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Healthcare Professionals' Intention to Accept The COVID-19 Vaccine and Their Fear of COVID-19: A Cross-Sectional Study

Sağlık Çalışanlarının COVID-19 Aşısını Kabul Etme Niyeti ve COVID-19 Korkusu: Kesitsel Çalışma

ABSTRACT

Objective:

The COVID-19 vaccine is among the important factors contributing to combating the COVID-19 pandemic. The aim of this study is to evaluate the factors affecting the intention of healthcare professionals (HCPs) to accept the COVID-19 vaccine and its relationship with the fear of COVID-19.

Material and Methods:

This research is a cross-sectional study. Data were obtained by electronic survey. Three hundred forty HCPs completed the Fear of COVID-19 Scale, Participants' Working Conditions and the COVID-19 and Influenza Vaccination Status Questionnaire, and the Intention to Accept the COVID-19 Vaccination Questionnaire.

Results:

Gender, profession, working in the surgical unit, having chronic illnesses, needing psychological support/psychiatric treatment affected the fear of COVID-19. It has been furthermore observed that there are numerous factors influencing the intention to accept the COVID-19 vaccine. It has taken attention that HCPs are affected from negative opinions of scientists in the media about the vaccine has taken attention.

Conclusion:

It is recommended that similar studies be conducted in a multicenter setting to evaluate the factors affecting the intention of HCPs to accept the vaccine after the COVID-19 pandemic.

Key Words:

Occupational health, COVID-19 vaccine, Healthcare professionals,
Fear of COVID-19, Cross-sectional studies

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ÖZ

Amaç:

COVID-19 aşısı, COVID-19 salgınıyla mücadeleye katkı sağlayan önemli faktörler arasında yer almaktadır. Bu çalışmanın amacı, sağlık çalışanlarının COVID-19 aşısını kabul etme niyetini etkileyen faktörleri ve bunun COVID-19 korkusu ile ilişkisini değerlendirmektir.

Gereç ve Yöntemler:

Bu araştırma kesitsel bir çalışmadır. Veriler elektronik anket yoluyla elde edilmiştir. Üç yüz kırk sağlık çalışanı COVID-19 Korkusu Ölçeği, Katılımcıların Çalışma Koşulları ve COVID-19 ve Grip Aşısını Yaptırma Durumu Anketi ile COVID-19 Aşısını Kabul Etme Niyeti Anketini doldurmuştur.

Bulgular:

Cinsiyet, meslek, cerrahi ünite de çalışma, kronik hastalık sahibi olma, psikolojik destek/psikiyatrik tedaviye ihtiyaç duyma durumu COVID-19 korkusunu etkilemiştir. Ayrıca COVID-19 aşısını kabul etme niyetini etkileyen çok sayıda faktörün olduğu da gözlemlenmiştir. Sağlık çalışanlarının, medyada yer alan bilim insanlarının aşıyla ilgili olumsuz görüşlerinden etkilendiği dikkat çekmiştir.

Sonuç:

COVID-19 pandemisi sonrasında sağlık çalışanlarının aşığı kabul etme niyetini etkileyen faktörlerin değerlendirilmesi amacıyla benzer çalışmaların çok merkezli olarak yapılması önerilmektedir.

Anahtar Kelimeler:

İş sağlığı, COVID-19 aşısı, Sağlık çalışanları, COVID-19 korkusu, Kesitsel çalışma

INTRODUCTION

The COVID-19 vaccine is among the important factors contributing to combating the COVID-19 pandemic. Previous studies have shown that the acceptance rate of the COVID-19 vaccine among healthcare professionals (HCPs) varies across different countries and populations. In a study of 13.426 people from 19 countries where the acceptance potential of the COVID-19 vaccine was determined, 71.5% of the participants indicated that they either "completely agree" or "somewhat agree" with the question asked (1). In another study evaluating COVID-19 vaccine acceptance among HCPs, 36% of the participants stated that they would get vaccinated immediately, 56% were unsure and would wait for review data, and 8% indicated that they would not get vaccinated (2). In one study, 77% of HCPs stated that they would accept the COVID-19 vaccine, while in another study, only 51% of HCPs stated their intention to receive a COVID-19 vaccine (3, 4). The acceptance of COVID-19 vaccines among healthcare professionals is essential for the successful implementation of vaccination programs. HCPs have a key role in the success of COVID-19 vaccination programs, and identifying

reasons for accepting or rejecting the COVID-19 vaccine on the part of HCPs can be effective in increasing vaccination rates (5). In a study in which employees of 17 health institutions were invited to receive vaccinations, 81% of the participants agreed to be vaccinated. Of those who refused, 74% declared that they would be willing to be vaccinated against COVID-19 in the future. They stated that they refused the vaccine because it was new and they did not want to be among the first to receive it, declaring also that they had insufficient time to decide (6). In a multicenter cohort study in which emergency department workers participated, 94% of the participants were advised to receive the vaccination against COVID-19, and 86% took the vaccine. The most important reasons for refusal in this study were concerns regarding the vaccine's safety, personal health status, and a prior diagnosis of COVID-19 (7). Post-vaccine adverse events, efficacy and safety, and the rapid development of the vaccine were issues that brought about hesitation (5). HCPs have been found to display vaccine hesitancy in the past as well. A qualitative study involving 65 semi-structured interviews with participants from four European countries has identified vaccine hesitancy among vaccine providers. The most important concern in all countries was fear of possible side effects of the vaccine (8).

Studies have indeed determined that HCPs display higher levels of fear of COVID-19 (9-12). Fear of COVID-19 was investigated in a study conducted three days after the World Health Organization (WHO) declared the coronavirus outbreak as a pandemic. It was found that the predictors of COVID-19 fear were health anxiety and the risk the disease held for loved ones (13). It was this fear that may have influenced individuals to accept the COVID-19 vaccine. In fact, the HCPs acceptance of the potential COVID-19 vaccine was associated with fear of COVID-19 and their previous experiences with the seasonal influenza vaccine (3). Studies have shown that individuals who received the seasonal influenza vaccine during the 2019-2020 season or considered receiving it during the 2020-2021 season had a higher intention to receive the COVID-19 vaccine (4). Similarly, the fact that nurses had been vaccinated for influenza in the last two years was among the key factors behind the desire to be vaccinated against COVID-19. In addition, gender, not having been infected with COVID-19, having a high level of knowledge about COVID-19 vaccines were other important factors (14). In another study, the main reasons individuals wanted to be vaccinated for COVID-19 were to protect themselves, their families and their patients, and to alleviate the COVID-19 pandemic (15). When the literature is examined, it can be seen that there are many factors affecting the intention of HCPs to accept the COVID-19 vaccine. This study has aimed to evaluate the factors affecting the intention of HCPs to accept the COVID-19 vaccine and its relationship with the fear of COVID-19.

MATERIAL and METHODS

Study design

This research is a cross-sectional study. The STROBE checklist was followed for the study.

Setting and sampling

The study was conducted in Akdeniz University Hospital, which serves as a tertiary and regional healthcare facility. As of January 2022, Akdeniz University Hospital provides services with 4,135 healthcare professionals. The population of the study consisted of all of the healthcare professionals employed at Akdeniz University Hospital. Fear of COVID-19 was taken as the main outcome measure in calculating sample size. The formula for calculating sample size in studies examining the mean of a given population was used (16). Using the mean score and standard deviation for fear of COVID-19 (17.72 ± 7.05) found in a previous study, the minimum sample size was calculated to be 230 at a confidence interval of 95% (17). Healthcare professionals who volunteered to participate were included in the study. The study was completed with 340 participants. The data of the study were collected between March 2022 and May 2022.

Data collection procedure

The data of the study began to be collected after a pilot study was conducted. Data were obtained by electronic survey. An electronic survey link was sent to the mobile phones of the employees who volunteered to participate in the study. The answers to all the questions in the electronic survey reached the researchers with no missing data.

Ethical approval

Institutional approvals for the conduct of the study were obtained from Akdeniz University Faculty of Medicine Clinical Studies Ethics Committee (16.03.2022/120) and from Akdeniz University Hospital. Written informed consent was received from all participants.

Outcome Measures

The data of the study were obtained with the descriptive form for participants' sociodemographic attributes, the Fear of COVID-19 Scale (FCV-19S), Participants' Working Conditions and the COVID-19 and Influenza Vaccination Status Questionnaire, and the Intention to Accept the COVID-19 Vaccination Questionnaire.

Descriptive form for participants' sociodemographic attributes: Age, gender, marital status, education, occupation, chronic diseases, psychological support/psychiatric treatment status were queried. The form was created by the researchers in line with the literature (3, 5-7, 14, 15, 17).

The Fear of COVID-19 Scale (FCV-19S): This scale was developed by Ahorsu et al., (18). In the Turkish adaptation study, Cronbach's alpha coefficient was 0.82 (19). The scale, a Likert-type instrument, is made up of 7 state-

ments. All statements are positive. As the score increases, the fear of COVID-19 rises. In this study, the Cronbach alpha coefficient was found to be 0.87.

Participants' Working Conditions and the COVID-19 and Influenza Vaccination Status Questionnaire: Participants were asked about whether they had cared for a potential or definitively diagnosed COVID-19 patient, the department they worked in, whether they had received a PCR test, whether they had been vaccinated for COVID-19 and influenza, and about their level of knowledge about the COVID-19 infection and vaccine. The form was created by the researchers in line with the literature (3, 4, 6, 10, 14, 15).

Intention to Accept the COVID-19 Vaccine Questionnaire: The factors that may have affected the participants' intention to accept the COVID-19 vaccine were determined in line with the literature (2-8, 14). Responses were received with one of the following options: "I agree, I am undecided, I do not agree."

Statistical methods

The data of the research were evaluated using the IBM SPSS 23 statistical software. The distribution of the data was evaluated with Skewness and Kurtosis and it was seen that the data were normally distributed. Descriptive statistics such as frequency, percentage, arithmetic mean and standard deviation were used in the analysis of the data. The Independent Samples Test and the One-way ANOVA test were performed to compare the means of independent groups. In order to determine the differences between groups as a post-hoc test, the Bonferroni test was applied since the variance between groups was equal. The chi-square test was used to compare the categorical data in independent groups. Assistance was received from a statistics expert from the Akdeniz University Health Sciences Institute Statistical Consultation Office in performing the statistical analysis.

RESULTS

Among the participants, 72% were female; their mean age was 35.57 ± 8.14 . Women had a greater fear of COVID-19 than men. Nurses had a greater fear of COVID-19 compared to doctors and professionals in other medical and non-medical occupations. Department secretaries had a higher level of fear of COVID-19 than doctors. In addition, those with a chronic disease and those who needed psychological support/psychiatric treatment but who were not receiving support had a higher level of fear (Table I). Those working in the Surgical Unit had a greater fear of COVID-19 than those not working in the surgical unit. Providing care to a potential or diagnosed COVID-19 patient, receiving a PCR test and being vaccinated for influenza did not affect the fear of COVID-19. Those who were undecided regarding being vaccinated for COVID-19 had a greater fear of COVID-19 than those who did not want to receive the vaccination (Table II).

Table I. Comparison of The Participants' Fear of COVID-19 with their Sociodemographic Characteristics

Variables		n	%	Mean±SD	t/F	p
Gender	Female	242	71,2	20,42±6,08	4,225	,000^a
	Male	98	28,8	17,44±5,37		
Educational status	Primary School	19	5,6	18,73±6,94	,793	,530 ^b
	High School/ Medical career college	48	14,1	18,89±4,86		
	Associate's Degree	45	13,2	19,42±6,35		
	Undergraduate	177	52,1	20,10±6,01		
	Graduate Degree	51	15,0	18,80±6,48		
Marital Status	Married	247	72,6	19,61±6,06	,203	,840 ^b
	Single	93	27,4	19,46±5,98		
Profession	Medical Doctor (1)	46	13,5	16,76±4,47	5,889	,000^b 2>1,3,6 4>1
	Nurse (2)	137	40,3	21,13±6,40		
	Other medical professions (3)	39	11,5	17,64±5,85		
	Secretary (4)	52	15,3	20,48±5,17		
	Support Staff (5)	27	7,9	19,92±6,15		
	Non-medical professions (6)	39	11,5	17,87±5,67		
The state of having a chronic disease	Yes	228	67,1	19,11±5,76	-1,979	,049^a
	No	112	32,9	20,49±6,48		
					n	%
Chronic Illnesses ^c	People with any lung disease				25	7,4
	People diagnosed with hypertension				15	4,4
	People diagnosed with depression				26	7,6
	People diagnosed with diabetes mellitus				13	3,8
	People with any thyroid gland disease				18	5,3
	People with any heart disease				14	4,1
	People with other chronic illnesses				38	11,2
		n	%	Mean±SD	t/F	p
The state of getting any psychological support/psychiatric treatment	Yes, I receive support (1)	37	10,9	21,21±6,88	7,662	,001^b 3>2
	No, I don't receive and don't need it (2)	234	68,8	18,72±5,52		
	No, I don't receive but I need it (3)	69	20,3	21,55±6,65		

Abbreviations: SD, standard deviation

^aIndependent t test^bOne-way ANOVA with post-hoc tests^cParticipants were able to tick more than one option.

The factors affecting the fear of COVID-19 and the intention to accept the COVID-19 vaccine were examined. Those who agreed with the statement "I would get vaccinated for COVID-19 because I've had the COVID-19 infection" had a higher fear of COVID-19 than those who did not. In addition, in the statement "I would not get vaccinated for COVID-19 because I've already had the COVID-19 infection," the fear of undecided participants was at a higher level than those who did not agree with the statement. Similarly, in the statement "I would not get vaccinated for COVID-19 because I think the COVID-19 vaccine may be harmful in the long term," the fear of undecided participants was higher than those who did not agree with the statement. In the statement "I do not want to get vaccinated for COVID-19 because of the negative opinions of scientists in the media about the COVID-19 vaccine," the fear of COVID-19 among those who agreed

with the statement and those who were undecided was at lower levels than those who did not agree with the statement (Table III).

The health professionals were asked about what their thoughts on getting vaccinated for COVID-19, and their responses were "Yes," "No, and "I'm undecided." This question and the variables related to the intention to accept the COVID-19 vaccine were compared. It was determined that there was a significant difference between each variable in terms of the status of thinking about getting the COVID-19 vaccination (Table IV).

Factors affecting the intention to accept the COVID-19 vaccine were as follows: the level of knowledge about the COVID-19 infection and the vaccine, receiving the influenza vaccine, a physician's recommendation, having had a

Table II. Comparison of Participants' Fear of COVID-19 with their Working Conditions Related to COVID-19 and Vaccination Status for Influenza and COVID-19

Variables		n	%	Mean±SD	t/F	p
Providing service to possible Covid-19 patients ^a	Yes	208	61,2	19,53±5,86		
	No	77	22,6	19,64±5,80	,011	,989 ^b
	Unknown	55	16,2	19,60±7,02		
Providing service to definitively Covid-19 patients ^a	Yes	171	50,3	19,54±6,05		
	No	124	36,5	19,23±5,54	,819	,442 ^b
	Unknown	45	13,2	20,57±7,19		
Working Unit ^c	Covid Clinic				25	7,4
	Covid Outpatient Clinic				11	3,2
	Covid Intensive Care Unit				10	2,9
	Surgical Outpatient Clinic				10	2,9
	Surgical Clinic				37	10,9
	Internal Medicine Outpatient Clinic				80	23,5
	Internal Medicine Clinic				97	28,5
	Intensive Care Unit				33	9,7
	Emergency Department				36	10,6
		Operating Room				27
	Administrative Units				31	9,12
	Other				45	13,2
		n	%	Mean±SD	t/F	p
Working in the COVID Unit	Yes	43	12,6	20,02±5,38		
	No	297	87,4	19,50±6,13	,525	,600 ^d
Working in the Surgical Unit	Yes	69	20,3	16,71±5,71		
	No	271	79,7	20,29±5,91	-4,533	,000 ^d
Working in the Internal Medicine Unit	Yes	156	45,9	18,95±5,09		
	No	184	54,1	20,09±6,70	-1,736	,083 ^d
Working in the Intensive Care Unit	Yes	33	9,7	19,60±6,33		
	No	307	90,3	19,56±6,01	,035	,972 ^d
Working in the Emergency Department	Yes	36	10,6	18,94±5,81		
	No	304	89,4	19,64±6,06	-,658	,511 ^d
Working in Administrative Units	Yes	31	9,1	20,80±6,79		
	No	309	90,9	19,44±5,95	1,196	,232 ^d
Working in the other units (security, laboratory, kitchen, etc.)	Yes	45	13,2	25,46±4,67		
	No	295	86,8	18,67±5,71	7,599	,000 ^d
PCR test due to suspected of COVID-19	Yes, it was done, the result was negative.	163	47,9	19,17±5,84		
	Yes, it was done, the result was positive.	24	7,1	19,95±4,90	,661	,517 ^b
	No, it was not done.	153	45,0	19,92±6,39		
Influenza vaccination status	Yes	97	28,5	18,71±5,77		
	No	243	71,5	19,91±6,11	-1,662	,097 ^d
Knowledge level about the COVID-19 infection and vaccination	Sufficient	84	24,7	18,29±6,47		
	Partially sufficient	194	57,1	20,00±5,95	2,503	,083 ^b
	Insufficient	62	18,2	19,95±5,50		
Intention to receive COVID-19 vaccination	Yes (1)	100	29,4	19,10±6,38		
	No (2)	75	22,1	18,22±6,16	4,051	,018 ^b
	Undecided (3)	165	48,5	20,46±5,64		3>2

Abbreviations: SD, standard deviation

^aPossible Covid-19 patient:

- At least one of the signs and symptoms of fever, cough, shortness of breath, sore throat, headache, muscle aches, loss of taste and smell, or diarrhea.
- The clinical picture cannot be explained by another cause/disease
- Persons in close contact with a confirmed case of COVID-19 within 14 days of onset of symptoms

^aDefinitively COVID-19 patient: Cases in which SARS-CoV-2 was detected by molecular methods from patients that fit the probable case definition,

^bOne-way ANOVA with post-hoc tests

^cParticipants were able to tick more than one option.

^dIndependent t test

Table III. Comparison of Participants' Fear of COVID-19 with their Intention of Accept to COVID-19 Vaccine

Variables about intention of accept to COVID-19 vaccine		n	%	Mean±SD	F	p ^a
If my doctor recommends the COVID-19 vaccine, I get vaccinated.	I agree (1)	152	44,7	19,77±6,25	,201	,818
	I do not agree (2)	84	24,7	19,26±6,51		
	I am undecided (3)	104	30,6	19,51±5,31		
I would get vaccinated for COVID-19 because I've had the COVID-19	I agree (1)	49	14,4	21,26±6,55	3,581	,029 1>2
	I do not agree (2)	213	62,6	18,94±5,83		
	I am undecided (3)	78	22,9	20,21±6,042		
I get vaccinated for COVID-19 if it is provided for free by the Ministry of Health.	I agree (1)	126	37,1	19,53±6,22	,529	,590
	I do not agree (2)	111	32,6	19,18±6,23		
	I am undecided (3)	103	30,3	20,02±5,59		
I get vaccinated for COVID-19 even if I have to pay for it myself.	I agree (1)	99	29,1	19,90±6,23	2,044	,131
	I do not agree (2)	148	43,5	18,84±5,98		
	I am undecided (3)	93	27,4	20,36±5,84		
I get vaccinated for COVID-19 after seeing the long-term results of the vaccine.	I agree (1)	199	58,5	20,13±5,94	2,160	,117
	I do not agree (2)	82	24,1	18,64±6,10		
	I am undecided (3)	59	17,4	18,94±6,13		
I will get vaccinated for COVID-19 if it becomes mandatory.	I agree (1)	148	43,5	19,83±5,71	,427	,653
	I do not agree (2)	120	35,3	19,16±6,35		
	I am undecided (3)	72	21,2	19,69±6,17		
I would not get vaccinated for COVID-19 because I've already had the COVID-19 infection	I agree (1)	35	10,3	20,17±7,13	3,771	,024 3>2
	I do not agree (2)	231	67,9	18,98±5,80		
	I am undecided (3)	74	21,8	21,12±5,98		
I don't have enough knowledge about the COVID-19 vaccine	I agree (1)	144	42,4	19,94±6,17	1,767	,172
	I do not agree (2)	123	36,2	18,76±6,08		
	I am undecided (3)	73	21,5	20,19±5,60		
I do not get vaccinated because I think the COVID-19 vaccines have side effects.	I agree (1)	95	27,9	20,08±6,23	,902	,407
	I do not agree (2)	138	40,6	19,05±6,03		
	I am undecided (3)	107	31,5	19,77±5,86		
I do not get vaccinated because I think the COVID-19 vaccines contain harmful substances.	I agree (1)	74	21,8	20,24±6,16	2,402	,092
	I do not agree (2)	169	49,7	18,85±5,79		
	I am undecided (3)	97	28,5	20,30±6,26		
I do not get vaccinated because I think COVID-19 infection will not cause any problems for me.	I agree (1)	31	9,1	18,93±5,53	1,057	,349
	I do not agree (2)	229	67,4	19,36±6,18		
	I am undecided (3)	80	23,5	20,40±5,77		
I do not get vaccinated because I think the COVID-19 vaccines are not effective enough.	I agree (1)	80	23,5	20,50±5,98	2,873	,058
	I do not agree (2)	167	49,1	18,78±6,15		
	I am undecided (3)	93	27,4	20,18±5,73		
"I would not get vaccinated for COVID-19 because I think the COVID-19 vaccine may be harmful in the long term	I agree (1)	97	28,5	20,05±5,92	4,183	,016 3>2
	I do not agree (2)	142	41,8	18,49±6,20		

Table III. Devamı

	I am undecided (3)	101	29,7	20,62±5,70		
I do not get vaccinated because I cannot access the COVID-19 vaccine.	I agree (1)	24	7,1	20,70±6,47		
	I do not agree (2)	259	76,2	19,16±5,98	2,473	,086
	I am undecided (3)	57	16,8	20,92±5,94		
I do not want to get vaccinated for COVID-19 because of the negative opinions of scientists in the media about the COVID-19 vaccine.	I agree (1)	75	22,1	21,02±6,03		,002
	I do not agree (2)	189	55,6	18,56±5,92	6,212	1>2
	I am undecided (3)	76	22,4	20,64±5,91		3>2
Even if the COVID-19 vaccination becomes mandatory, I would not get vaccinated.	I agree (1)	55	16,2	19,07±6,81		
	I do not agree (2)	184	54,1	19,47±5,81	,474	,623
	I am undecided (3)	101	29,7	20,00±6,02		
I don't have any opinion about the COVID-19 vaccine yet.	I agree (1)	83	24,4	20,28±6,14		
	I do not agree (2)	165	48,5	18,84±6,05	2,314	,100
	I am undecided (3)	92	27,1	20,21±5,81		

Abbreviations: SD, standard deviation

*One way ANOVA with post-hoc tests.

Table IV. Examining the Factors Affecting the Healthcare Professionals' Intention to Accept the COVID-19 Vaccine

Variables about intention of accept to COVID-19 vaccine	Intention to receive COVID-19 vaccination							
	Yes		No		Undecided		χ^2	p*
	n	%	n	%	n	%		
My level of knowledge about COVID-19 infection and vaccine								
Sufficient	35	35,0	27	36,0	22	13,3		
Partially sufficient	59	59,0	33	44,0	102	61,8	32,057	,000
Insufficient	6	6,0	15	20,0	41	24,8		
I had the influenza vaccine								
Yes	50	50,0	8	10,7	39	23,6	36,282	,000
No	50	50,0	67	89,3	126	76,4		
If my doctor recommends the COVID-19 vaccine, I get vaccinated.								
I agree	89	89,0	8	10,7	55	33,3		
I do not agree	5	5,0	49	65,3	30	18,2	174,872	,000
I am undecided	6	6,0	18	22,9	80	48,5		
I would get vaccinated for COVID-19 because I've had the COVID-19								
I agree	35	35,0	3	4,0	11	6,7		
I do not agree	52	52,0	61	81,3	100	60,6	61,455	,000
I am undecided	13	13,0	11	14,7	54	32,7		
I get vaccinated for COVID-19 if it is provided for free by the Ministry of Health.								
I agree	84	84,0	8	10,7	34	20,6		
I do not agree	9	9,0	57	76,0	45	27,3	198,355	,000
I am undecided	7	7,0	10	13,3	86	52,1		

Table IV. Devamı

I get vaccinated for COVID-19 even if I have to pay for it myself.							
I agree	64	64,0	9	12,0	26	15,8	
I do not agree	23	23,0	56	74,7	69	41,8	112,571 ,000
I am undecided	13	13,0	10	13,3	70	42,4	
I get vaccinated for COVID-19 after seeing the long-term results of the vaccine.							
I agree	31	31,0	50	66,7	118	71,5	
I do not agree	55	55,0	14	18,7	13	7,9	79,026 ,000
I am undecided	14	14,0	11	14,7	34	20,6	
I will get vaccinated for COVID-19 if it becomes mandatory.							
I agree	54	54,0	18	24,0	76	46,1	
I do not agree	40	40,0	44	58,7	36	21,8	50,791 ,000
I am undecided	6	6,0	13	17,3	53	32,1	
I would not get vaccinated for COVID-19 because I've already had the COVID-19 infection.							
I agree	6	6,0	15	20,0	14	8,5	
I do not agree	83	83,0	49	65,3	99	60,0	28,391 ,000
I am undecided	11	11,0	11	14,7	52	31,5	
I don't have enough knowledge about the COVID-19 vaccine.							
I agree	30	30,0	31	41,3	83	50,3	
I do not agree	57	57,0	31	41,3	35	21,2	36,555 ,000
I am undecided	13	13,0	13	17,3	47	28,5	
I do not get vaccinated because I think the COVID-19 vaccines have side effects.							
I agree	3	3,0	46	61,3	46	27,9	
I do not agree	78	78,0	15	20,0	45	27,3	119,949 ,000
I am undecided	19	19,0	14	18,7	74	44,8	
I do not get vaccinated because I think the COVID-19 vaccines contain harmful substances.							
I agree	2	2,0	33	44,0	39	23,6	
I do not agree	82	82,0	26	34,7	61	37,0	78,721 ,000
I am undecided	16	16,0	16	21,3	65	39,4	
I do not get vaccinated because I think COVID-19 infection will not cause any problems for me.							
I agree	3	3,0	15	20,0	13	7,9	
I do not agree	87	87,0	49	65,3	93	56,4	43,628 ,000
I am undecided	10	10,0	11	14,7	59	35,8	

Table IV. Devamı

I do not get vaccinated because I think the COVID-19 vaccines are not effective enough.								
I agree	4	4,0	37	49,3	39	23,6		
I do not agree	83	83,0	27	36,0	57	34,5	95,134	,000
I am undecided	13	13,0	11	14,7	69	41,8		
I would not get vaccinated for COVID-19 because I think the COVID-19 vaccine may be harmful in the long term.								
I agree	6	6,0	43	57,3	48	29,1		
I do not agree	74	74,0	20	26,7	48	29,1	91,003	,000
I am undecided	20	20,0	12	16,0	69	41,8		
I do not get vaccinated because I cannot access the COVID-19 vaccine.								
I agree	7	7,0	4	5,3	13	7,9		
I do not agree	85	85,0	65	86,7	109	66,1	21,320	,000
I am undecided	8	8,0	6	8,0	43	26,1		
I do not want to get vaccinated for COVID-19 because of the negative opinions of scientists in the media about the COVID-19 vaccine.								
I agree	5	5,0	34	45,3	36	21,8		
I do not agree	87	87,0	37	49,3	65	39,4	96,550	,000
I am undecided	8	8,0	4	5,3	64	38,8		
Even if the COVID-19 vaccination becomes mandatory, I would not get vaccinated.								
I agree	1	1,0	37	49,3	17	10,3		
I do not agree	89	89,0	22	29,3	73	44,2	131,317	,000
I am undecided	10	10,0	16	21,3	75	45,5		
I don't have any opinion about the COVID-19 vaccine yet.								
I agree	12	12,0	17	22,7	54	32,7		
I do not agree	71	71,0	45	60,0	49	29,7	48,680	,000
I am undecided	17	17,0	13	17,3	62	37,6		
Total	100	100	75	100	165	100		

^achi square test

previous COVID-19 infection, the availability of the vaccine through the Ministry of Health, the desire to observe long-term outcomes of the vaccine, getting the vaccine as a mandatory measure, thinking that there were harmful substances in the vaccine, thinking that the COVID-19 infection will not cause a problem for themselves, belief that

the vaccine is not effective, belief that the vaccine may be harmful in the long term, thinking that the COVID-19 vaccine is accessible, and the negative opinions of scientists in the media about the vaccine (Table IV).

DISCUSSION

According to the data obtained from our study, it is evident that the fear of COVID-19 varies depending on factors such as gender, occupation, and health status. Women have a higher level of COVID-19 fear than men. This result is an indication of the influence of gender on fear of COVID-19. It has been reported in another study conducted in Turkey that women have higher levels of COVID-19 fear than men (17). We determined in our study that nurses have a higher level of COVID-19 fear compared to doctors and other medical and non-medical professionals. Because of their direct contact with patients in providing nursing care, nurses assume a role that involves being exposed to a higher risk of infection. This may explain the higher levels of fear of COVID-19 among nurses. Additionally, it was found that department secretaries have a higher level of COVID-19 fear compared to doctors, which is an interesting finding. Considering that secretaries working in the hospitals play an effective role in the delivery of health services despite the lack of intensive patient contact, it may be considered that the concerns arising from the spread of the COVID-19 epidemic may be enhanced in this group of professionals. This also points to the fact that the risk to which HCPs are exposed may differ between occupational groups. This finding highlights the need for further research on fear of COVID-19 among different professional groups. Moreover, our study identified that individuals with chronic illnesses and those who required but were not receiving psychological support or psychiatric treatment exhibited higher levels of COVID-19 fear. This indicates that individuals with health problems experience more concerns regarding the risks associated with a pandemic. Overall, when reviewing the literature, similar studies have been found that demonstrate the influence of sociodemographic factors on COVID-19 fear, which is consistent with our findings (9, 10, 17, 20-25).

We determined in our study that the fear of COVID-19 is high among those working in the surgical units and those who are undecided about receiving the COVID-19 vaccine. The first cases of COVID-19 were seen in the Surgical Units of the Akdeniz University Hospital, where the study was carried out, and the medical teams were the first to experience the quarantine processes in these departments. This may explain the high level of fear among those working in the surgical units. Similarly, it has been determined in other studies that fear is higher in healthcare workers caring for COVID-19 cases (9, 10, 20, 21, 26). In our study, we determined that caring for a COVID-19 patient did not affect the fear of COVID-19. The reason for this may be that providing care under appropriate conditions by using the necessary protective equipment makes employees feel safe. It has been similarly determined in another study that HCPs who do not feel safe due to the pandemic have a high fear of COVID-19 (21). Also, those in our study who were undecided about receiving a COVID-19 vaccination had a greater fear of COVID-19 compared to those who were not thinking of getting vac-

inated. Other studies as well have revealed that fear of COVID-19 affects getting vaccinated (3, 20). This signals the need for educational campaigns to erase concerns about the COVID-19 vaccine and encourage acceptance of the vaccine.

The data from our study show that there are multiple factors that influence the intention to accept the COVID-19 vaccine. The literature also indicates the existence of many factors that affect the intention to accept the COVID-19 vaccine (4-8, 14, 15, 27, 28). The fact that there are multiple factors affecting the intention to accept the vaccine suggests that the opinions of HCPs may vary greatly. This implies that the training to be given to HCPs should be planned only after considering all the factors involved.

Limitations and Strengths

We lack the baseline data on the HCPs intention to accept the vaccine prior to the COVID-19 pandemic for a comparison. Additionally, the fear of COVID-19 and the intention to accept the COVID-19 vaccine among HCPs may vary over time. Due to the dynamic nature of the pandemic, fluctuations in the fear of COVID-19 may have occurred, leading to periodic changes in individuals' attitudes towards vaccination. The fact that the data for this study were obtained during periods of relatively high intensity of the pandemic can be considered among the strengths of the study. The study being conducted at a single center may have limited the generalizability of the findings. In our study, special attention was paid to vulnerable populations among healthcare workers (such as women, nurses, those working in surgical units, individuals with chronic illnesses, and those receiving psychological support/psychiatric treatment), providing an important perspective on the prioritized support for these groups. This study also includes guiding results for interventions that could increase healthcare workers' intention to accept the vaccine.

CONCLUSIONS

Our study revealed that there are numerous factors influencing the fear of COVID-19 and the intention to accept the COVID-19 vaccine among HCPs. These factors can be summarized as follows: Females compared to males; nurses compared to doctors and other medical/non-medical professionals; department secretaries compared to doctors; individuals with chronic illnesses compared to those without, individuals who require but do not seek psychological support/psychiatric treatment compared to those who do not require it; HCPs working in surgical units compared to those who are not; those who are indecisive about receiving the COVID-19 vaccine compared to those who are not thinking of getting vaccinated, have higher levels of fear of COVID-19. It has been furthermore observed that there are numerous factors influencing the intention to accept the COVID-19 vaccine. It is recommended that similar studies be conducted in a multicenter setting to evaluate the factors affecting the intention of HCPs to accept the vaccine after the COVID-19 pandemic. Additionally, considering the diverse range of factors

influencing the vaccine acceptance intention of HCPs, educational programs should be designed accordingly.

Ethical approval:

Institutional approvals for the conduct of the study were obtained from the Akdeniz University Faculty of Medicine Clinical Studies Ethics Committee (16.03.2022/120) and Akdeniz University Hospital. Written informed consent was received from all participants.

Informed Consent:

All the participants' rights were protected and written informed consents were obtained before the procedures according to the Helsinki Declaration.

Author Contributions:

Concept – HA, HO; Design - HA, HO; Supervision - HA, HO; Resources HA, HO; Materials - HA, HO; Data Collection - HO; Analysis and Interpretation - HA, HO; Literature Search - HA, HO; Writing Manuscript - HA, HO; Critical Review - HA, HO.

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Conflict of interest:

The authors declare that they have no conflict interests in this paper.

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