



## Research Article

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# KNOWLEDGE, ATTITUDE AND PRACTICES OF PERSONNEL WORKING IN THE DEPARTMENT OF HEALTH SERVICES IN ANKARA PROVINCE REGARDING COVID-19

## ANKARA İLİNDE SAĞLIK YÖNETİM HİZMETLERİNDE ÇALIŞAN PERSONELİN COVID-19 HASTALIĞINA YÖNELİK BİLGİ, TUTUM VE DAVRANIŞLARI

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## Öz

**Amaç:** Bu çalışmada Ankara İl Sağlık Müdürlüğü Sağlık Hizmetleri Başkanlığı'nda sağlık hizmeti sunan personelin COVID-19 hakkındaki bilgi, tutum ve davranışlarını değerlendirmek amaçlanmıştır.

**Materyal ve Metot:** Kesitsel tipte olan çalışmamızın verileri 26 Ekim-30 Kasım 2020 tarihleri arasında toplanmış ve evrenin %85'ine ulaşılmıştır. İstatistiksel değerlendirme sayı ve yüzde dağılımları ve ki-kare testi ile yapılmıştır.

**Bulgular:** Personelin bilgi puan ortalaması ise  $9,35 \pm 1,02$  olarak bulunmuştur. 10 bilgi sorusundan 7'si %91'in üzerinde doğru yanıtlanmıştır. Katılımcıların %60,6'sı bilgi sorularının tamamını doğru cevaplamışlardır. Bilgi düzeyinde mesleğe göre ve öğrenim seviyesine göre istatistiksel anlamlı fark bulunmuştur ( $p < 0,001$ ). Katılımcıların %47,6'sı ise tam doğru davranış sergilemiştir ve davranış düzeyinde mesleğe, cinsiyete ve eğitim düzeyine göre istatistiksel olarak anlamlı fark bulunmuştur ( $p < 0,05$ ).

**Sonuç:** Sağlık dışı meslek gruplarının bilgi ve davranış düzeylerinin daha düşük olması göz önünde bulundurularak sağlık alanında çalışanlara yönelik kapsamlı hizmet içi eğitimler planlanarak pandemi ile mücadeleye katkı sağlanmalıdır.

**Anahtar Kelimeler:** COVID-19, pandemi, bilgi, tutum, davranış.

## Abstract

**Objectives:** In this study, it was aimed to evaluate the knowledge, attitude, and practices of the personnel providing health services in the Department of Health Services in Ankara Provincial Health Directorate about COVID-19.

**Materials and Methods:** The data of our cross-sectional type of study was collected between the dates of 26 October-November 30, 2020, and 85% percent of the pre-defined population was reached. Statistical evaluation was performed with number and percentage distributions and chi-square test.

**Results:** The average knowledge score of the personnel was found to be  $9.35 \pm 1.02$ . Out of 10 knowledge questions, 7 were answered correctly over 91%. 60.6% of respondents answered all knowledge questions correctly. A statistically significant difference was found in the level of knowledge according to profession and level of education ( $p < 0.001$ ). 47.6% of participants exhibited exactly the right practice, and a statistically significant difference was found in the level of practice by profession, gender and education level ( $p < 0.05$ ).

**Conclusion:** Considering the lower level of knowledge and practice of non-health professional groups, comprehensive in-service training for health professionals should further contribute to the fight against the pandemic.

**Keywords:** COVID-19, pandemic, knowledge, attitude, practice.

## Introduction

Coronavirus, which first emerged in China's Wuhan city and has spread across the world, the virus named SARS-CoV-2 was on February 11, 2020, it was identified as the New Coronavirus Disease (COVID-19).<sup>1</sup> It was declared a pandemic by the World Health Organization (WHO) on March 11, 2020, and the first case in our country was announced on this date as well.<sup>2</sup>

COVID-19 can be transmitted from droplets, contact with the infected surface, and from the air by aerosols; most often, it is accompanied by symptoms such as fever, cough, shortness of breath, myalgia, sore throat, diarrhea, and headache.<sup>1,3</sup> In addition, while some patients are asymptomatic, the elderly and those with chronic disease may develop organ failure or even death.<sup>4,5</sup>

It is necessary to prevent the spread and transmission of the virus by applying primary methods of prevention against this disease, which do not yet have a clear treatment. The most important of these measures is to use masks, wash hands, comply with social distance measures and stay away from crowded environments.<sup>6</sup> In this context, raising public awareness was tried to be provided through visual and auditory media. Moreover, additional measures have been taken, such as distance education in schools, working hours regulations for civil servants, weekend curfews, and the closure of cafes and restaurants.<sup>7</sup>

Despite protective measures, in the current situation, in case of contact with COVID-19 patients, people who have been in contact with patients are quarantined for ten days. People who are diagnosed with COVID-19 are treated in a hospital if they have a severe case and if they are under the age of 18 or over the age of 65. Those who do not show any symptoms or those who do not have severe symptoms are quarantined in their homes for ten days.<sup>8</sup> In addition, while COVID-19 vaccine studies remained unclear at the time of the survey's implementation, as of January 2021, our country has started vaccination on priority group.

Exhibiting the knowledge, attitude, and practices (KAP) of medical personnel who lead and take part in every step against the pandemic is very important to establish control by taking the right initiatives towards COVID-19. In literature, KAP studies have been conducted in different countries both in public and on certain communities such as patients, students, health workers. In our country, throughout the public, there are also studies on dentists, physicians in certain specialties, and some student groups. However, such a study has not been conducted on employees involved in the health directorate at the provincial level. Therefore, it was aimed to evaluate the KAP of the personnel consisting of the health and non-health professional group, providing health services in the Department of Health Services (DHS) in Ankara Provincial Health Directorate about COVID-19 pandemic.

## Materials and Methods

Our research is a cross-sectional study. The research's population is composed of employees in the DHS in Ankara Provincial Health Directorate, and this unit consists of 194 employees. It was aimed to reach the entire research population. For that reason, the sample size was not calculated. We have been able to reach 170 people out of the 194 personnel that make up the population. The level of participation was 87.63%.

As a data collection tool, a survey created by researchers after a thorough literature review was applied. It consists of 32 questions regarding socio-demographic characteristics, knowledge, attitude, and behavior. A preliminary survey was conducted, and the necessary corrections were made. The survey was prepared online via Google form due to working conditions during the pandemic. 2 weeks a row; people were reminded to fill out the survey by phone and email. The data was collected between the dates of November 26 - October 30 of 2020.

Data analysis was done using SPSS 25.0 program. For data evaluation, number and percentage distributions were used, and the chi-square test and chi-square test for trend were used in intergroup comparisons.  $p < 0.05$  was considered statistically significant in all statistical analyses. Correct answers were scored to measure the accuracy of knowledge and behavior towards COVID-19. With this scoring, the levels of knowledge and practice were compared according to several variables by grouping them as complete and incomplete scores.

## Results

Certain socio-demographic characteristics that are thought to affect the KAP of the participants in the study towards COVID-19 are presented in Table 1. 62.94% of the respondents were female, 34.71% were between the ages of 28-39, and 38.82% were between the ages of 40-49. In addition, 47.06% are medical personnel, and 75.29% have university or higher-level education. 24.12% of participants had chronic diseases such as hypertension, diabetes, cardiovascular disease, while 34.71% reported smoking. 33.53% of participants went to work every day, 52.35% worked flexible hours, and 14.12% did not go to work. The ratio of people who had 20 years of age and under in their household is 53.53%, and the ratio of people who had 65 years of age and over in their household is 7.06%, and the ratio of those who had both in their household is 19.41% (Table 1).

**Table 1.** Socio-demographic characteristics

<b>Variables</b>	<b>n</b>	<b>%</b>
<b>Gender</b>		
Female	107	62.94
Male	63	37.06
<i>Total</i>	170	100.00
<b>Age</b>		
28-39	59	34.71
40-49	66	38.82
50-59	36	21.18
≥ 60	9	5.29
<i>Total</i>	170	100.00
<b>Profession</b>		
Health professions	80	47.06
Non-health professions	90	52.94
<i>Total</i>	170	100.00
<b>Education Level</b>		
Primary education (elementary, middle school)	13	7.65
High school	29	17.06
Bachelor's degree	86	50.59
Master's degree	42	24.70
<i>Total</i>	170	100.00
<b>Chronic Disease</b>		
Yes	41	24.12
No	129	75.88
<i>Total</i>	170	100.00
<b>Smoking Status</b>		
Yes	59	34.71
No	111	65.29
<i>Total</i>	170	100.00
<b>Working status during the pandemic period</b>		
Goes to work every day	57	33.53
Goes to work in shifts	89	52.35
Not going to work	24	14.12
<i>Total</i>	170	100.00
<b>Household individuals (aged ≥ 65 and/or ≤ 20 years)</b>		
Both live	33	19.41
Only individuals aged ≥ 65	12	7.06
Only individuals aged ≤ 20	91	53.53
None of them	34	20.00
<i>Total</i>	170	100.00

Knowledge questions averaged  $9.35 \pm 1.02$ , and 92.35% of participants answered at least 8 out of 10 questions correctly. 60.59% of participants of the study answered all knowledge questions correctly. The lowest correctly answered knowledge propositions were 'Those who are sick and have no symptoms can transmit the virus' (86.47%), 'There is no vaccine for the virus' (88.82%), and 'The virus will not be transmitted from pets to humans' (74.71%).

The level of knowledge compared between occupational groups shown that 80% of those who are health personnel have a complete level of knowledge, while other occupational personnel has 43.33% of complete knowledge ( $\chi^2=23.846$ ,  $p<0.001$ ). 80.95% of those with a graduate-level of education had a complete level of knowledge, while 23.10% of those with a primary education degree had a complete level of knowledge ( $\chi^2_{\text{trend}}=19.452$ ,  $p<0.001$ ). There were no statistically significant differences in the level of knowledge compared to gender, age, smoking status, and the presence of chronic disease (Table 2).

**Table 2.** Respondents' knowledge towards the COVID-19 by certain characteristics

Variables	Full Knowledge Level		Lacking Knowledge Level		$\chi^2$	p
	n	%	n	%		
<b>Gender</b>						
Female	68	63.55	39	36.45	0.753	0.385
Male	35	55.56	28	44.44		
Total	103	60.59	67	39.41		
<b>Age</b>						
28-39	37	62.71	22	37.29	4.852	0.183
40-49	44	66.67	22	33.33		
50-59	19	52.78	17	47.22		
≥ 60	3	33.33	6	66.67		
Total	103	60.59	67	39.41		
<b>Profession</b>						
Health professions	64	80.00	16	20.00	<b>23.846</b>	<b>p&lt;0.001</b>
Non-health professions	39	43.33	51	56.67		
Total	103	60.59	67	39.41		
<b>Education Level*</b>						
Primary education (elementary, middle school)	3	23.08	10	76.92	<b>19.452*</b>	<b>p&lt;0.001*</b>
High school	12	41.38	17	58.62		
Bachelor's degree	54	62.79	32	37.21		
Master's degree	34	80.95	8	19.05		
Total	103	60.59	67	39.41		
<b>Chronic disease</b>						
Yes	20	48.78	21	51.22	2.537	0.111
No	83	64.34	46	35.66		
Total	103	60.59	67	39.41		
<b>Smoking status</b>						
Yes	32	54.24	27	45.76	1.146	0.284
No	71	63.96	40	36.04		
Total	103	60.59	67	39.41		

\* The chi-square test for trend value.

Attitudes towards COVID-19 of participants were evaluated; 54.71% of respondents believe that COVID-19 will be successfully controlled in our country, while 25.30% believe that it will be successfully controlled all over the world. Those who do not believe that COVID-19 will end when the weather warms up makeup 90.59% of the entire group. Although 39.41% took precautions, they thought that they would catch the disease if they were destined, while 99.41% said that almost all the group believed that hand cleaning and hygiene rules were important in controlling the pandemic (Table 3).

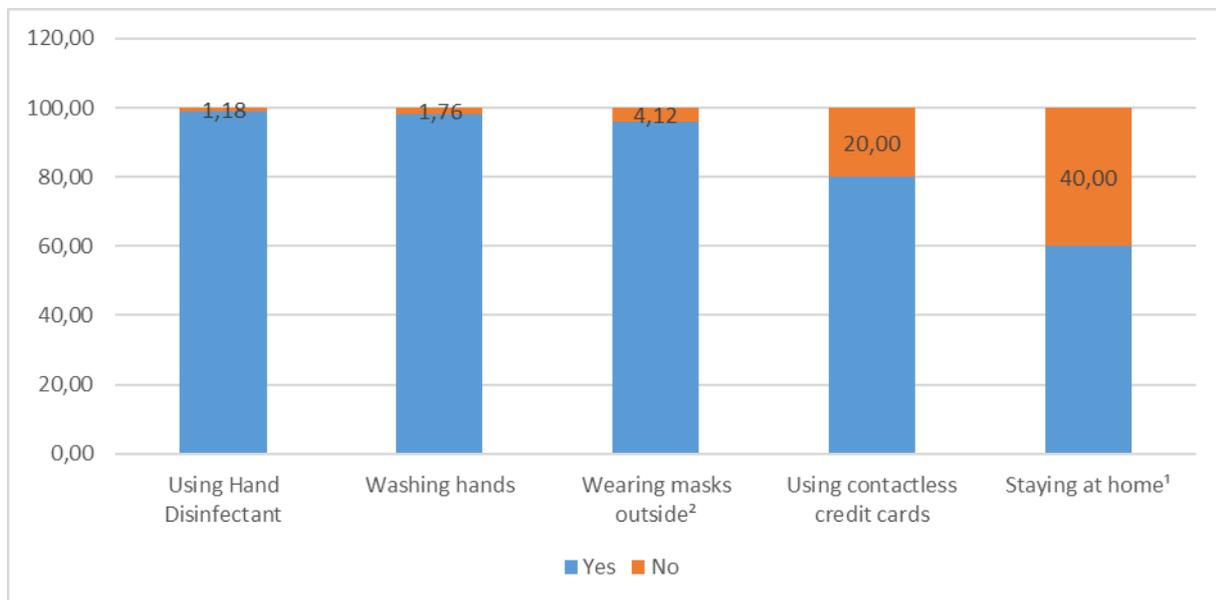
**Table 3.** Respondents' attitudes about the COVID-19

Attitude propositions	Yes	No	I do not know
	n (%)	n (%)	n (%)
I think the COVID-19 will be successfully controlled in Turkey	93 (54.71)	45 (26.47)	32 (18.82)
I think the COVID-19 will be successfully controlled in the whole world	43 (25.30)	78 (45.88)	49 (28.82)
I think that the COVID-19 will go away when the weather gets warmer	4 (2.35)	154 (90.59)	12 (7.06)
I may get the COVID-19 no matter how many measures I take if it is the call of fate	67 (39.41)	73 (42.94)	30 (17.65)
I believe hand hygiene and hygiene, in general, are essential in controlling the outbreak	169 (99.41)	1 (0.59)	0 (0.00)

21.50% of women and 31.75% of men stated that they believe that a pandemic will be successfully controlled all over the world. This difference between the sexes is statistically significant ( $\chi^2=6.657$ ,  $p=0.036$ ).

As the level of education increased, those who thought they would get the disease, no matter how many measures they took, significantly decreased statistically ( $\chi^2_{trend}=5.726$ ,  $p=0.011$ ).

The most common practices on protection against COVID-19 were ensuring hand hygiene and wearing masks outside. Besides, practice levels of participants were grouped as complete, correct practice and at least one incorrect practice for comparisons between variables. According to this, 47.64% of participants exhibited exactly the correct practice, while 52.35% engaged in at least one incorrect practice (Figure 1).



**Figure 1.** Distribution of practices of respondents towards COVID-19 (%)

<sup>1</sup> Not going out unless necessary.

<sup>2</sup> Always wear a mask outside.

Compared to the level of practice relative to occupational groups, 58.75% of health personnel had the exact correct level of practice, while 37.78% of personnel from other occupational groups showed the exact right practice ( $\chi^2=7.468$ ,  $p=0.006$ ). 55.14% of women and 34.92% of men showed the exact right practice ( $\chi^2=6.499$ ,  $p=0.011$ ). 23.08% of those with a primary education degree showed complete practice, while 37.93% of high school degree, 46.51% of bachelor's degree and 64.29% of those who had a master's degree showed the exact right practice. As the education level of participants increased, their frequency of right practice also increased ( $\chi^2_{\text{trend}}=8.566$ ,  $p=0.003$ ). There were no statistically significant differences in the level of practice compared to age, smoking status, and the presence of chronic disease.

For protection measures from Covid-19, 68.22% of women and 46.03% of men did not go out unless it was mandatory ( $\chi^2=8.137$ ,  $p=0.004$ ). 99.07% of women and 90.48% of men stated that 'I always wear a mask when going out', the difference between the sexes was statistically significant. ( $p=0.011$ ). 87.50% of health personnel and 73.33% of those from other occupational groups stated that they used a contactless credit card when shopping ( $\chi^2=4.464$ ,  $p=0.035$ ) (Table 4).

**Table 4.** Adopting the right practices about the covid-19 by certain characteristics (%)

Variables	Staying at home <sup>a</sup>		Wearing masks outside <sup>b</sup>		Washing hands		Using contactless credit cards		Using Hand Disinfectant	
	n	%	n	%	n	%	n	%	n	%
<b>Gender</b>										
Female	73	68.22	106	99.07	106	99.07	85	79.44	105	98.13
Male	29	46.03	57	90.48	61	96.83	51	81.95	63	100.00
Total	102	60.00	163	95.88	167	98.24	136	80.00	168	98.82
<b><math>\chi^2</math> and/or p</b>	<b>8.137 0.004</b>		<b>0.011*</b>		0.556*		0.002 0.968		0.531*	
<b>Profession</b>										
Health professions	53	66.25	79	98.75	79	98.75	70	87.50	80	100.00
Non-health professions	49	54.44	84	93.33	88	97.78	66	73.33	88	97.78
Total	102	60.00	163	95.88	167	98.24	136	80.00	168	98.82
<b><math>\chi^2</math> and/or p</b>	2.459 0.117		0.122*		1.000*		<b>4.464 0.035</b>		0.499*	

\* Fisher Exact Test

<sup>a</sup> Not going out unless necessary.

<sup>b</sup> Always wear a mask outside.

## Discussion

In this study, KAP of personnel serving in Ankara Provincial Health Directorate were evaluated about COVID-19 infection, which is on the front burner around the world due to the pandemic.

It is known that women are the majority among the personnel working in the DHS in Ankara. As an occupational group, it was found that while most women are medical personnel, men are more from other occupational (support services) groups. In addition, although not statistically significant, in accordance with the literature, it was found that women were found to have a higher level of COVID-19 complete knowledge than men.<sup>9,10</sup> In our study, the most important reasons for this situation, it was found that women's education level and the percentage of being a health worker were higher than men's.

It was observed that the study group's knowledge level was high compared with certain studies.<sup>11-14</sup> However, this high knowledge level was found to be incompatible with some studies.<sup>15,16</sup> The reasons for high knowledge level can be explained through;  $\frac{3}{4}$  of the group have an educational level of the university, and higher education, about half of them were medical personnel and other occupational groups were working in the health services,

and the survey was conducted approximately ten months after the announcement of the pandemic, and informative sources were increasing due to most of the scientific studies being completed.

However, we can say that there is a lack of knowledge about the risk of transmitting the COVID-19 and the lack of a vaccine at that time. It has been found that contradictory news about vaccine studies in the written and visual media has caused hesitation in this regard. But the continuing question marks about the transmission of COVID-19 are worrisome.

Although most participants answered correctly on the knowledge question about the COVID-19 cannot be transmitted through pets<sup>17</sup>, compared to the other questions, it was the least answered one. This finding contradicts the findings of Wahed et al.<sup>18</sup>. This has been attributed to the fact that in Egypt, the first case of COVID-19 was confirmed on February 14, and the study was conducted in May.

Although at the time of the study, the lack of a vaccine for COVID-19 is also less known than other knowledge questions, the question was mostly answered correctly, contrary to Wahed et al.'s findings.<sup>18</sup> However, this finding was found to be compatible with the current study.<sup>19,20</sup>

Most personnel, contrary to Olum et al.'s findings, stated that people infected with COVID-19 who do not have symptoms still have the ability to infect others.<sup>21</sup> However, in line with the findings of Olum et al., most of the participants correctly answered the proposition that 'Children and young adults are not required to take measures to prevent the transmission of the COVID-19' by marking the wrong option.<sup>21</sup>

Significant differences in knowledge levels were found between those who were medical personnel and those from other occupations. Bhagavathula et al.'s worldwide studies<sup>22</sup> and Roupa et al.'s studies in Cyprus<sup>23</sup>, found doctors had more accurate knowledge compared to other auxiliary medical personnel. Moreover, in our study, it was found that the level of knowledge also increased as the level of education increased, in line with other certain studies.<sup>13,23,24</sup> This has been interpreted that people with high levels of education have more experience accessing information from national and international sources and have a higher capacity to accurately analyze the information they receive.

A good level of knowledge is a necessary condition for being able to show a positive attitude and exhibit positive practice. In our study, although not statistically significant as the level of knowledge increased, the frequency of showing exactly the correct practice also increased. Zhang et al.'s study found that<sup>25</sup>, the increase in the level of knowledge of health personnel affected the positive attitude that they would defeat the virus, and Kassie et al.'s<sup>13</sup> study found that those with a good level of knowledge had a more positive attitude.

Almost all of our study group stated that similar to Oguzoncul et al.'s study<sup>26</sup>, and they wash hands frequently and correctly to protect from COVID-19, while the study of Vatan et al.<sup>27</sup> had a lower ratio due to the fact that the survey was conducted in April.

About half of participants have a positive attitude that COVID-19 will be taken under control in our country, while  $\frac{1}{4}$  think it will be taken under control around the world. This may be due to the fact that every country will not be able to acquire the vaccine once the vaccine research is completed because of socioeconomic inequality in the world. The studies found the belief that countries can overcome COVID-19 was higher, and other medical personnel had a more positive attitude to this issue than doctors.<sup>18,28,29</sup> In our study, there was no significant difference between the attitudes of medical personnel and other personnel, while it was observed that women had a more positive attitude than men by gender.

The majority do not believe that COVID-19 will end when the weather warms up. It is believed that the reason for this is that the study was conducted in the last months of 2020, and people witnessed an increase in the outbreak in the summer.

A deterministic approach is important because it can lead people not to comply with protective measures. 'No matter how many precautions I take, I can get the disease if it is in my destiny' in the form of a deterministic approach, in our study group was found at a rate that cannot be underestimated. But as the level of education increased, this approach was seen to decrease. In this finding, it has been observed that the findings are similar to Sirin et al.'s.<sup>30</sup>

Almost all of the personnel believed that consistent with Olum et al.'s<sup>21</sup> and Huynh et al.'s<sup>11</sup> findings, hand cleaning and hygiene rules were important in controlling the pandemic.

Although the study was conducted at a time when wearing a mask outside was mandatory, it is worth noting that a considerable amount of people was not wearing a mask. Besides, it is an important outcome in our study that women are more sensitive than men in respecting wearing masks outside and not going out unless necessary.

### *Limitations*

The samples in our study cannot be generalized to the public, as only the personnel of the provincial health directorate in Ankara constitute it. But thanks to the high participation rate, it is believed that similar results will be achieved in other provincial directorates of the health authority, which have similar characteristics. In this context, KAP research and result-oriented intervention studies can be carried out in provincial administrations affiliated with the health authority in the country.

In general, KAP studies were conducted on healthcare personnel working in a hospital. Our study differed due to the selection of the DHS in Ankara, which includes both healthcare professionals and other occupational groups. By doing that, it was possible to examine the approach of not only health workers but also those with non-health professions. Of course, even if they are from a non-health professional group, it is also expected that they will have input on health issues due to their work in a health institution.

### *Conclusions*

In our study, it was found that the level of knowledge of the personnel of the DHS in Ankara was high. However, when participants were grouped, a significant difference was found between health professionals and non-health professionals regarding the level of COVID-19 knowledge. It has been shown that non-health professionals have a lower level of displaying the correct practice. During this period, we are faced with a significant public health threat, a pandemic, all health professionals and non-health professionals working in health-related units in the provinces take on responsibilities that are of great importance in controlling the disease, such as filiation in the field, working as a call receptionist in the COVID-19 hotline which was set up at the beginning of the pandemic period. For these reasons, against public health threats like the COVID-19 pandemic, health professionals and non-health professionals should be trained to improve their level in KAP through in-service training programs and should be performed regularly by authorities. In addition, new evidence-based KAP researches should be carried out in order to compare the difference between the early and late periods of the pandemic.

### *Ethical considerations*

For the study, permission was obtained from the Ministry of Health. Ethics approval has been obtained from the Ethics Committee of Ankara Dr. Sami Ulus Hospital, No.E.20/10-006.

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### *Conflicts of interest*

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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