

## INVESTIGATION OF THE RELATIONSHIP BETWEEN THE FEAR EXPERIENCED BY THE FILIATION TEAMS AND THEIR PERCEPTION OF POSITIVITY AND ATTITUDES TOWARDS NURSING DURING THE COVID-19 PANDEMIC

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### Keywords

Fear of COVID-19,  
Filiation team,  
Nurse,  
Professional attitude,  
Positivity,  
Healthcare staff

### ABSTRACT

*It was aimed to investigate the relationship between the fear experienced by the members of filiation(contact tracing) teams, and their perception of positivity and attitudes towards nursing during the COVID-19 pandemic. Nurses (n=154) working in the filiation teams constituted the sample. The data were collected using the Fear of COVID-19 Scale, Positivity Scale(POS) and Attitude Scale toward Nursing Profession(ASNPN). The participating nurses had a moderate level of fear of COVID-19 and a high level of perception of positivity, and displayed positive attitudes towards nursing. Their high levels of fear of COVID-19 and positivity perception positively affected their attitudes towards the profession.*

### INTRODUCTION

COVID-19 which emerged in China for the first time in late 2019 is still an important public health problem<sup>1</sup>. The fatality rate varies between 2% and 3% worldwide, and the mortality rate increases in people in an advanced age group and in patients with an underlying disease<sup>2-6</sup>. Therefore, it is necessary for individuals of all ages to comply with the measures taken. During the pandemic, important roles and responsibilities to prevent the spread of COVID-19 and to carry out the care, treatment and filiation of individuals diagnosed with COVID-19 lie with health professionals.

The main purpose of the filiation application is to prevent the spread of the disease by revealing the causative agent and the source in the early period. During the visits, treatment, isolation and follow-up processes are determined based on the evaluation/laboratory results. Thus, asymptomatic individuals are detected early, the spread of the disease is prevented, and the success rate increases thanks to early diagnosis/treatment<sup>7</sup>.

According to the Guidelines for Combating Infectious Diseases issued by the Turkish Ministry of Health in 2017 as a circular order, filiation is carried out by health workers who perform preventive service activities in primary health care institutions and in the field. Among some of the duties of the filiation teams are contact tracing, patient education, taking blood samples for testing, initiating treatment, controlling the effectiveness of isolation, and writing disease reports<sup>8</sup>.

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According to the data released by the Turkish Ministry of Health, as of December 25, 2020, the average detection time in the contact chain of 2,118,255 confirmed cases was 10 hours, and the filiation rate reached 99.9%.

In filiation applications, in the management of the pandemic, the main human resource is the health personnel. According to the report released by the International Council of Nurses (ICN) based on the data collected from its member National Nursing Societies in May 2020, at least 90,000 healthcare workers worldwide were infected with COVID-19. According to the results of some international studies, COVID-19 cases are 12 times more widespread in healthcare workers in the USA and England, and 29% of those who are infected with COVID-19 in China are healthcare workers<sup>6,9</sup>. According to articles published in the USA and China, of the healthcare workers infected with COVID-19, 46.6% and 52% were nurses respectively<sup>10,11</sup>. According to the statement made by the Ministry of Health in October 2020, in Turkey, while the number of health workers with positive COVID-19 test was over 40,000, the number of people who lost their lives due to COVID-19 was 107.343.

The level of fear of being infected is higher among healthcare workers than in the general population. On the other hand, they mostly fear not because they will be exposed to the virus but because they might infect their family and close relations<sup>12</sup>. In various studies, it has been determined that the level of fear and anxiety of infecting family members is high among healthcare workers from China and Canada struggling with SARS<sup>13,14</sup>. According to the study on the "Map of Coronaphobia in Turkey", of the 897 healthcare professionals, 50% perceived the uncertainty of the process as worrying, 44% were worried about not having the opportunity to access adequate protective equipment, and 43% were worried about the future of their family members in case they died from COVID-19<sup>15</sup>.

It was reported that a significant portion of health workers who worked during the previous pandemics experienced deterioration in mental health, which lasted for a long time<sup>16</sup>. Past pandemic experiences and the experiences of communities affected by COVID-19 earlier indicated that interventions to protect mental health should be included in the fight against the pandemic<sup>17</sup>.

Besides mental problems, health personnel suffer from other problems during filiation

applications, which adversely affect the provision of health services. While filiation applications are carried out, several problems have arisen. For instance, filiation teams which have very wide distribution have different structures and their job descriptions are not determined based on detailed guides, team members do not have enough information about filiation, they do not have opportunity to make preliminary preparations, availability and suitability of local opportunities are not taken into account in central interventions, feedback by teams is delayed and there are differences between provinces/ districts in terms of application of filiation, communication, knowledge, skills and equipment<sup>17</sup>. Besides all these negativities, it is of great importance for health workers who play an active role during the pandemic to have a professional perspective, professional attitude and perception of positivity in terms of preventing the pandemic. In society, a person who regularly carries out a task with the least error is defined as a professional<sup>18</sup>. "Being a professional at a job" requires the person to have the ability "to understand the job down to the tiniest details" and "to be able to implement it"<sup>19</sup>.

Professional attitudes and values in nursing which provide the basis for nursing practices enable nurses to interact with individuals they care for, society and their colleagues. In a study conducted on this issue, nurses' professional values were determined as human dignity, responsibility, action taking, security and autonomy<sup>20</sup>. Within this context, nurses should be competent in all their practices, understand the philosophy of nursing, and act reasonably and ethically. Communication and empathy skills are among the factors affecting nurses' professional attitudes most. Professionalism is a dynamic process requiring effort, and it can be defined as the process in which certain values such as knowledge, autonomy, political awareness, volunteering to serve the community, conducting scientific studies, team, and organization necessary for professional identity are internalized, and all these values manifest themselves in an individual's behavior<sup>21</sup>.

Positive perception refers to an individual's perceiving himself or herself as worthy and having an internally positive view of himself or herself<sup>22</sup>. In nursing, which is a professional occupation, nurses whose positive perspective levels are high are expected to have a low level of fear, to perform their profession with self-sacrifice and awareness, and to be better at volunteering to serve the society than nurses whose positive perspective levels are low. In a study conducted throughout Turkey, fear of COVID-19 was shown to be directly related to hopelessness<sup>23</sup>.

Although health authorities around the world have made great efforts to bring the COVID-19 pandemic under control, the severe clinical course and rapid spread of the virus prolong the process and thus cause the social and psychological complexity suffered by healthcare professionals to continue. The review of the relevant literature demonstrated a gap regarding studies in which the relationship between the fear of nurses working in the filiation teams, and their perceptions of positivity and professional attitudes were investigated. Therefore, in the present study, we aimed to investigate the relationship between fear experienced by nurses working in the filiation teams during the COVID-19 pandemic, and positivity and professional attitude. Accordingly, determining the views and thoughts of nurses working in the filiation teams about the pandemic and their fears and concerns about catching COVID-19 is thought to shed light both on their adaptation to the working environment and motivation to work hard and on the determination of the precautions to be taken in the working environments.

## MATERIALS AND METHOD

### *Type of the study*

The study is a descriptive cross-sectional study.

### *Location, duration and sample of the study*

The study was carried out in Kayseri and Sivas, provinces located in the central and eastern regions of Turkey respectively. While there are 43 filiation teams affiliated to the Sivas Provincial Health Directorate, the number of filiation teams affiliated to the Kayseri Provincial Health Directorate varies between 180 and 190 depending on the case density. Each of the filiation teams consists of 2-3 health workers.

The population of the study consisted of 500 nurses working in the filiation teams of Sivas and Kayseri Provincial Health Directorates. Of the nurses working between 15 July and 15 September 2020, those to be included in the study sample were determined using the random sampling method. The minimum sample size was calculated as 174 by using the following formula used to calculate the sample size with a finite population:  $n = Nt^2pq / (N-1)d^2 + t^2pq$  ( $N = 500$ ,  $p = 0.50$ ,  $q = 0.50$ ,  $d = 0.06$ ,  $t = 1.96$ ). Of 174 nurses, 20 were not reached; thus, the study was completed with 154 nurses who volunteered to participate in

the study. Of them, 39 were from Sivas and 115 were from Kayseri.

### *Data collection tools*

The Descriptive Information Form, Fear of COVID-19 Scale, Positivity Scale (POS) and Attitude Scale toward Nursing Profession (ASNP) were used as data collection tools.

*Descriptive Information Form:* The form developed by the researchers reviewing the literature consists of 26 items in three parts<sup>15,24</sup>. In the first part of the form, there are 10 items questioning the sociodemographic characteristics of the healthcare professionals such as age, sex, marital status, family type, economic status, health status, etc. The nine items in the second part question the healthcare professionals' working environment-related characteristics (length of service in nursing, unit they work in, caring for a patient diagnosed with COVID-19). The seven items in the third part question the participants' COVID-19 pandemic-related characteristics (fear of being diagnosed with COVID-19, fear of giving care to a patient with COVID-19, measures taken against the COVID-19 pandemic, etc.).

*Fear of COVID-19 scale:* The scale was developed by Ahorsu et al.<sup>25</sup> The validity and reliability study of the Turkish version of the scale was performed by Satici et al.<sup>26</sup> The 7-item Fear of COVID-19 Scale is a one-dimensional scale. Responses given to the items are rated on a 5-point Likert-type scale. The Cronbach's alpha internal consistency coefficient of the scale was 0.88 in Satici et al.'s study and 0.89 in the present study. The minimum and maximum possible scores to be obtained from the scale are 7 and 35 respectively. The higher the score obtained from the scale is the higher the level of fear of COVID-19 is.

*Attitude scale toward nursing profession (ASNP):* The scale developed by Coban et al. is used to assess attitudes towards nursing<sup>27</sup>. ASNP consists of the following three sub-dimensions: characteristics of the nursing profession, preference for nursing, and attitudes towards the general status of nursing. The Cronbach's alpha coefficient of the scale was 0.91 Coban et al.'s study and 0.88 in the present study. The ASNP is comprised of 40 items. Each item is rated on a 5-point Likert-type scale ranging from 1 to 5. Of the items, 21, 23, 25, 26, 28, 30, 34, and 38 are reverse scored. The minimum and maximum possible scores to be obtained from the

ASNP are 40 and 200 respectively. A score over 120 indicates that the person displays positive attitudes towards nursing. A score of  $\geq 54$  obtained from the characteristics of nursing sub-dimension,  $\geq 39$  obtained from the preferring nursing sub-dimension, and  $\geq 27$  obtained from the general status of nursing sub-dimension indicate that the person displays positive attitudes towards the relevant sub-dimension.

**Positivity scale (POS):** The Positivity Scale was developed by Caprara et al. to assess a view of one's self, one's life, and one's future<sup>28</sup>. The validity and reliability of the Turkish version of the POS was performed by Cikrikci et al.<sup>29</sup>. The scale will measure individuals' self (Items 5, 7 and 8), their future expectations (Items 1, 4, and 6), their perception of confidence in other people (Item 3) and their satisfaction with life (Item 2) in order to determine the positive attitudes of individuals. The internal consistency coefficient of the POS was calculated as 0.75 in Caprara et al.'s study and 0.73 in the present study. The Positivity Scale consists of eight items, one of which is reverse scored (Item 6). Responses given to the items are rated on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The lowest and highest possible scores to be obtained from the POS are 8 and 40 respectively. The higher the score is the higher the person's level of perception of positivity is.

### **Implementation of the study**

Before the study was conducted, the ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee (numbered 2020-08/13, dated August 12, 2020). Then, institutional permissions were obtained from Sivas Provincial Health Directorate and Kayseri Provincial Health Directorate. The study was carried out between July 15, 2020 and September 15, 2020. The researchers administered the questionnaires and scales to the nurses working in the filiation teams online. In order to administer the Fear of COVID-19 Scale, POS and ASNP in the present study, permissions were obtained from the authors who performed the Turkish validity and reliability studies of the scales by e-mail. The administration of the online questionnaires was carried out by sending a link to the nurses working in the filiation teams via social media (WhatsApp). In the link sent to the nurses, a brief explanation about the study was given to the participating nurses and they were asked to fill in the consent forms indicating that they volunteered to participate in the study. In order to ensure the accuracy of the

information given by the nurses participating in the study and to protect the confidentiality of their identity information, they were asked not to write their names in the online form and scales.

### **RESULTS**

As is seen in Table 1, the mean age of the nurses participating in the study was  $37.98 \pm 7.57$  years (21-52 years). Of them, 64.9% were women, 83.8% were married, 95.5% had a nuclear family, 13.6% had a chronic illness, 1.3% had a chronic psychiatric illness, and 13% had a phobia affecting their life. As for the working environment-related characteristics of the participants, 72.1% had more than 10 years of service in nursing, 70.1% worked in shifts, 57.1% considered the personal precautions taken against the COVID-19 pandemic in the institution they worked in as adequate, but 53.9% considered the general measures taken against the COVID-19 pandemic in the institution where they worked in as inadequate (Table 1).

As is seen in Table 2, of the nurses participating in the study, 97.4% were afraid of losing their loved ones due to COVID-19, 60.4% had someone diagnosed with COVID-19 in their family/immediate circle, 21.4% had someone in their family/immediate circle who died due to COVID-19, 70.8% were afraid of being diagnosed with COVID-19, 57.1% were afraid of meeting/caring for a patient with a diagnosis of COVID-19, and 53.2% were considering getting a COVID-19 vaccine (Table 2).

As is seen in Table 3, the mean score the participants obtained from the Fear of COVID-19 Scale was  $19.12 \pm 7.22$ , which indicates that their COVID-19 fear level was moderate. Their mean score for the POS was  $27.7 \pm 5.35$  indicating that their perception of positivity level was high. Their mean score for ASNP  $163.77 \pm 15.92$  which indicates that they displayed a positive attitude towards nursing (Table 3).

As is seen in Table 4, there was a positive and weak correlation between the mean scores the nurses obtained from the Fear of COVID-19 Scale, and Characteristics of Nursing sub-dimension of the ASNP ( $r = .246$ ;  $p = .002$ ). The result of the Linear Regression Analysis also demonstrated that the nurses' fear of COVID-19 accounted for their attitudes towards the characteristics of nursing by 4.2% ( $R = .205$ ,  $R^2 = .042$ ,  $F(1, 152) = 6.701$ ,  $p = .011$ ). There was a positive, weak significant correlation between the mean scores the nurses obtained from the POS and overall

ASNP( $r=.359$ ;  $p=.000$ )(Table 4).The result of the Linear Regression Analysis also showed that the positivity levels of nurses significantly accounted for their attitudes towards the nursing profession by 14.4% ( $R= .380$ .  $R^2=.144$ .  $F(1,15) =25.646$ .  $p=.000$ ).

As is seen in Table 5, of the participants, those who were women, those who were  $\geq 41$  years old, those who had income less than their expenses, and those who had a chronic psychiatric illness obtained statistically significantly higher scores from the Fear of COVID-19 Scale ( $p<.05$ ). Of the participants, those whose income was higher than their expenses obtained statistically significantly higher scores from the Positivity Scale ( $p<.05$ ). Of the participants, those whose income was equal to their expenses obtained

significantly higher scores from the overall ASNP ( $p<.05$ ).

Of the participants, those who considered the general and personal precautions taken in the institution they worked in against the pandemic as adequate obtained higher scores from the POS and ASNP ( $p<.05$ ). Of the participants, those who had a fear of losing their loved ones due to COVID-19, those who had a fear of being diagnosed with COVID-19, those who had a fear of meeting/ caring for a patient diagnosed with COVID-19, and those who considered having the COVID-19 vaccine obtained statistically significantly higher scores from the Fear of COVID-19 Scale ( $p<.05$ ). Of the participants, those who considered having the COVID-19 vaccine obtained significantly higher scores from the ASNP ( $p<.05$ ) (Table 5).

**Table 1.** Participating nurses' sociodemographic and working environment-related characteristics (n=154)

Sociodemographic Characteristics	Number (n)	Percentage (%)
<b>Age</b> [Mean $\pm$ SD (min-max)] = [37.98 $\pm$ 7.57 (21-52) years]		
21-30 years old	33	21.4
31-40 years old	61	39.6
$\geq 41$ years old	60	39.0
<b>Sex</b>		
Women	100	64.9
Men	54	35.1
<b>Marital status</b>		
Married	129	83.8
Single	25	16.2
<b>The number of children</b>		
None	31	20.1
1	25	16.2
$\geq 2$	98	63.7
<b>Family type</b>		
Nuclear family	147	95.5
Extended family	7	4.5
<b>Family income status</b>		
Income less than expenses	36	23.4
Income equal to expenses	102	66.2
Income more than expenses	16	10.4
<b>Presence of a chronic illness</b>		
Yes	21	13.6
No	133	86.4
<b>Presence of a chronic psychiatric illness</b>		
Yes	2	1.3
No	152	98.7
<b>Presence of phobia affecting life</b>		
Yes	20	13.0
No	134	87.0
<b>Length of service in nursing (years)</b>		
<1	7	4.5
1-5	18	11.7
6-10	18	11.7
$\geq 10$	111	72.1
<b>Type of Work Schedule</b>		
Shifts	108	70.1
Daytime	46	29.9
<b>Are personal measures taken against the COVID-19 pandemic in the institution worked in are adequate?</b>		
Adequate	88	57.1
Inadequate	66	42.9
<b>Are general measures taken against the COVID-19 pandemic in the institution worked in are adequate?</b>		
Adequate	71	46.1
Inadequate	83	53.9

**Table 2.** Participating nurses' covid-19 pandemic-related characteristics (n=154)

Characteristics	Number (n)	Percentage (%)
<b>Fear of losing loved ones due to COVID-19</b>		
Yes	150	97.4
No	4	2.6
<b>Having a family member or someone in the immediate circle diagnosed with COVID-19</b>		
Yes	93	60.4
No	61	39.6
<b>Having a family member or someone in the immediate circle who died due to COVID-19</b>		
Yes	33	21.4
No	121	78.6
<b>Fear of being diagnosed with COVID-19</b>		
Yes	109	70.8
No	45	29.2
<b>Fear of meeting/caring for a patient diagnosed with COVID-19</b>		
Yes	88	57.1
No	66	42.9
<b>Considering getting a COVID-19 vaccine</b>		
Yes	82	53.2
No	72	46.8

**Table 3.** Mean score the participants obtained from the Fear of COVID-19 Scale, Positivity Scale (POS) and Attitude Scale toward Nursing Profession (ASNP) and the sub-dimensions of the ASNP.

Scales and sub-dimensions	N	The number of the items	Min.-Max.	Median	Mean±SD
Fear of COVID-19 Scale	154	7	7-35	18	19.12±7.22
Positivity Scale	154	5	13-40	28	27.7±5.35
Attitude Scale toward Nursing Profession Total	154	40	116-191	166	163.77±15.92
Characteristics of nursing sub-dimension	154	18	46-90	86	83.03±8.04
Preferring nursing sub-dimension	154	13	22-65	47	47.20±9.51
General status of nursing sub-dimension	154	9	26-39	34	33.53±2.74

**Table 4.** Relationship between the mean scores the participants obtained from the Fear of COVID-19 Scale, Positivity Scale (POS) and Attitude Scale toward Nursing Profession (ASNP) and the sub-dimensions of the ASNP

Scales and sub-dimensions		1	2	3	4	5
1- Fear of COVID-19 Scale	<i>r</i> <sup>a</sup>	-				
	<i>P</i>					
2- Positivity Scale total	<i>r</i> <sup>a</sup>	-.027	-			
	<i>P</i>	.739				
3- Characteristics of nursing sub-dimension	<i>r</i> <sup>a</sup>	.246*	.315**	-		
	<i>P</i>	.002	.000			
4- Preferring nursing sub-dimension	<i>r</i> <sup>a</sup>	-.036	.313**	.342**	-	
	<i>P</i>	.658	.000	.000		
5- General status of nursing sub-dimension	<i>r</i> <sup>a</sup>	.098	.158*	.443**	.347**	-
	<i>P</i>	.225	.050	.000	.000	
6- Attitude Scale toward Nursing Profession Total	<i>r</i> <sup>a</sup>	.106	.359**	.694**	.863**	.595**
	<i>P</i>	.189	.000	.000	.000	.000

\* Pearson's correlation analysis was applied, \**p* < .005, \*\**p* < .001.

**Table 5.** Comparison of the mean scores the participants obtained from the Fear of COVID-19 Scale, Positivity Scale (POS) and Attitude Scale toward Nursing Profession (ASNP).

		<b>FCV-19S Total Mean±SD</b>	<b>POS Total Mean±SD</b>	<b>ASNP Total Mean±SD</b>
<b>Age</b>				
	N			
21-30 years old	33	15.87±6.40	26.90±5.381	160.18±14.683
31-40 years old	61	19.78±6.88	28.36±5.263	164.13±16.718
≥41 years old	60	20.23±7.58	27.68±5.438	165.38±15.701
Test value		<sup>a</sup> F=4.483	<sup>a</sup> F=.804	<sup>a</sup> F=1.164
Significance level		p=.013	p=.449	p=.315
Difference		3-2>**		
<b>Sex</b>				
Women	100	20.40±7.53	27.35±5.47	164.51±14.16
Men	54	16.75±6.00	28.59±5.05	162.40±18.82
Test value		<sup>b</sup> t=3.276	<sup>b</sup> t=-1.379	<sup>b</sup> t=.718
Significance level		p=.001*	p=.170	p=.175
<b>Marital status</b>				
Married	129	19.15±7.19	28.20±5.16	164.70±16.12
Single	25	18.96±7.53	25.64±5.85	158.96±14.19
Test value		<sup>b</sup> t=.123	<sup>b</sup> t=2.038	<sup>b</sup> t=1.660
Significance level		p=.902	p=.051	p=.099
<b>The number of the children</b>				
None	31	16.77±6.61	25.90±5.21	158.90±14.89
1	25	20.08±7.55	29.72±3.96	165.44±13.29
2	71	19.53±7.53	28.05±5.52	166.23±15.76
≥3	27	19.85±6.56	27.44±5.68	161.33±18.71
Test value		<sup>a</sup> F=1.417	<sup>a</sup> F=2.540	<sup>a</sup> F=1.868
Significance level		p=.240	p=.059	p=.138
<b>Family type</b>				
Nuclear family	147	19.33±7.11	27.80±5.27	164.09±15.98
Extended family	7	14.71±8.76	27.28±7.27	157.00±13.89
Test value		<sup>b</sup> t=1.661	<sup>b</sup> t=.252	<sup>b</sup> t=1.153
Significance level		p=.099	p=.801	p=.251
<b>Length of service in nursing (years)</b>				
<1	7	14.85±6.61	24.85±6.71	152.28±19.41
1-5	18	17.77±7.14	28.11±4.83	166.55±13.32
6-10	18	18.33±7.10	29.00±4.63	162.11±15.02
>10	111	19.73±7.25	27.72±5.44	164.31±16.10
Test value		<sup>a</sup> F=1.370	<sup>a</sup> F=1.036	<sup>a</sup> F=1.521
Significance level		p=.254	p=.378	p=.211
<b>Type of Work Schedule</b>				
Shifts	108	19.25±7.08	27.57±5.41	165.00±15.61
Daytime	46	18.82±7.63	28.28±5.21	160.89±16.44
Test value		<sup>b</sup> t=.332	<sup>b</sup> t=-.751	<sup>b</sup> t=1.471
Significance level		p=.740	p=.454	p=.143
<b>Family income status</b>				
Income less than expenses	36	20.30±8.13	25.13±6.00	163.52±16.86
Income equal to expenses	102	19.55±6.96	28.46±4.93	164.18±15.62
Income more than expenses	16	13.68±4.04	29.43±4.60	161.68±16.52
Test value		<sup>a</sup> F=5.494	<sup>a</sup> F=6.402	<sup>a</sup> F=8.765
Significance level		p=.005	p=.002	p=.000
Difference		1-2>3**	3>1-2**	3>1-2**

<b>Presence of a chronic illness</b>				
Yes	21	19.61±8.540	27.19±7.37	159.52±17.39
No	133	19.04±7.03	27.87±4.98	164.44±15.64
Test value		<sup>b</sup> t=.337	<sup>b</sup> t=-.414	<sup>b</sup> t=-1.319
Significance level		p=.737	p=.683	p=.189
<b>Presence of a chronic psychiatric illness</b>				
Yes	2	23.50±0.70	23.50±4.94	177.50±2.12
No	152	19.06±7.25	27.84±5.34	163.59±15.95
Test value		<sup>b</sup> t=5.740	<sup>b</sup> t=-1.231	<sup>b</sup> t=1.229
Significance level		p=.002*	p=.430	p=.221
<b>Presence of phobia affecting life</b>				
Yes	147	19.90±8.14	26.90±6.62	158.35±17.33
No	7	19.00±7.10	27.91±5.15	164.58±15.61
Test value		<sup>b</sup> t=.514	<sup>b</sup> t=-.793	<sup>b</sup> t=-1.641
Significance level		p=.608	p=.429	p=.103
<b>Are personal measures taken against the COVID-19 pandemic in the institution worked in are adequate?</b>				
Adequate	88	18.13±6.18	29.28±4.97	166.28±15.16
Inadequate	66	20.43±8.29	25.78±5.21	160.42±16.40
Test value		<sup>b</sup> t=-1.895	<sup>b</sup> t=4.229	<sup>b</sup> t=2.291
Significance level		p=.061	p=.000*	p=.023*
<b>Are general measures taken against the COVID-19 pandemic in the institution worked in are adequate?</b>				
Adequate	71	18.98±6.26	29.45±4.63	167.60±13.93
Inadequate	83	19.24±8.00	26.36±5.53	160.49±16.84
Test value		<sup>b</sup> t=-.222	<sup>b</sup> t=3.718	<sup>b</sup> t=2.825
Significance level		p=.825	p=.000*	p=.005*
<b>Fear of losing loved ones due to COVID-19</b>				
Yes	150	19.38±7.14	27.76±5.36	163.92±15.95
No	4	9.50±2.38	28.75±5.50	158.00±15.64
Test value		<sup>a</sup> t=2.755	<sup>a</sup> t=-.364	<sup>a</sup> t=.733
Significance level		p=.001*	p=.716	p=.464
<b>Having a family member or someone in the immediate circle diagnosed with COVID-19</b>				
Yes	93	19.53±7.54	27.64±5.74	161.78±17.17
No	61	18.49±6.72	28.00±4.72	166.80±13.38
Test value		<sup>a</sup> t=.899	<sup>a</sup> t=-.401	<sup>a</sup> t=-1.929
Significance level		p=.382	p=.689	p=.059
<b>Having a family member or someone in the immediate circle who died due to COVID-19</b>				
Yes	33	19.53±7.54	27.64±5.74	161.78±17.17
No	121	18.49±6.72	28.00±4.72	166.80±13.38
Test value		<sup>a</sup> t=.785	<sup>a</sup> t=-.180	<sup>a</sup> t=.412
Significance level		p=.434	p=.857	p=.681
<b>Fear of being diagnosed with COVID-19</b>				
Yes	109	21.98±6.30	27.85±5.362	165.27±15.84
No	45	12.20±3.85	27.62±5.37	160.13±15.69
Test value		<sup>a</sup> t=9.674	<sup>a</sup> t=.243	<sup>a</sup> t=1.836
Significance level		p=.000*	p=.808	p=.068



**Fear of meeting/caring for a patient diagnosed with COVID-19**

Yes	88	22.45±6.54	28.26±5.00	165.46±14.22
No	66	14.68±5.53	27.15±5.75	161.51±17.80
Test value		<sup>a</sup> t=7.783	<sup>a</sup> t=1.276	<sup>a</sup> t=1.530
Significance level		p=.000*	p= .204	p=.128

**Considering getting a COVID-19 vaccine**

Yes	82	20.54±6.80	27.81±5.12	166.60±15.42
No	72	17.50±7.40	27.75±5.62	160.54±15.97
Test value		<sup>a</sup> t=2.663	<sup>a</sup> t=.077	<sup>a</sup> t=2.395
Significance level		p=.009*	p=.938	p=.018*

\*ANOVA Analysis of Variance, <sup>b</sup> t test in independent groups, \*p < .05

## DISCUSSION

In our study, we investigated the relationship between the fear experienced by the nurses working in the filiation teams during the COVID-19 pandemic, and their perception of positivity and their attitudes towards nursing. We noticed that the female nurses had a higher level of fear of COVID-19 than did the male nurses. According to Caliskan et al.'s study conducted with nursing students (2021), the female students experienced a higher level of fear of COVID-19 than did the male students, consistent with our study<sup>30</sup>. In a study conducted at Cukurova University in Turkey, the female health workers had higher levels of a fear of COVID-19 than did the male health workers, and the female nurses suffered from mental disorders more than did all the other health professionals. In the same study, the mean fear, anxiety and depression scores were significantly higher in women than were those in men<sup>31</sup>. According to another study conducted in China, nurses were affected more negatively in this process than were other occupational groups<sup>16</sup>.

The majority of the nurses participating in the present study worked in shifts and their length of service in nursing was more than 10 years, and while the majority of these nurses did not consider the general measures taken against the COVID-19 pandemic in their institution as adequate, more than half of them considered personal precautions as inadequate. According to the results of a study conducted with healthcare workers working in an emergency department in our country, Turkey, the rate of participants considering the measures taken against COVID-19 at the social level as sufficient was low, which was consistent with the results of our study<sup>32</sup>. In a study conducted in China, challenges faced by healthcare workers during the COVID-19 pandemic were due to inadequate personal protective equipment<sup>4</sup>.

In another study conducted with healthcare professionals from different branches, the lack of appropriate personal protective equipment was identified as a source of concern among them<sup>33</sup>. In our study, those who regarded the measures as adequate had positive perceptions of positivity and attitudes towards nursing.

In our study, the difference between the nurses' scores they obtained from the Fear of COVID-19 Scale in terms of the variables such as losing their loved ones due to COVID-19, being diagnosed with COVID-19, meeting/caring for a patient diagnosed with COVID-19, and getting a COVID-19 vaccine was significantly high (p<.005). It is thought that one of the leading reasons for this fear is that COVID-19 infection is most common among healthcare workers. In a study in which the data on approximately two million non-healthcare workers and approximately 100 thousand healthcare professionals in the USA and the United Kingdom were analyzed, COVID-19 was 12 times more widespread in healthcare workers<sup>9</sup>. According to the publications made in the early period of the pandemic in China, 29% of the patients with COVID-19 were healthcare workers<sup>6</sup>. In an article published in the USA, of the patients with COVID-19, 9.6% were healthcare workers and 46.6% of those healthcare workers were nurses<sup>10</sup>. In an article published in China, of 2457 healthcare workers who had COVID-19, 52% were nurses<sup>11</sup>. In our study, the majority of the participants had a family member/ someone in their immediate circle diagnosed with COVID-19, and they had a fear of losing their relatives due to COVID-19. Because of this fear, most of them were afraid of meeting/caring for a patient with a diagnosis of COVID-19, and they considered getting a COVID-19 vaccine.

Those who considered being vaccinated against COVID-19 obtained higher scores from the ASN (p<0.005). Similarly, a large majority of the participants in a study conducted in our country

had COVID-19-related concerns<sup>32</sup>. In their study, Shanafelt et al. stated that many healthcare professionals were very worried about being infected with COVID-19, and that they were most worried about spreading the virus to their relatives and vulnerable individuals in the hospital or community<sup>33</sup>. In studies conducted in India and Egypt, the majority of the participants had concerns about being infected with COVID-19, and they were worried about infection<sup>34,35</sup>. In some studies conducted in China, the psychological effects of the COVID-19 pandemic were more severe in healthcare workers<sup>6</sup>. In a study, of the nurses, 36.3% read books on mental health, 50.4% performed self-coping activities mentioned in social media, and 17.5% received professional psychological support after the onset of the COVID-19 pandemic<sup>36</sup>.

In a study conducted with health personnel working in emergency health services in our country, approximately one quarter of the participants had contact with patients with COVID-19<sup>32</sup>. This situation can also cause health professionals to feel unsafe and fearful, and affect their perception of positivity and attitudes towards nursing<sup>37</sup>. In this context, a positive and statistically significant relationship was determined between the positivity perception levels of the nurses participating in the present study and their choosing nursing as a profession, which can be explained by their knowledge and experience levels. Similarly, in a study conducted in China, 92% of the healthcare workers did not think of quitting their job during the COVID-19 process<sup>38</sup>. However, to determine the level of this rate in our country, more studies should be conducted. In a study in which the mood and burnout levels of health professionals working in intensive care units during the COVID-19 process in our country were investigated, the occupational group whose level of positive mood was the highest was nurses in the comparison made according to the professions of health workers<sup>39</sup>. In the study conducted by Kale & Cicek (2015), unlike the aforementioned study, nurses were asked about their perceptions of metaphors regarding their profession and it was determined that most of them produced analogies with negative meanings about their professions and they were generally dissatisfied with their profession<sup>40</sup>.

In our study, there was a positive relationship between the participating nurses' level of fear of COVID-19 and their attitudes towards the characteristics of nursing. This finding can be attributed to the effect of their professional identities. This professional commitment can also be associated with the fact that nurses constitute

a professional group that plays a vital role in society, and that they perform their tasks based on the principle of saving many patients, especially during crisis. According to Caliskan et al.'s study conducted with nursing students (2021), as the level of fear of COVID-19 increased, so did the level of positive attitude they displayed towards the general status of nursing<sup>30</sup>. The reason for this difference between our study and the other studies can be attributed to the differences between the samples. Consistent with this finding of our study, in the literature, it is reported that in individuals with stronger tendency towards professional values, the frequency of displaying caring behaviors is higher<sup>41</sup>. In international publications which support our findings, it is indicated that lack of motivation, work pressures, challenges nurses face while they care for patients can affect their perceptions of professional values while they perform their duties<sup>42,43</sup>.

One of the factors affecting professional attitude, perception of positivity and fear of COVID-19 is individuals' perceived income status. In our study, of the participants, those who stated that their income was less than their expenses experienced fear more ( $p < .005$ ). On the other hand, individuals who perceived their income higher than their expenses had a higher level of perception of positivity ( $p < .005$ ). Within this context, it can be stated that the COVID-19 infection has also caused individuals to have economic concerns.

In conclusion, the COVID-19 fear levels of the nurses participating in our study were moderate, and their positivity perception levels were high. The fear of COVID-19 had a positive effect on the participants' attitudes towards nursing, and encouraged them to get vaccination against COVID-19, but almost half of them still did not think of being vaccinated against COVID-19. The positivity perception levels of the participants also positively affected their attitudes towards nursing. While of the participants, those who had a good income level and who considered the personal measures, and general measures taken by the institution had perceptions in favor of positivity, those who had the fear of being diagnosed with COVID-19, who cared for patients with a diagnosis of COVID-19, who had the fear of losing their loved ones, and who had close relatives with a diagnosis of COVID-19 had higher levels of fear of COVID-19.

In line with these results, it is recommended that;

- occupational health and safety of the nurses in the filiation teams should be ensured by providing them with protective equipment against COVID-19, and strategies encouraging those in the filiation teams to be vaccinated should be developed
- to help nurses overcome their fears and anxieties, psychological support units should be established in health institutions and they should be given more in-service training on stress coping techniques
- nurses' working conditions should be reorganized during the pandemic, factors causing fear in the workplace should be eliminated, and their motivation and social integration should be improved.

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