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Changes in the nutritional status of health care workers during and after the COVID-19 pandemic

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Abstract

This study examined the changes in the nutritional status of healthcare workers during and after the COVID-19 pandemic. The sample of this descriptive prospective study consisted of 597 volunteer healthcare workers in Isparta, who were selected by a random sampling method. The questionnaire comprised questions aimed at determining the healthcare workers' general information and nutritional status. Nutritional changes were assessed using a scale that ranged from "I eat less than usual" to "I eat more than usual" and "No change" on a chart containing 21 food items. The Beck Depression Inventory (BDI) was used to determine the emotional state of the healthcare workers. The statistical significance level was accepted as 0.05. BDI scores of healthcare workers were analysed, the depression status was severe during COVID-19 but decreased to mild-moderate levels after COVID-19 ($p<0.001$). The mean water consumption of healthcare workers after COVID-19 was higher than that occurred during COVID-19 ($p<0.05$). It was observed that the use of nutritional supplement by healthcare workers after COVID-19 was lower than that occurred during COVID-19. This rate decreased after COVID-19 ($p<0.001$). It was determined that there was a statistical decrease in the consumption of red meat, fish, meat products, honey, molasses, jam, chocolate and candy, pastries, cakes, cookies, fast food, carbonated drinks and energy drinks by healthcare workers after the COVID-19 pandemic ($p<0.001$). Although the COVID-19 pandemic has increased the nutritional awareness of healthcare workers and led them to eat healthy, factors such as intense working conditions, feelings of insecurity against COVID-19, and stress have negatively affected their nutritional habits.

Keywords: COVID-19 pandemic, Healthcare workers, Nutrition

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INTRODUCTION

The new type of coronavirus causing respiratory tract infection (SARS-Cov-2) pandemic, which was declared as 'COVID-19' pandemic by the World Health Organisation on February 11, 2020, started in China and affected the whole world (Şeker, et al., 2020). The global emergency ended on May 5, 2023 and it was reported that there were more than 767 million confirmed cases and more than 6.9 million deaths in the world as of 2023 (WHO, 2023).

The COVID-19 pandemic, which deeply affected healthcare systems and societies in many countries, led to an increase in psychological distress and a decrease in quality of life, especially in healthcare workers (Epifanio, et al., 2023). During the pandemic, healthcare workers confronted a myriad of challenges, including substantial workloads, profound fatigue, the potential for personal infection or the transmission to loved ones, the distressing experiences of colleagues' sickness or death, and the loss of numerous patients. Despite these formidable circumstances, healthcare workers endeavoured to manage the psychological ramifications of these distressing circumstances while maintaining their professional obligations (Mehta, et al., 2021). Furthermore, challenges such as the inability to consume nourishment, drink water, and use the toilet were encountered by healthcare workers

to mitigate the risk of infection during periods of high workload, which made this process even more difficult for healthcare workers (Polat and Coşkun., 2020).

Nutritional and other lifestyle factors have been identified as modifiable contributors to depression. However, research has indicated that depression can increase susceptibility to both overnutrition and malnutrition by influencing the quantity and quality of food intake (Esquivel, 2021). Despite the prevalence of health recommendations, including the adoption of a nutritionally balanced diet, maintenance of a healthy body weight, engagement in regular physical activity, and adequate sleep, individuals experiencing high food insecurity during the pandemic placed a higher priority on acquiring sustenance, rather than on the prevention of starvation. Consequently, individuals frequently purchased processed, long-shelf-life, and cost-effective foods, despite the potential for restricting access to essential foods and beverages (Naja and Hamadeh., 2020; Oliveira, et al., 2020). Healthy lifestyle behaviours such as maintaining healthy eating habits and participating in physical activity have been associated with higher quality of life among healthcare workers and indirectly affect the improvement of quality of care and professional performance (Shenkman, et al., 2023). The COVID-19 pandemic had profound effects on the psychological health of healthcare workers and caused nutritional problems as a result of working under intense stress (Oliveira, et al., 2020).

In this study, it was aimed to examine the changes in the nutritional status of healthcare workers during and after the COVID-19 pandemic.

MATERIALS AND METHODS

This descriptive prospective study comprised 597 volunteer healthcare workers working in Isparta, who were selected by a random sampling method. As a result of the statistical G*power analysis, it was determined that at least 594 healthcare workers should be included in the study within the 95% confidence interval. Healthcare workers included in the study during the COVID-19 pandemic were reached also after the COVID-19 pandemic (at least three months after the end of the pandemic) and the same questionnaire was applied face-to-face again. The Ethics Committee approval was obtained and The Helsinki Declaration Protocols (World Medical Association) were followed in the study. Before starting the study, healthcare workers were informed about the study, and a written consent form was obtained from those who voluntarily wanted to participate in the study. Healthcare workers employed in departments not involved in the management of the pandemic were excluded from the study.

The questionnaire form consisted of questions to determine the general information (marital status, disease status, and smoking status) and nutritional status of healthcare workers. Nutritional changes were evaluated using a scale that ranged from ‘I eat less than usual’ to ‘I eat more than usual’ and ‘No change’ on a chart including 21 food items. The Beck Depression Inventory (BDI), which was developed by Beck et al. in 1988 and the validity and reliability of which were established by Ulusoy et al. in 1998, was applied to determine the emotional state of healthcare workers. The BDI, which was used to determine the frequency of depression symptoms experienced by healthcare workers, is a self-report Likert-type scale consisting of 21 items. The items in the scale are scored between 0 and 3 (0=none, 1=mild, 2=moderate, and 3=severe). Severity is evaluated as ‘0-9=minimal’, ‘10-16=mild’, ‘17-29=moderate’, and ‘30-63=severe’ (Beck, et al., 1988; Ulusoy, et al., 1998).

The data were analysed using IBM SPSS Statistics 26 (IBM, Armonk, NY, USA). In data evaluation, the Dependent Sample T Test was used to determine whether there was a difference between water consumption measurements during and after COVID-19, and the McNemar Test was used to determine whether there was a difference between dietary patterns during and after COVID-19**.** The statistical significance level was accepted as 0.05.

RESULTS AND DISCUSSION

It was observed that there was a statistically significant difference in the disease status, smoking status, and BDI scores of healthcare workers during and after COVID-19 ($p<0.05$). While there was no significant change in the disease rates of healthcare workers after COVID-19 compared to the disease rates during COVID-19, smoking rate in women decreased after COVID-19. When the BDI scores of healthcare workers were analysed, the depression status was severe during COVID-19 but decreased to mild-moderate levels after COVID-19 (Table 1).

The impact of the COVID-19 pandemic on the health of the general population and healthcare workers has been examined by various researchers (Umbetkulova, et al., 2024; Blasco-Belled, et al., 2022). In a systematic review of longitudinal studies by Umbetkulova et al. (2024), it was found that there the mental health of healthcare workers (women, young people, nurses, frontline workers, those with long working hours and those who were worried about catching the disease) declined over time in 12 publications out of 18, and in 6 studies, there was a positive trend (supportive environment, access to psychological resources, provision of adequate personal protective equipment and insomnia, etc.) associated with various mental health problems (anxiety, depression, insomnia, etc.). A positive trend (a supportive environment, access to psychological resources, provision of adequate personal protective equipment and availability of COVID-19 tests) associated with various mental health problems (anxiety, depression, insomnia, etc.) has been reported (Umbetkulova, et al., 2024). In addition to stress

factors and demographic variables during COVID-19, lifestyle factors such as nutrition, physical activity, smoking, and alcohol consumption have also been reported to be important for mental health (Jin, et al., 2024; Maffoni, et al., 2021). In this study, it was determined that the disease status, smoking status, and depression status of healthcare workers were affected during and after COVID-19, and there were significant changes in water consumption, nutritional supplement use status, reason for using nutritional supplement, and the number of snacks consumed. Nutrition, lack of physical activity, smoking, and excessive alcohol use are intervenable risk factors of chronic diseases (Hacker, 2024). In this study, when the presence of obesity, type 2 diabetes mellitus, hypertension, hyperlipidaemia, ulcer-gastritis, intestinal diseases, and iron deficiency anaemia related to nutrition of healthcare workers was questioned, it was observed that they all increased after the COVID-19 pandemic period compared to the COVID-19 period. In another study conducted during COVID-19, it was found that 80.5% of healthcare workers did not have any chronic diseases (Ertal, 2021). It was posited that the mental and physical problems experienced due to the COVID-19 pandemic increased the incidence of these diseases in healthcare workers.

Avoiding smoking and minimising stress are also recommended (Gençalp, 2020). In this study, it was found that smoking behaviour was affected during and after COVID-19 and smoking behaviour decreased in women ($p<0.05$). A body of research has indicated that the COVID-19 pandemic has exerted a disparate impact on smoking behaviour, manifesting as either an increase or a decrease in smoking prevalence among individuals (Bar-Zeev, et al., 2023; Papakala, et al., 2023). It was reported that there was an increase in the stress level of 59% of the healthcare workers during COVID-19 and this increase also increased the smoking rate and 35% of the then-current smokers smoked more cigarettes (Bar-Zeev, et al., 2023). In another study, it was reported that there was a significant decrease in the smoking habits of healthcare workers, and this decrease was significantly lower among those who experienced high/severe job-related burnout (Papakala, et al., 2023). It is imperative to raise awareness among healthcare workers and the general public regarding smoking cessation during pandemic processes.

Table 1. Distribution of Healthcare Workers' Disease Status, Smoking Status, and Beck Depression Inventory Scores During and After COVID-19.

	Female (n=467)				**Male (n=130)**				**Total (n=597)**			
	During COVID-19		**After COVID-19**		**During COVID-19**		**After COVID-19**		**During COVID-19**		**After COVID-19**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Disease status												
No	350	74.9	271	58.0	106	81.5	77	59.2	456	76.4	348	58.3
Obesity	31	6.6	88	18.8	15	11.5	39	30.0	46	7.7	127	21.3
Ulcer - Gastritis	11	2.4	16	3.4	3	2.3	4	3.1	14	2.3	20	3.4
Type 2 Diabetes	22	4.7	31	6.6	0	0.0	2	1.5	22	3.7	33	5.5
Hypertension	12	2.6	13	2.8	0	0.0	0	0.0	12	2.0	13	2.2
Anaemia	10	2.1	11	2.4	6	4.6	7	5.4	16	2.7	18	3.0
Hyperlipidaemia	24	5.1	30	6.4	0	0.0	1	0.8	24	4.0	31	5.2
Intestinal Diseases	7	1.5	7	1.5	0	0.0	0	0.0	7	1.2	7	1.2
McNemar Test; p	**0.000***				**0.000***				**0.000***			
Smoking Status												
No, I never smoked	95	20.3	96	20.6	39	30.0	39	30.0	134	22.4	135	22.6
I used to smoke, I quit	88	18.8	107	22.9	34	26.2	35	26.9	122	20.4	142	23.8
Yes, I still smoke	284	60.8	264	56.5	57	43.8	56	43.1	341	57.1	320	53.6
McNemar Test; p	**0.000***				0.564				**0.000***			
Beck Depression Inventory												
Minimal	0	0.0	33	7.1	0	0.0	8	6.2	0	0.0	41	6.9
Mild	18	3.9	75	16.1	2	1.5	27	20.8	20	3.4	102	17.1
Moderate	49	10.5	222	47.5	7	5.4	54	41.5	56	9.4	276	46.2
Severe	400	85.7	137	29.3	121	93.1	41	31.5	521	87.3	178	29.8
McNemar Test; p	**0.000***				**0.000***				**0.000***			

*p<0.001, p=Significance level

It was reported that there were significant psychological changes (sadness, distress, and irritability) associated with tobacco use and physical activity changes during the first quarantine at the beginning of the COVID-19 pandemic, and tobacco consumers experienced more psychological distress (sadness and stress) than their non-tobacco consuming colleagues (Mounir, et al., 2021). In this study, it was observed that while the depression status

was severe during COVID-19, which decreased to mild-moderate levels after COVID-19. In a study conducted in March-April 2020 at the beginning of the COVID-19 pandemic, it was reported that the health-related anxiety and depression scores of female healthcare workers were higher than those of male healthcare workers (Yıldırım, et al., 2020). In a study conducted by Kolcu and Başer Kolcu (2021) among medical students, it was determined that the participants experienced high levels of anxiety about the transmission of coronavirus to themselves and their family members (Kolcu and Başer Kolcu, 2021). The COVID-19 pandemic has negatively affected both the physical and mental health of healthcare workers and the hypothesis is that it has resulted in a substantial elevation in anxiety levels.

It was observed that there was a statistically significant difference in the water consumption, nutritional supplement use status, reason for using nutritional supplement, and the number of snacks consumed during and after COVID-19 ($p<0.05$). Accordingly, the mean water consumption of healthcare workers after COVID-19 was higher than that occurred during COVID-19 ($p<0.05$). It was observed that the use of nutritional supplement by healthcare workers after COVID-19 was lower than that occurred during COVID-19. This rate decreased after COVID-19. Regarding the number of snacks consumed by healthcare workers, while the rate of consuming 3 or more snacks was high during COVID-19, this rate decreased after COVID-19, but healthcare workers did not give up their 3-snack habits (Table 2).

Water consumption is an important element in adequate and balanced nutrition. In the stress management of frontline healthcare workers exposed to COVID-19, it was stated that adequate water consumption (at least 2.5 litres for men and at least 2 litres for women) should be consumed against thirst. Additionally, fruit juices without added sugar, tea, and fruits and vegetables with high water content are recommended as water sources (Maffoni, et al., 2021). In this study, water consumption of healthcare workers after COVID-19 was found to be higher than that occurred during COVID-19 ($p<0.05$).

It has been reported that the Mediterranean diet may prevent mood disorders and manage stress. In addition, intake of micronutrients, especially folate zinc, magnesium, and selenium, may prevent stress by positively affecting mood and mental health (Maffoni, et al., 2021). According to the United States Food and Drug Administration, a dietary supplement is a non-drug product designed to supplement the diet with one or more of vitamins, minerals, plants, and amino acids. Some dietary supplements may alter the absorption, metabolism, or excretion of a drug, so they should be used with caution (Kolcu and Başer Kolcu, 2021). In this study, it was observed that the use of dietary supplements by healthcare workers after COVID-19 was lower than their use during COVID-19 (Table 2). In a study, it was reported that 55.3% of healthcare workers personally used nutritional supplement during the pandemic, and vitamin C was the most commonly used nutritional supplement with a rate of 81.3% (FDA, 2024). This result suggested that healthcare workers utilised nutritional supplements to protect themselves against COVID-19.

In the case of COVID-19, it has been stated that the purpose of nutrition is to reduce infection and disease progression while improving the disease course; therefore, it is critical for healthcare workers to understand the role of nutrition to protect their health and reduce the risk of disease (Lee, et al., 2021). Skipping meals is not among the nutritional recommendations given for stress management in frontline healthcare workers exposed to COVID-19 (Maffoni, et al., 2021). In this study, it was determined that healthcare workers consumed at least 3 snacks during COVID-19, and it was observed that this number decreased after COVID-19.

It was observed that there was a statistically significant difference in the consumption rates of red meat, chicken and turkey, fish, meat products, eggs, legumes, bread, vegetables, fruits, honey, molasses, jam, chocolate and confectionery, sweets, pastries, cakes, cookies, fast food, coffee, carbonated drinks and energy drinks during and after COVID-19 ($p<0.05$). Accordingly, while bread and chicken/turkey consumption did not change during COVID-19, it increased after COVID-19. While fish consumption did not change during COVID-19, it decreased after COVID-19. While egg, vegetable, and fruit consumption decreased during COVID-19, this rate increased after COVID-19. Consumption of red meat, honey, molasses, jam, chocolate and confectionery, pastries, cakes, cookies, and fast food increased during COVID-19 and decreased after COVID-19. Dessert consumption increased during and after COVID-19. Consumption of legumes, coffee, carbonated drinks, and energy drinks did not change during COVID-19; however, it decreased after COVID-19 (Table 3).

A previous study indicated that daily nutrition exerts a significant influence on the health of healthcare workers, particularly during the intervention period when workload is elevated and physical and mental fatigue is prevalent. The study also noted the occurrence of certain nutritional concerns, including energy intake imbalances and excessive consumption of fat and salt in the meals provided to healthcare workers during the course of the pandemic (Jaggers, et al., 2020; Zhang, et al., 2020). Macronutrients (protein, carbohydrate, and lipid) and micronutrients (vitamins, minerals, bioactive peptides, and phytochemicals) that the body needs to maintain health and protect against diseases including COVID-19 should be taken through food (Zhang, et al., 2020). In this study, it was determined that there were statistically significant differences in the consumption of red meat, chicken and turkey, fish, meat products, eggs, legumes, bread, vegetables, fruits, honey, molasses, jam, chocolate and confectionery, sweets, pastries, cakes, cookies, fast food, coffee, carbonated drinks and energy drinks by healthcare workers during and after the COVID-19 pandemic ($p<0.001$). It was determined that there was a statistical decrease

in the consumption of red meat, fish, meat products, honey, molasses, jam, chocolate and candy, pastries, cakes, cookies, fast food, carbonated drinks and energy drinks by healthcare workers after the COVID-19 pandemic ($p<0.001$) (Table 3). In a study, it was found that there were negative changes in the food consumption of healthcare workers with a high level of burnout, whereas there were positive changes in food consumption frequencies in terms of healthy nutrition in those with moderate and lower level burnout (Chaari, et al., 2020). In another study, it was reported that 40.5% of individuals increased their consumption of cereals and 53% increased their consumption of fruits and vegetables (Erzurum Alim, et al., 2022). Adequate and balanced nutrition, which constitutes an optimally functioning immune system, when supported by healthy dietary choices and informed food choices, can contribute to the development of a better immune response to other pathogenic viruses and microorganisms. This, in turn, can offer benefits in the prevention of infection and complications from COVID-19.

Table 2. Distribution of Water Consumption, Nutritional Supplement Use, Reason for Nutritional Supplement Use, Number of Main Meals Consumed, and Number of Snacks Consumed by Healthcare Workers During and After COVID-19.

	Female (n=467)				**Male (n=130)**				**Total (n=597)**			
	During COVID-19		**After COVID-19**		**During COVID-19**		**After COVID-19**		**During COVID-19**		**After COVID-19**	
	Mean ± SD	**Median (Min-Max)**	**Mean ± SD**	**Median (Min-Max)**	**Mean ± SD**	**Median (Min-Max)**	**Mean ± SD**	**Median (Min-Max)**	**Mean ± SD**	**Median (Min-Max)**	**Mean ± SD**	**Median (Min-Max)**
Water Consumption (ml/day)	1542.61 ± 455.72	1600 (800-2600)	1744.33 ± 457.81	1800 (800-2800)	1476.92 ± 473.40	1400 (800-3000)	1681.54 ± 472.95	1600 (1000-3200)	1528.31 ± 460.03	1400 (800-3000)	1730.65 ± 461.48	1600 (800-3200)
T Test; p	**0.000***				**0.000***				**0.000***			
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Use of nutritional supplements												
Yes	441	94.4	158	33.8	121	93.1	48	36.9	562	94.1	206	34.5
No	20	4.3	305	65.3	9	6.9	82	63.1	29	4.9	387	64.8
Sometimes	6	1.3	4	0.9	0	0.0	0	0.0	6	1.0	4	0.7
McNemar Test; p	**0.000***				**0.000***				**0.000***			
Reason for using nutritional supplements												
To stay healthy	136	30.4	77	47.5	35	28.9	24	50.0	171	30.1	101	48.1
To not feel tired	2	0.4	5	3.1	2	1.7	8	16.7	4	0.7	5	2.4
For adequate and balanced nutrition	77	17.2	39	24.1	17	14.0	0	0.0	94	16.5	47	22.4
To strengthen the immune system	232	51.9	41	25.3	67	55.4	16	33.3	299	52.6	57	27.1
McNemar Test; p	**0.000***				**0.030****				**0.000***			
Number of main meals consumed												
1	41	8.8	38	8.1	18	13.8	18	13.8	59	9.9	56	9.4
2	118	25.3	123	26.3	27	20.8	27	20.8	145	24.3	150	25.1
≥3	308	66.0	306	65.5	85	65.4	85	65.4	393	65.8	391	65.5
McNemarTest; p	0.129				1.000				0.129			
Number of snacks consumed												
1	8	1.7	64	13.7	4	3.1	28	21.5	12	2.0	92	15.4
2	88	18.8	147	31.5	25	19.2	40	30.8	113	18.9	187	31.3
≥3	371	79.4	256	54.8	101	77.7	62	47.7	472	79.1	318	53.3
McNemar Test; p	**0.000***				**0.000***				**0.000***			

*p<0.001, **p<0.05, p=Significance Level

Table 3. Dietary Changes Among Healthcare Workers During and After COVID-19.

Nutritional changes	During COVID-19 (n=597)						After COVID-19 (n=597)						McNemar Test; p
	I'm eating more than ever		I'm eating less than usual		No change		I'm eating more than ever		I'm eating less than usual		No change		
Food Items	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	
Milk and dairy products	237	39.7	238	39.9	122	20.4	234	39.2	253	42.4	110	18.4	0.608
Red meat	579	97.0	6	1.0	12	2.0	438	73.4	132	22.1	27	4.5	**0.000***
Chicken and Turkey	156	26.1	0	0.0	441	73.9	210	35.2	17	2.8	370	62.0	**0.000***
Fish	30	5.0	18	3.0	549	92.0	30	5.0	67	11.2	500	83.8	**0.000***
Meat products	594	99.5	0	0.0	3	0.5	373	62.5	132	22.1	92	15.4	**0.000***
Egg	23	3.9	554	92.8	20	3.4	103	17.3	461	77.2	33	5.5	**0.000***
Legumes	63	10.6	27	4.5	507	84.9	88	14.7	91	15.2	418	70.0	**0.000***
Bread	285	47.7	0	0.0	312	52.3	317	53.1	34	5.7	246	41.2	**0.000***
Cereals and Pasta	276	46.2	35	5.9	286	47.9	276	46.2	35	5.9	286	47.9	0.990
Vegetable	16	2.7	575	96.3	6	1.0	234	39.2	253	42.4	110	18.4	**0.000***
Fruit	142	23.8	422	70.7	33	5.5	438	73.4	132	22.1	27	4.5	**0.000***
Honey, molasses, jam	298	49.9	6	1.0	293	49.1	210	35.2	23	3.9	364	61.0	**0.000***
Chocolate and confectionery	277	46.4	36	6.0	284	47.6	54	9.0	75	12.6	468	78.4	**0.000***
Desserts (dairy, pastry)	280	46.9	54	9.0	263	44.1	373	62.5	145	24.3	79	13.2	**0.000***
Pastries, cakes, cookies	272	45.6	72	12.1	253	42.4	129	21.6	433	72.5	35	5.9	**0.000***
Fast-food	579	97.0	2	0.3	16	2.7	86	14.4	75	12.6	436	73.0	**0.000***
Black tea	268	44.9	16	2.7	313	52.4	273	45.7	23	3.9	301	50.4	0.435
Herbal tea	321	53.8	276	46.2	0	0.0	321	53.8	276	46.2	0	0.0	1.000
Coffee	285	47.7	6	1.0	306	51.3	259	43.4	62	10.4	276	46.2	**0.000***
Carbonated drinks	164	27.5	69	11.6	364	61.0	145	24.3	133	22.3	319	53.4	**0.000***
Energy drinks	155	26.0	24	4.0	418	70.0	116	19.4	261	43.7	220	36.9	**0.000***

*p<0.001, p=Significance level

CONCLUSION

The data obtained in this study show that the COVID-19 process affects the nutritional habits of healthcare workers. As a result, although the COVID-19 pandemic has increased the nutritional awareness of healthcare workers and led them to eat healthy, factors such as intense working conditions, feeling of insecurity against COVID-19, and stress have been observed to negatively affect their food preferences. Given the likelihood that perceptions of nutrition will be influenced during and following the post-pandemic period, it is imperative that healthcare workers and institutions implement suitable initiatives and forestall unfavourable alterations in nutritional attitudes by taking into account their requirements and available resources.

Compliance with Ethical Standards

Peer-review

Externally peer-reviewed.

Declaration of Interests

The authors certify that they have no conflicts of interest.

Author contribution

The manuscript is designed in the following manner: HB, BÇ; Acquisition of study data: HB, BÇ; Data analysis: HB, BÇ; Manuscript drafting: HB, BÇ; Content review: HB, BÇ; Version approval: HB, BÇ; Study design: HB, BÇ; Data collection: HB, BÇ; Data analysis: HB, BÇ; Draft preparation: HB, BÇ; Content review: HB, BÇ; Version approval: HB, BÇ.

Ethics committee approval

Ethical approvals and permissions were obtained in writing from Isparta Süleyman Demirel University Ethics Committee (decision 43/5 dated 24/6/2020), Ministry of Health Provincial Health Directorate (16657963-799 number dated 27/08/2020) and Süleyman Demirel University Research and Application Hospital Chief Physician (E-804.01 number dated 04/09/2020).

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