

The impact of media influence on pregnant women's perceptions of oral glucose tolerance tests in primary health care settings

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ABSTRACT

Objective: Screening for gestational diabetes mellitus with the oral glucose tolerance test is recommended between the 24th and 28th weeks of pregnancy. In recent years, views opposing the oral glucose tolerance test have gained prominence in the Turkish media, potentially influencing pregnant women's decisions. This study aimed to determine how often the oral glucose tolerance test is used and by which physicians, to examine the relationship between socioeconomic status and test use, and to assess the impact of the media on those who refuse the test.

Methods: This descriptive, prospective, cross-sectional study was conducted between May and August 2020 with pregnant women who presented to, and were registered and followed up at, the family medicine outpatient clinics in Çankaya, Ankara. A total of 334 pregnant women who met the inclusion criteria participated in the study. Sociodemographic characteristics, socioeconomic status, oral glucose tolerance test acceptance status, physician recommendation variability, effect of media influence of various media sources in decision-making process was questioned by a 16-question survey.

Results: Of the participants, 68.0% (n=227) had obtained a university degree, and 56.3% (n=188) reported a high income. Overall, 41.6% (n=139) said they didn't receive any information about the oral glucose tolerance test from their primary care physician. Of the informed subjects 58.8% (n=114) received information from their family doctors. 15.6% (n=52) declined the test, while 33.8% (n=113) were undecided. For those who declined the test 53.8% (n=28) pointed at negative media or social media content to be the primary reason for their decision. Pregnant women from a lower socioeconomic background were more likely to decline the test or be undecided, particularly if they had not received information about it from a healthcare professional. Conversely, physician-provided information was associated with higher acceptance rates for the oral glucose tolerance test.

Conclusion: A low socioeconomic status, combined with a lack of information provided by physicians and negative media influence, was associated with higher rates of refusal or indecision regarding oral glucose tolerance test. However, providing accurate and clear information about gestational diabetes screening through family physicians was found to significantly increase the likelihood of test acceptance.

Keywords: Gestational diabetes, glucose tolerance test, family practice, media impact

Introduction

Pregnancy is a diabetogenic period characterised by insulin resistance, which begins in the second trimester and is accompanied by β -cell hyperplasia and hyperinsulinemia.^[1] Hyperglycemia that first occurs during pregnancy, typically in the second or third trimester, and persists throughout gestation is referred to as gestational diabetes mellitus (GDM).^[2] Most GDM cases occur in developing countries with low to middle incomes, where access to prenatal care is often limited, antenatal follow-up is irregular and diabetes screening during pregnancy is ineffective.^[3] Various degrees of glucose intolerance are present in 1–14% of pregnancies.^[4] The prevalence of GDM is increasing in parallel with rising rates of type 2 diabetes and obesity.^[5] In Türkiye, the average prevalence of gestational diabetes is reported to be 7.7%.^[6]

Gestational diabetes is the most common endocrine complication of pregnancy. It increases maternal and neonatal morbidity and poses short- and long-term risks to the health of the mother, fetus and newborn.^[7,8] It is globally recommended that all pregnant women who are not diagnosed with diabetes in the early stages of pregnancy undergo an oral glucose tolerance test (OGTT) between the 24th and 28th weeks of gestation for GDM screening.^[2,5,9] This approach has also been adopted in Türkiye.^[1,10]

Primary Health Care (PHC) services play a key role in antenatal care to promote a healthy pregnancy. In Türkiye, family physicians conduct routine antenatal check-ups four times during pregnancy (the first between weeks 1–14, the second between weeks 18–24, the third between weeks 28–32, and the fourth between weeks 36–38)⁽¹¹⁾. For high-risk pregnancies such as those involving GDM, the Turkish Ministry of Health's Public Health Institution has increased the number of

antenatal follow-ups in accordance with the High-Risk Pregnancies and Management Guideline, requiring physicians to perform more detailed monitoring of pregnancies.^[12]

In recent years, media reports in Türkiye have claimed that the OGTT, used to diagnose GDM in pregnant women, is harmful to both mother and baby. Some sources have alleged that the glucose administered during the test damages the placenta's structure, negatively affects fetal development and may cause preterm birth. This has led to the misconception that the test is harmful.^[13] However, the Turkish Society of Obstetrics and Gynecology (TSOG) and the Turkish Society of Endocrinology and Metabolism (TEMD) have stated that these claims are unfounded, and there is no scientific evidence to suggest that the glucose challenge test has an adverse effect on the fetus. Nevertheless, some pregnant women, influenced by media reports, are reluctant to undergo the OGTT for GDM screening.^[14] Following these reports, there has been a decline in the number of this long-established, safe and vital test being performed for both the expectant mother and the baby.^[15]

This study aimed to determine the rate at which the OGTT is performed according to socioeconomic status (SES) among pregnant women monitored by family physicians in PHC settings. The study also aimed to identify which group of physician (family physician or obstetrician) most frequently informed participants about the test, assess their knowledge regarding the OGTT, determine the factors contributing to refusal of the test in the community and examine the role of the media in this context. Based on the data obtained in our study, we also aimed to understand and fulfil the responsibilities of primary care physicians in raising public awareness of the importance of the OGTT, and in overcoming the challenges encountered when applying it to pregnant women.

Materials and Methods

Study design and participants

This study is descriptive, prospective and cross-sectional in nature. The authors confirm that all procedures performed in this study were in accordance with the ethical standards set out in the Declaration of Helsinki, which was first published in 1975 and revised in 2008. Informed consent was obtained from pregnant women who met the inclusion criteria and agreed to participate.

According to the power analysis conducted to determine the sample size for the study, considering the incidence of gestational diabetes, a sample size of 334 participants was found to provide a two-sided 95% confidence interval with a 0.050 margin of error when the sample ratio was 0.050. Accordingly, the study group consisted of 334 patients.

The first 334 patients who accepted the conditions for participation in the study and applied to family health centers in order of application were accepted into the study group. The case collection process was terminated when the target number of cases was reached.

Data collection

Data were collected between May and August 2020. Participants were interviewed face-to-face at family health centers using a 16-item questionnaire. These were administered by trained family medicine research assistants. The questionnaire items were developed by a committee comprised of faculty members and physicians from the Department of Family Medicine. The inclusion criteria for the study were pregnant women aged 20–45 years with a gestational age of 20 weeks or less who had not been diagnosed with diabetes before pregnancy and had not yet undergone an OGTT.

Exclusion criteria are removed according to reviewer suggestions.

Data analysis

The data obtained from the questionnaires completed as part of the study were recorded using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp. Released 2017, Armonk, NY: IBM Corp.). Descriptive statistical data were expressed as the mean \pm standard deviation and minimum–maximum values for continuous variables and as the frequency and percentage distribution for categorical variables. If the assumptions for parametric tests were met, continuous variables were analyzed using the independent samples t-test (Student's t-test), analysis of variance (ANOVA) and, when necessary, the Tukey HSD test for multiple comparisons. If these assumptions were not met and could not be satisfied by transforming the data, continuous variables were analyzed using the Mann–Whitney U test, the Kruskal–Wallis test and, when necessary, the Dunn test for multiple comparisons. Categorical variables were analyzed using the chi-squared test or Fisher's exact test. A p-value of <0.05 within a 95% confidence interval was considered statistically significant.

Ethical approval

The research project was reviewed and approved on 22 May 2019 by the Research and Ethics Committee of Başkent University in terms of its scientific and ethical appropriateness. The project was given the number KA18/298. Additionally, permission to conduct the research was obtained from the Ankara Public Health Directorate, Public Health General Directorate, Department of Community Health Services and Education on 8 April 2020, as evidenced by official letter number 49654233-604.02.

Results

The study comprised a total of 334 pregnant women. The mean age of the participants was 30.49 ± 5.18 years (min: 20, max: 44). The data revealed that 68% (n=227) of the participants graduated from a university, postgraduate or higher education programs. Additionally 21.9% (n=73) had completed high school, 10.2% (n=34) were graduated from a primary school, or were illiterate with no participation in a formal education program. When analyzing their occupational status, 67.1% (n=224) were civil servants, 5.7% (n=19) belonged to unidentified occupational groups, and 27.2% (n=91) were unemployed. Participants were predominantly living in urban areas with a proportion of 98.2% (n=328). The income level of 6.9% (n=23) were low, while 36.8% (n=123) were from medium, and 56.3% (n=188) from high-income level families.

The mean gestational age of the participants was 14.78 ± 4.01 weeks (min: 5, max: 20, median: 16 weeks). Overall 12% (n=40) had a gestational week of less than 10 weeks, while 32.3% (n=108) had a gestational week between 10 and 15 weeks, and 55.7% (n=186) of more than 15 weeks.

When analyzing the answers to the question regarding the source of knowledge from which the

Table 1. Sources from which pregnant women follow health-related topics

Sources for following health-related topics	n	%
Written and Visual Media Sources	37	11.1
Scientific Sources – Attending Physician	135	40.4
Internet and Social Media	146	43.7
From Acquaintances or ‘I Do Not Follow at All’	16	4.8
Total	334	100

Table 2. The effect of demographic characteristics on pregnant women’s follow-up of health-related topics

		Which sources do you use to follow health-related information?										p*
		Written or Visual Media Sources		Scientific articles, books or physicians		Internet or Social Media		Those around me or I do not follow them at all		Total		
		n	%	n	%	n	%	n	%	n	%	
Age (years)	20-29	19	13.0	58	39.7	61	41.8	8	5.5	146	100	0.846
	30-39	16	9.2	72	41.6	77	44.5	8	4.6	173	100	
	40-49	2	13.3	5	33.3	8	53.3	0	0.0	15	100	
Education Level	High school and below	30	28.0	18	16.8	46	43.0	13	12.1	107	100	<0.001
	University and higher	7	3.1	117	51.5	100	44.1	3	1.3	227	100	
Employment	Unemployed	24	26.4	22	24.2	37	40.7	8	8.8	91	100	<0.001
	Employed	10	4.5	110	49.1	101	45.1	3	1.3	224	100	
	Other	3	15.8	3	15.8	8	42.1	5	26.3	19	100	
Income	Low to medium	31	21.2	40	27.4	63	43.2	12	8.2	146	100	<0.001
	High	6	3.2	95	50.5	83	44.1	4	2.1	188	100	
Residential Ownership	Owner	14	9.3	64	42.4	63	41.7	10	6.6	151	100	0.354
	Rented	23	12.6	71	38.8	83	45.4	6	3.3	183	100	

*Chi-Square Test

participants followed health-related topics, 54.8% (n=183) said that they used predominantly media sources (Table 1).

Analysis of the demographic data revealed that the choice of sources for getting health-related information was significantly affected by the education level, employment status and monthly income of the participants. Those with higher levels of education were found to be significantly more likely to use scientific sources and/or consulting

their physician opinions, as well as they tend to use media sources more frequently (Table 2).

According to our results, 58.4% (n=195) of the pregnant women received explanatory information about the glucose tolerance test by their following physicians, while 41.6% (n=139) had not received any information (Table 3).

When participants are asked if they would like to get a glucose tolerance test during their pregnancy, the results showed that the majority of them are willing to participate. Of the participants 50.6% (n=169) answered positively, while 15.6% (n=52) gave a negative answer, and 33.8% (n=113) were undecided. Among those who were agreeing to get an OGTT, 33.7% (n=57) accepted the procedure based on the recommendation of their obstetrician, while 30.2% (n=51) agreed based on the recommendation of both their obstetrician and a family physician, and 3.0% (n=5) agreed solely on the recommendation of their family physician.

Table 3. Informing pregnant women about the OGTT Physician providing information about the OGTT to the pregnant woman

	n	%
Obstetrician Provided Information	81	24.3
Family Physician Provided Information	10	3.0
Both Provided Information	104	31.1
Neither Provided Information	139	41.6

Table 4. Regression analysis of factors affecting pregnant women’s decision to undergo OGTT

		Beta (SH)	OR	95% CI (Lower Limit – Upper Limit)		P
Age distribution	<35 years	1.269 (1.359)	3.556	0.902	14.011	0.070
	≥35 years	1.817 (0.700)	6.153	1.530	24.743	0.010
Education level	Below University Level	0.229 (0.784)	1.257	0.270	5.843	0.270
	University and Above	-0.004 (0.585)	0.996	0.316	3.136	0.316
Employment status	Employed	-0.031 (0.815)	0.970	0.970	0.196	0.196
	Unemployed	0.587 (0.852)	0.491	1.798	0.338	0.338
Income Status	<5000 ₺	-0.936 (0.716)	0.191	0.096	1.596	0.096
	>5000 ₺	0.326 (0.464)	0.483	0.558	3.438	0.558
Sources for tracking health-related topics	Written and Visual Media	1.158 (0.982)	3.184	0.464	21.829	0.238
	Social Media – Internet	1.753 (0.914)	5.772	0.963	34.603	0.55
	Scientific Sources – Physician	1.309 (0.873)	3.701	0.669	20.478	0.134
Gestational week	<15	-0.893 (0.577)	0.410	0.132	1.270	0.132
	≥15	0.049 (0.419)	0.952	0.419	2.164	0.419
Obstetrician provides information	Yes	1.456 (0.452)	4.287	1.768	10.391	0.001
Family physician provides information	Yes	-0.309 (0.440)	0.734	0.734	0.310	0.482

N=334, R2=0.394 (Nagelkerke), Model X2=139,371; P=<0.001

Table 5. Factors affecting responses to the question of why OGTT is performed during pregnancy				
	Distribution of correct and incorrect answers regarding the OGTT			
		Correct (n/%)	Incorrect (n/%)	P*
Age Groups (years)	20-29	57 (41.0)	89 (45.6)	0.511
	30-39	74 (53.2)	99 (50.8)	
	40-49	8 (5.8)	7 (3.6)	
Education Level	Primary Education and Below	4 (2.9)	30 (15.4)	<0.001
	High School	18 (12.9)	55 (28.2)	
	University and Above	117 (84.2)	110 (56.6)	
Employment Status	Unemployed	27 (19.4)	64 (32.8)	<0.001
	Civil Servant	110 (79.1)	114 (58.5)	
	Other Occupation	2 (1.4)	17 (8.7)	
Type of Residence	Rural Settlement	3 (2.2)	3 (1.5)	0.489
	Urban Settlement	136 (97.8)	192 (98.5)	
Income Status	2000₺ and Below	6 (4.3)	17 (8.7)	0.002
	2001-5000₺	39 (28.1)	84 (43.1)	
	5000₺ and Above	94 (67.6)	94 (48.2)	
Sources for tracking health-related topics	Written and Visual Media	8 (5.8)	29 (14.9)	<0.001
	Scientific Sources and Attending Physician	76 (54.7)	59 (30.3)	
	Internet and Social Media	53 (38.1)	93 (47.7)	
	From Acquaintances or I Do Not Follow at All	2 (1.4)	14 (7.2)	
Gestational Week	<10	12 (8.6)	28 (14.4)	<0.001
	10-15	29 (20.9)	79 (40.5)	
	>15	98 (70.5)	88 (45.1)	
Obstetrician	Yes	110 (79.1)	75 (38.5)	<0.001
	No	29 (20.9)	120 (61.5)	
Family Physician	Yes	66 (47.5)	48 (24.6)	<0.001
	No	73 (52.5)	147 (75.4)	
Total		139 (100)	195 (100)	

*Chi-Square Test

Of the patients who were rejecting to get the OGTT, 53.8% (n=28) said that negative media comments about the OGTT had effected their decision.

Furthermore, 29.2% (n=33) of those who were undecided said that their attending physicians had not provided them with sufficient information about the glucose loading test, which contributed to their indecision.

A regression analysis was conducted to identify the factors influencing the decision of pregnant women to undergo the OGTT. It was found that, among those willing to undergo the test, receiving

information about the glucose tolerance test from their obstetrician and being over 35 years old were associated with a statistically significant increase in the likelihood of undergoing the OGTT (Table 4).

As the level of education increased among civil servants and those in higher income brackets, as well as with advancing gestational age, the proportion of pregnant women who answered the question correctly increased at a statistically significant level. Among those who answered correctly, a high proportion obtained information from scientific sources and their attending physicians. Conversely, the rate of incorrect

Table 6. Factors affecting participants' correct and incorrect answers to the question of what happens if OGTT is not performed during pregnancy

	Distribution of correct and incorrect answers to the question of what happens if ogtt is not performed			P*
		Correct (n/%)	Incorrect (n/%)	
Age Groups (years)	20-29	61 (39.4)	85 (47.5)	0.316
	30-39	86 (55.5)	87 (48.6)	
	40-49	8 (5.2)	7 (3.9)	
Education Level	Primary Education and Below	5 (3.2)	29 (16.2)	<0.001
	High School	22 (14.2)	51 (28.5)	
	University and Above	128 (82.6)	99 (55.3)	
Employment Status	Unemployed	26 (16.8)	65 (36.3)	<0.001
	Civil Servant	124 (80.0)	100 (55.9)	
	Other Occupation	5 (3.2)	14 (7.8)	
Type of Residence	Rural Settlement	0 (0.0)	6 (3.4)	0.023
	Urban Settlement	155 (100.0)	173 (96.6)	
Income Status	2000₺ and Below	6 (3.9)	17 (9.5)	<0.001
	2001-5000₺	43 (27.7)	80 (44.7)	
	5000₺ and Above	106 (68.4)	82 (45.8)	
Sources for tracking health-related topics	Written and Visual Media	11 (7.1)	26 (14.5)	<0.001
	Scientific Sources and Attending Physician	79 (51.0)	56 (31.3)	
	Internet and Social Media	65 (41.9)	81 (45.3)	
	From Acquaintances or I Do Not Follow at All	0 (0.0)	16 (8.9)	
Gestational Week	<10	15 (9.7)	25 (14.0)	0.096
	10-15	44 (28.4)	64 (35.8)	
	>15	96 (61.9)	90 (50.3)	
Obstetrician	Yes	118 (76.1)	67 (37.4)	<0.001
	No	37 (23.9)	112 (62.6)	
Family Physician	Yes	71 (45.8)	43 (24.0)	<0.001
	No	84 (54.2)	136 (76.0)	
	Total	155 (100.0)	179 (100.0)	

*Chi-Square Test

answers was significantly higher among those who obtained health-related information from the internet and social media (see Table 5).

The proportion of correct responses was higher among subjects who had been informed by an obstetrician (76.0%) than among those who had been informed by a family physician (45.0%). Among the women who provided the correct answers, a significantly higher proportion of those who obtained health-related information from

scientific sources did so in conjunction with their attending physician (Table 6).

Discussion

Early diagnosis and treatment of GDM through OGTT screening performed between the 24th and 28th weeks of pregnancy in all pregnant women constitutes a major step in preventing, delaying, or controlling potential complications, thereby protecting maternal and neonatal health, and consequently public health.^[16] In Türkiye, despite

the steadily increasing prevalence of GDM over the years, there has been a significant decline in the rates at which pregnant women undergo OGTT, the only proven effective method for diagnosis and screening.

A number of articles have sought to demonstrate this decline by examining the factors that lead pregnant women to refuse or hesitate to undergo OGTT. The literature suggest that this declining behavior is multifactorial. Furthermore, research findings suggest that demographic differences within the pregnant population as well as variations in physicians attitudes or healthcare center regulations appear to influence the decisions of pregnant.^[17,18] We conclude that re-examining this behavioral pattern in a sample with well-controlled variables will provide better understanding into both the differences in contributing factors and physician attitudes.

In the study conducted by Çakır et al., the majority of the participants had a primary school education (37.5%), were unemployed (72.9%), and had a medium income level (93.1%).^[14] In contrast, our study revealed that 68% of the participants graduated from higher education, university, or postgraduate programs, 67.1% were civil servants, and 56.3% had a high-income level. The high representation of demographic variables such as age, income, education level, and employment status in our study is indicative of a more accurate reflection of the Turkish population. Including individuals from different socioeconomic backgrounds may have facilitated a more objective assessment of health literacy and related factors.

In response to the question regarding the sources from which participants drew information on health-related topics, 43.7% of respondents indicated the internet and social media as their primary source. According to responses to the question regarding sources of health related informations 40.4% of participants reported scientific sources and their attending physicians as

their main sources of information, while 11% cited print and visual media as their main information sources. In the study conducted by Yaprak et al., the primary source of health-related information for pregnant women was their attending physicians (67.5%), followed by television and the internet (39.1%).^[19] The present study was conducted in a relatively high-SES population, which may have facilitated more straightforward access to social media and the internet.

In a study by Başbuğ et al., 49.2% of pregnant women said they wanted to take the OGTT, while 50.8% said they did not want to take the test during pregnancy.^[20] In the study by Turan et al., 49.9% of pregnant women wanted to undergo OGTT, while 50.1% did not.^[21] In both studies, a higher proportion of pregnant women were unwilling to undergo OGTT than in our study. The present study sample comprised participants at 20 weeks of gestation or less. This constitutes a limitation of the present research, as it precluded long-term follow-up of the participants.

In the present study, 33.7% of pregnant women elected to undergo the glucose loading test following a recommendation by an obstetrician, while 30.2% of subjects made this decision subsequent to a recommendation by both an obstetrician and their attending family physician. The proportion of women who elected to undergo OGTT on the recommendation of a family physician was relatively low at 3.0%. The underlying reasons for this phenomenon may be multifaceted, including but not limited to: family physicians not allocating sufficient time to pregnant women during routine antenatal follow-ups; a decline in face-to-face consultations in PHC settings due to women attending regular check-ups with obstetricians; and the possibility that history-taking and physical examinations in these settings were inadequate.

The results of the study indicated that the majority (53.8%) of pregnant women in the study group made this decision due to being negatively

influenced by media sources regarding the glucose tolerance test. In the study conducted by Başbuğ et al., 30.8% of pregnant women who did not undergo OGTT stated that their decision was based on the fact that some healthcare professionals featured in visual media did not recommend the test.^[20] In the study by Hocaoğlu et al., 78.5% of pregnant women who were unwilling to undergo OGTT reported that they had made this decision because they believed the test was harmful to the fetus.^[22]

In the present study, the proportion of pregnant women who were undecided about undergoing OGTT was 33.8%. Of these, 31.9% reported fear that the test could harm their baby, while 25.7% stated that they were influenced by the opinions of prominent professors in the media regarding the glucose loading test. Furthermore, 29.2% of subjects reported being undecided on the matter due to the absence of sufficient information regarding the test from their attending physicians.

In the study conducted by Yaprak et al., the proportion of pregnant women who were undecided about undergoing OGTT was much lower than in our study (3.6%).^[19] Given that the present study was conducted in a relatively higher SES population, it is conceivable that participants may have had more facile access to the internet and media sources.

This group represents a significant distinction between the present study and others in the field. The responsibility of family physicians working in primary healthcare is twofold: firstly, to overcome the indecision of pregnant women regarding OGTT, and secondly, to encourage them to undergo the test. It is hypothesised that if family physicians conduct regular antenatal follow-ups and provide their patients with clear information about the necessity of OGTT for gestational diabetes screening, the decisions of those who are currently undecided will be more likely to shift in a positive direction.

The present study is subject to several limitations. Firstly, the study was conducted in a single district (Çankaya, Ankara) with a relatively higher socioeconomic status, which may limit the generalisability of the results to pregnant women in rural areas or regions with lower socioeconomic levels. Secondly, the cross-sectional design of the study imposed limitations in establishing causal relationships between physician counseling, media influence, and the decision to undergo OGTT. Given the excessive change and variability in the content and characteristics of the media over the years, it is likely that the findings of this study, conducted in 2020, reflect the characteristics and perceptions of the period in which the study was conducted. Furthermore, considering that all participants were in the first half of their pregnancy (≤ 20 weeks gestation), it was not possible to assess whether opinions regarding OGTT changed in later stages of pregnancy.

Conclusion

The importance of early diagnosis of gestational diabetes for pregnant women is a widely accepted topic in medical circles. However, awareness of this issue among pregnant women in our society is insufficient.

A significant proportion of pregnant women who are uncertain about OGTT are concerned that the test may harm their babies. Information obtained from media sources is a major factor contributing to this perception. Another important factor is the inadequacy of information provided by physicians, especially family physicians.

Family physicians are in a unique position due to their important roles in preventive and protective health services. It is crucial that physicians provide accurate information. Prenatal and routine pregnancy follow-ups conducted by family physicians provide a valuable opportunity to give patients accurate information about OGTT.

Ethical approval

This research project was deemed scientifically and ethically appropriate by the Başkent University Faculty of Medicine Research and Ethics Committee and approved on May 22, 2019. The project number of the study was KA18/298. In addition, a research permit was obtained from the Ankara Public Health Directorate, General Directorate of Public Health, Department of Community Health Services and Education, dated April 8, 2020, with letter number 49654233-604.02.

Author contribution

The authors declare contribution to the paper as follows: Study conception and design: HCG, FS and AK; data collection: HCG, FS and BC; analysis and interpretation of results: HCG and AK; draft manuscript preparation: HCG, REK and AK. All authors reviewed the results and approved the final version of the article.

Source of funding

The study was funded by the Başkent Universtiy Research Fund.

Conflict of interest

The authors declare that there is no conflict of interest to disclose.

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