.5 70/148	0.4 63/141	X^2=2.89, p=0.24
9 : Yes	395	0.7 74/106	0.7 101/148	06 88/141	X^2=1.78, p=0.41
10	395				X^2=5.58, p=0.23
1st trimester		0.0 5/106	0.0 5/148	0.1 13/141	
2nd trimester		0.8 80/106	0.7 107/148	0.7 100/141	
3rd trimester		0.2 21/106	0.2 36/148	0.2 28/141	

p>0.05: no statistically significant difference

Table 4. The distribution of the responses according to gender, Chi square test

	N	Female(N=235)	Male(N=160)	Result of statistics
1 : Yes	395	1.0 230/235	1.0 154/160	X^2=0.93, p=0.342
2 : Yes	395	1.0 233/235	0.9 150/160	X^2=9.42, p<0.012
3 : Yes	395	0.8 181/235	0.6 96/160	X^2=13.16, p<0.012
4 : Yes	395	0.7 171/235	0.6 96/160	X^2=7.08, p=0.012
5 : Yes	395	0.7 157/235	0.7 117/160	X^2=1.79, p=0.182
6 : Yes	395	1.0 228/235	1.0 154/160	X^2=0.18, p=0.672
7 : Yes	395	1.0 231/235	1.0 156/160	X^2=0.31, p=0.582
8 : Yes	395	0.4 99/235	0.5 73/160	X^2=0.47, p=0.492
9 : Yes	395	0.7 164/235	06 99/160	X^2=2.68, p=0.102
10	395			X^2=3.87, p=0.142
1st trimester		0.1 13/235	0.1 10/160	
2nd trimester		0.8 179/235	0.7 108/160	
3rd trimester		0.2 43/235	0.3 42/160	

p<0.05 statistically significant

Table 5. The distribution of the responses according to the bransh, Chi square test

	N	Physicians	Specialist medical physicians	Dentist	Specialist dentist	Result of statistics
		(N=52)	(N=115)	(N=152)	(N=76)	
1 : Yes	395	0.9 49/52	1.0 112/115	1.0 150/152	1.0 73/76	X^2=3.31, p=0.35
2 : Yes	395	0.9 49/52	1.0 110/115	1.0 149/152	1.0 75/76	X^2=3.34, p=0.34
3 : Yes	395	0.6 33/52	0.8 87/115	0.7 105/152	0.7 52/76	X^2=2.96, p=0.40
4 : Yes	395	0.6 32/52	0.7 84/115	0.7 105/152	0.6 46/76	X^2=4.32, p=0.23
5 : Yes	395	0.7 37/52	0.7 80/115	0.7 107/152	0.7 50/76	X^2=0.61, p=0.89
6 : Yes	395	0.9 49/52	1.0 114/115	1.0 149/152	0.9 70/76	X^2=9.01, p=0.03
7 : Yes	395	0.9 46/52	1.0 114/115	1.0 151/152	1.0 76/76	X^2=27.49, p<0,01
8 : Yes	395	0.6 32/52	0.5 61/115	0.4 56/152	0.3 23/76	X^2=19.30, p<0,01
9 : Yes	395	0.5 25/52	0.7 84/115	0.7 109/152	0.6 45/76	X^2=13.81, p<0,01
10	395					X^2=149.11, p<0,01
1st trimester		0.1 7/52	0.1 10/115	0.0 5/152	0.0 1/76	
2nd trimester		0.3 18/52	0.4 51/115	0.9 144/152	1.0 74/76	
3rd trimester		0.5 27/52	0.5 54/115	0.0 3/152	0.0 1/76	

p<0.05 statistically significant

The vast majority of respondents (98%) stated that some antihypertensive, anticonvulsant, immunosuppressive and oral contraceptive preparations could cause growth of the gingiva, while a significant number of the medical physician practitioners compared to other groups were of the opinion that these preparations did not cause gingival growth (p<0.01). On the subject of the need to pause the use of 100 mg acetylsalicylic acid before gingival treatment, although the opinions of the physician groups differed from each other, 56% of the respondents considered that it was not necessary to pause this use (p<0.01). The physicians who thought that the use of 100 mg acetylsalicylic acid before periodontal treatment could be continued were mostly specialist dentists followed by dentists, specialist medical physicians and medical physician practitioners, respectively.

Of the total respondents, 67% were of the opinion that active periodontal disease could cause premature birth and low birth weight and there was no difference between branches on this subject (p<0.01). There were different views between the groups on the subject of which trimester was most suitable for dental treatments (p<0.01). Approximately half of the medical physician practitioners and specialist medical physicians thought the third trimester was most suitable whereas almost all of the dentists and specialist dentists thought the second trimester was the most suitable time for treatment. When the responses of the physicians to the questions were compared according to professional experience, no significant difference was determined (p>0.05) (Table 6).

Table 6. The distribution of the responses according to the professional experience, Chi square test

	N	<5 years	5-10 years	10< years	Result of statistics
		(N=103)	(N=103)	(N=189)	
1 : Yes	395	1.0 100/103	1.0 99/103	1.0 185/189	X^2=0.78, p=0.68
2 : Yes	395	1.0 98/103	1.0 100/103	1.0 185/189	X^2=1.70, p=0.43
3 : Yes	395	07 71/103	0.6 65/103	0.7 141/189	X^2=4.30, p=0.12
4 : Yes	395	0.6 66/103	0.6 66/103	0.7 135/189	X^2=2.43, p=0.30
5 : Yes	395	0,7 72/103	0.7 70/103	0.7 132/189	X^2=0.13, p=0.94
6 : Yes	395	1.0 100/103	1.0 101/103	1.0 181/189	X^2=1.16, p=0.56
7 : Yes	395	1.0 100/103	1.0 101/103	1.0 186/189	X^2=0.60, p=0.74
8 : Yes	395	0.4 40/103	0.4 45/103	0.5 87/189	X^2=1.41, p=0.50
9 : Yes	395	0.7 75/103	0.6 61/103	0.7 127/189	X^2=4.34, p=0.11
10	395				X^2=2.38, p=0.67
1st trimester		0.1 6/103	0.0 5/103	0.1 12/189	
2nd trimester		0.7 70/103	0.8 79/103	0.7 138/189	
3rd trimester		0.3 27/103	0.2 19/103	0.2 39/189	

p>0.05: no statistically significant difference

Discussion

Many studies have investigated the relationship between periodontal disease and systemic disease.[1-4] It is of vital importance that physicians understand this link in respect of accurate diagnosis and proper treatment and care of both periodontal and systemic diseases. There are various studies in literature which have evaluated the awareness of dentists and medical physicians of the link between the two diseases.[4,12,13,15,18-20] However, the opinions of these two professional groups in response to the same questions have only been evaluated in one study[14], and to the best of our knowledge, the current study is the first to have done so in Turkey.

Most studies on this subject have examined periodontal disease with diabetes and cardiovascular disease and complications that could arise in pregnancy.[7,21,22] In the questionnaire prepared for this study, the majority of questions were on these subjects.

The relationship between periodontal disease and diabetes is supported by current literature.[21,23] Therefore, both medical physicians and dentists must be knowledgeable about the pathophysiological processes, complications and treatment of these two chronic diseases. As recommended by the International Diabetes Federation and the FDI World Dental Federation, increasing the awareness of healthcare professionals about the relationship between diabetes and oral health would improve the attitudes and decision-making of healthcare professionals in the management of diabetic patients by developing their knowledge.[19]

In the current study, almost all (97%) of the dentists and medical physicians accepted that there was a relationship between the two diseases, thought that it was necessary for diabetic patients to have routine dental checks, and 70% of the physicians (the lowest rate was for medical physician practitioners) thought that periodontal disease and treatment had an effect on the glucose levels of diabetic patients. Al-Khabbaz *et al.* presented a questionnaire about the relationship between periodontal disease and diabetes to medical physicians and dentists working in Kuwait and reported that almost all the dentists thought that diabetes affected periodontal health, whereas this rate fell to 75% for the medical physicians. In the same study, 51% of the respondents thought that there was a relationship between periodontal disease and diabetes. In another study that only included dentists, it was reported that periodontists had greater awareness than other dentists of periodontal complications associated with diabetes.[24] A different study included only medical physicians and 90% of the participants thought that diabetic disease affected periodontal tissues and only 76% thought that periodontal disease had negative effects on diabetic patients.[25] To effectively manage and control diabetes and periodontal diseases, it is important that dentists and medical physicians increase their knowledge and awareness of the relationship between periodontal disease and diabetes.

Although 97% of the current study participants thought that periodontal treatment had the effect of reducing systemic inflammation, 69% thought that periodontitis was a risk factor for cardiovascular diseases. In a study of the association between periodontal disease and cardiovascular diseases which only included cardiologists, 60% of the participants thought it was necessary to educate medical and dentistry students

about working in collaboration, and 50% thought that treatment of periodontal disease would reduce the risk of cardiovascular disease.[26] While there was considered to be a relationship between periodontal disease and cardiovascular disease by 51.2% of participants of medical physicians in another study[15] this rate was reported to be 71% in a study of dentists.[27]

The awareness of physicians in the current study that some antihypertensive, anticonvulsant, immunosuppresssive and oral contraceptive preparates could cause growth of the gingiva was very high (98%). The group who thought that these preparates could not cause gingival growth significantly comprised dental practitioners. In a study that evaluated the opinions of physicians on the subject of whether or not Nifedipine preparate had the side-effect of gingival growth, a higher rate of dentists than medical physicians (70% vs. 43.8%) were aware that Nifedipine could cause gingival growth.[14]

In the current study, 56% of the participants stated that it was not necessary to pause the use of 100 mg acetylsalicylic acid before gingival treatment (specialist dentists, dentists, specialist medical physicians, medical physicians, respectively). This rate was approximately 70% for the specialist dentists and 40% for the medical physician practitioners. In a study by Al Sharrad et al, this rate was 50% for both groups.[14] Nooh *et al.*[28] reported that physicians did not have sufficient information on the subject of whether treatments could be continued without terminating aspirin before dental treatments, and approximately half of the medical physicians stated that the use of aspirin should be paused for 3 days or more before dental treatment. Perry et al reported that as pausing the use of anticoagulants could increase the risk of thrombosis in cardiovascular disease patients, it was recommended that drug use be continued when the INR value was 2-4.[24] Al-Mubarak et al recommended that bleeding could be stopped by applying pressure and sutures without stopping aspirin before dental treatments. [30]

The majority (67%) of the current study participants and approximately half of the practitioner physicians thought that there was an association between periodontal disease and premature birth and low birth weight. These results are consistent with the findings of a study by Tarannum et al in which a higher rate of dentists than medical physicians thought that there was a relationship between periodontal disease and low birth weight.[31] When studies are examined that have included obstetricians and/or gynaecologists, while those in France stated that there could be negative effects of periodontal disease on pregnancy at the rate of 74.7%, this rate was very low at 44.5% in Saudi Arabia.[32,33] This suggests a noticeable difference between countries. Although dental treatments are not recommended in the first trimester of pregnancy, as remaining lying supine for a long period may be difficult in the third trimester, it has been reported that the second trimester is the most appropriate time for necessary dental treatments.[34] In the current study, large differences were seen between the groups on the subject of the most appropriate time for dental treatments. Almost all of the dentists and specialist dentists thought that the second trimester was the most suitable time for dental treatments, and this rate fell to 40% for specialist medical physicians and 30% for medical physicians. It was observed that dentists showed a greater awareness than medical physicians on the subject of the timing of dental treatments in pregnancy. The results of the current study were consistent with those of Al Sharrad *et al.*[14]

The findings of this study support the importance of collaboration between medical physicians and dentists. The development of communication between the two groups of physicans is of the greatest importance for the sharing of knowledge and the formation of professional treatment methods for patients at medical risk. Lack of communication and potential deficiencies in the educational syllabuses of both faculties in respect of the relationship between periodontal disease and systemic disease can be considered to be the reasons for the mismanagement of systemic disease in patients presenting at dental clinics and the insufficient importance given to oral health by medical physicians. It would be beneficial for physicians to increase their awareness and update their knowledge, and for continuing education programs and courses related to the subject to be organized.

Conclusions

Within the scope of this study, it was seen that generally the awareness of medical physicians and dentists of the relationship between periodontal diseases and systemic diseases was high but it can be considered that collaboration between these two groups would be beneficial. This was the first study in Turkey to have evaluated the awareness of both medical physicians and dentists on the subject of periodontal disease and systemic disease. However, the number of participants was not sufficient to represent the country profile and so there is a need for further studies with a larger participant mass. Another limitation of this study was that the questionnaire items were prepared as self-reported by scanning other literature.

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References

1. Falcao A, Bullón P. A review of the influence of periodontal treatment in systemic diseases. Periodontol 2000. 2019;79(1):117–128.
2. Alexander RE. Relationship between periodontal disease and systemic diseases. Tex Dent J. 2006;123(2):21–36.
3. Cullinan MP, Ford PJ, Seymour GJ. Periodontal disease and systemic health: Current status. Aust Dent J. 2009;54:62–69.
4. Hegde R, Awan KH. Effects of periodontal disease on systemic health. Disease-a-Month 2019;65(6):185–92.

5. Şenol Au, Aykaç Y, Bağış N, Akkaya M. Uzman Tıp Hekimlerinin Periodontal Durum ve Sistemik Hastalık Arasındaki İlişki ile İlgili Farkındalık ve Yaklaşımlarının Değerlendirilmesi. Atatürk Üniversitesi Diş Hekim Fakültesi Derg. 2016;26(2):218-224.
6. Task Force on Periodontal Treatment of Pregnant Women, American Academy of Periodontology. American Academy of Periodontology statement regarding periodontal management of the pregnant patient. J Periodontol. 2004 Mar;75(3):495.
7. Scannapieco FA, Bush RB, Paju S. Associations between periodontal disease and risk for atherosclerosis, cardiovascular disease, and stroke. A systematic review. Ann Periodontol. 2003;8(1):38–53.
8. Nazir MA, Izhar F, Akhtar K, Almas K. Dentists' awareness about the link between oral and systemic health. J Family Community Med. 2019;26(3):206-212.
9. Nagarakanti S, Epari V, Athuluru D. Knowledge, attitude, and practice of medical doctors towards periodontal disease. J Indian Soc Periodontol. 2013;17(1):137-139.
10. Şener E, Gürhan C, Coşgun E, Mert A, Baskı BG. Sistemik Hastalık Varlığının Dental Tedavi Gereksinimi İle Yaşam Kalitesine Etkisinin Değerlendirilmesi. EÜ Dişhek Fak Derg 2017; 38(1): 54-61.
11. Bhavya B, Shaji V, Ashwini S. Original Research Knowledge , Practice and Attitude of Medical Doctors on the Association Between Medical Health and. J Dent Orofac … [Internet]. 2015;11(1):7–11.
12. Dubar M, Delatre V, Moutier C, Sy K, Agossa K. Awareness and practices of general practitioners towards the oral-systemic disease relationship: A regionwide survey in France. J Eval Clin Pract. 2020;26(6):1722–1730.
13. Gholami L, Rigi MA, Motaghedifard A, Hashemzehi H. A Survey on General Physician's Knowledge and Behavior Towards the Relationship Between Periodontal Diseases and Systemic Health. Dent Clin Exp J. 2016;2(1).
14. Al Sharrad A, Said KN, Farook FF, Shafik S, Al-Shammari K. Awareness of the relationship between systemic and periodontal diseases among physicians and dentists in Saudi Arabia and Kuwait: Cross-sectional study. Open Dent J. 2019;13(1).
15. Taşdemir Z, Alkan BA. Knowledge of medical doctors in Turkey about the relationship between periodontal disease and systemic health. Braz Oral Res. 2015;29(1):1–8.
16. Mian FI, Hamza SA, Wahid A, Bokhari SAH. Medical and dental practitioners' awareness about oral-systemic disease connections. J Pak Dent Assoc. 2017;26(4):151–157.
17. Desai D, Kumar D, Nishat D, Aspalli D. Comparative evaluation of awareness of link between oral and systemic health among undergraduate dental and medical students. Eur J Mol Clin Med. 2021;8(1):602–609.
18. AlJohani K, AlZahrani AS. Awareness among medical and dental students regarding the relationship between periodontal and systemic conditions. Int J Pharm Res Allied Sci [Internet]. 2017;6(4):61–72.
19. Al-Khabbaz AK, Al-Shammari KF, Al-Saleh NA. Knowledge About the Association Between Periodontal Diseases and Diabetes Mellitus: Contrasting Dentists and Physicians. J Periodontol. 2011;82(3):360–366.
20. Nazir MA, Izhar F, Akhtar K, Almas K. Dentists' awareness about the link between oral and systemic health. J Fam Community Med. 2019;26(3):206–212.
21. Mealey BL, Oates TW. Diabetes mellitus and periodontal diseases. J Periodontol. 2006;77(8):1289–1303.
22. Bobetsis YA, Barros SP, Offenbacher S. Exploring the relationship between periodontal disease and pregnancy complications. J Am Dent Assoc. 2006;137:7–13.
23. Chávarry NGM, Vettore MV, Sansone C, Sheiham A. The relationship between diabetes mellitus and destructive periodontal disease: a meta-analysis. Oral Health Prev Dent. 2009;7(2).
24. Al-Khabbaz AK, Al-Shammari KF. Diabetes mellitus and periodontal health: dentists' knowledge. Med Princ Pract. 2011;20(6):538–544.
25. Tse SY. Diabetes mellitus and periodontal disease: awareness and practice among doctors working in public general out-patient clinics in Kowloon west cluster of Hong Kong. BMC Fam Pract. 2018;19(1):1–9.
26. Mosley M, Offenbacher S, Phillips C, Granger C, Wilder RS. North Carolina cardiologists' knowledge, opinions and practice behaviors regarding the relationship between periodontal disease and cardiovascular disease. Am Dent Hyg Assoc. 2014;88(5):275–284.
27. Paquette DW, Bell KP, Phillips C, Offenbacher S, Wilder RS. Dentists' knowledge and opinions of oral-systemic disease relationships: relevance to patient care and education. J Dent Educ. 2015;79(6):626–635.
28. Nooh N. The effect of aspirin on bleeding after extraction of teeth. Saudi Dent J. 2009;21(2):57–61.
29. Perry DJ, Noakes TJC, Helliwell PS. Guidelines for the management of patients on oral anticoagulants requiring dental surgery. Br Dent J. 2007;203(7):389–393.
30. Al-Mubarak S, Al-Ali N, Abou Rass M, Al-Sohail A, Robert A, Al-Zoman K, et al. Evaluation of dental extractions, suturing and INR on postoperative bleeding of patients maintained on oral anticoagulant therapy. Br Dent J. 2007;203(7):E15–E15.
31. Tarannum F, Prasad S, Vivekananda L, Jayanthi D, Faizuddin M. 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(2):92-95.
32. Rahman G, Asa'ad F, Baseer MA. Periodontal health awareness among gynecologists in Riyadh, Saudi Arabia. J Int Soc Prev Community Dent. 2015;5(3):211-217.
33. Cohen L, Schaeffer M, Davideau J, 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(3):398–405.
34. Kurien S, Kattimani VS, Sriram RR, Sriram SK, Bhupathi A, Bodduru RR, et al. Management of pregnant patient in dentistry. J Int oral Heal JIOH. 2013;5(1):88-97.