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Survey of COVID-19 Vaccine Hesitancy and Investigating Reasons for Vaccine Refusal Among Healthcare Professionals

Sağlık Çalışanları Arasında COVID-19 Aşı Tereddütlüğü ve Aşı Reddi Nedenlerinin Araştırılması

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Abstract

Aim Although there are many vaccine development and vaccine side-effect studies around the world, the literature on COVID-19 vaccine hesitancy and rejection is limited. We aimed to investigate the reasons for refusal of the COVID-19 vaccine and vaccine hesitancy among healthcare professionals.

Material and Method In the study, an online questionnaire was applied to healthcare workers who were not vaccinated with the full dose of COVID-19 vaccine in two pandemic hospitals.

Results A total of 74 healthcare professionals who were not fully vaccinated with the COVID-19 vaccine participated in the survey. The majority of the respondents are women (n = 49, 66.2%) and nurses (n = 35, 47.3%), and the mean age of health professionals is 32.2± 7.8 year. 55.4 % of healthcare professionals were not vaccinated against COVID-19; 44.6% had received a single dose of the COVID-19 vaccine. It was determined that 50% of healthcare workers had hesitations about the COVID-19 vaccine. 63.5% of healthcare professionals reported that they were vaccinated because they expected a different form of the current vaccine. 58.1% of healthcare professionals reported that they thought the vaccine was not necessary after infected with COVID-19.

Conclusion Measures should be taken to increase the COVID-19 immunization rates of healthcare professionals. The level of knowledge of healthcare professionals about COVID-19 vaccines should be increased. If possible, be given the opportunity to be vaccinated with different forms of COVID-19 vaccines.

Keywords COVID-19, vaccine, anti-vaccination, vaccine hesitancy, vaccine refusal.

Özet

Amaç *Dünya çapında birçok aşı geliştirme, aşı yan etki çalışmaları olmasına rağmen, COVID-19 aşı tereddüt/reddi ile ilgili literatür bilgisi sınırlıdır. Çalışmamızda sağlık çalışanlarının COVID-19 aşısını reddetme ve aşı tereddütü nedenlerini araştırmayı amaçladık.*

Gereç ve Yöntem *Çalışmada, iki pandemi hastanesinde COVID-19 aşısı ile tam doz aşılanmayan sağlık çalışanlarına yönelik çevrimiçi bir anket uygulandı.*

Bulgular *Ankete COVID-19 aşısı ile tam doz aşılanmamış toplam 74 kişi sağlık profesyoneli katıldı. Ankete katılanların büyük çoğunluğu kadın (n=49, %66,2) ve hemşirelerden (n=35, %47,3) oluşmakta olup, sağlık profesyonellerin yaş ortalaması 32,2±±7,8 yıl idi. Sağlık profesyonellerin %55,4'ü COVID-19'a karşı aşılanmamıştı, %44,6'sı tek doz COVID-19 aşısı olmuştu. Sağlık çalışanlarının %50'sinin COVID-19 aşısı konusunda tereddütü olduğu saptandı. Sağlık profesyonellerinin %63,5'i mevcut aşının farklı bir formunu bekledikleri için aşılandığını bildirdi. Sağlık çalışanlarının %58,1'i aşılı kişilerin COVID-19 ile enfekte olduktan sonra aşının gerekli olmadığı düşündüklerini bildirdi.*

Sonuç *Sağlık profesyonellerin COVID-19 bağışıklama oranlarını artıracak önlemler alınmalıdır. Sağlık profesyonellerinin COVID-19 aşıları hakkındaki bilgi düzeyi artırılmalıdır. Mümkünse COVID-19 aşılarının farklı formları ile aşılanma fırsatı verilmelidir.*

Anahtar Kelimeler *COVID-19, aşı, aşı karşıtlığı, aşı tereddütü, aşı reddi.*

INTRODUCTION

Coronavirus disease 2019 (COVID-19) was declined as a pandemic by the World Health Organization (WHO) in March 2020. To prevent its spread, vaccination studies have been started rapidly.[1] Since January 24, 2020, the University of Queensland in Australia started the COVID-19 vaccine development study, many vaccine studies continue globally.[1,2] In February 2020, the World Health Organization (WHO) announced that it does not expect a vaccine against SARS-CoV-2 to be available in less than 18 months and increasing mortality and morbidity rates led to the global application of rapid vaccination.[1,3,4] The United States Food and Drug Administration (FDA) approved the emergency use of the vaccine on December 11, while the European Medicines Agency (EMA) approved its use in member countries on December 21. The Pfizer / BioNTech vaccine was first administered in England on December 8, New York on December 14, and in European countries on December 27. At least 13 different vaccines have been administered in many countries. The Pfizer/ BioNtech Comirnaty, the SII/Covishield and AstraZeneca/AZD1222, The Janssen/Ad26.COV 2.S, The Moderna COVID-19 vaccine (mRNA 1273), the Sinopharm COVID-19 and The Sinovac-CoronaVac vaccines are listed in WHO listed for Emergency Use Listing (EUL) vaccines.[5]

In Turkey healthcare professionals (HCPs) who are at the forefront of the fight against COVID-19 are the priority group for the COVID-19 vaccine, and inactivated Sinovac vaccination started with this group first. The logistics management of cold chain materials such as vaccines, antiserum, syringes, and transport containers used in preventive health services in Turkey is carried out by the Vaccine/Antiserum Logistics Unit of the Ministry of Health, General Directorate of Public Health, Department of Vaccine-Preventable Diseases. All purchased vaccines are analyzed by the Turkish Medicines and Medical Devices Agency of the Ministry of Health and offered for use after being evaluated in terms of safety. And additionally; COVID-19 vaccines are administered by trained personnel, and vaccines are administered completely free of charge.6 But there are still HCPs who are not, yet COVID-19 vaccinated.

Despite there being many vaccines development and vaccine side-effect studies, globally, limited literature information on COVID-19 vaccine hesitancy/rejection on HCPs. In our study, we aimed to investigate the underlying reasons for this behavior of HCPs who did not fully vaccinated against COVID-19.

METHODS

Study design and Setting

This study was a cross-sectional survey study, conducted during April 15st to April 30st 2021 at xxx Hospital and xxxx.

Participants

An online questionnaire was administered to HCPs employed whom were not vaccinated with COVID-19 vaccine during the study period at two hospitals. The study included all HCPs. In order to attain an adequate number of HCP, this study was conducted at two pandemic hospital. Unvaccinated HCPs were identified as potential participants. The number of people who did not receive the COVID-19 vaccine was estimated to be around 400.

Study instrument

The questionnaire is comprised of four parts. Part (1) the socio-demographic characteristics (age, sex, marital status, occupation, education level, years of working experience), Part (2) COVID-19 vaccine hesitation related questions, and Part (3) COVID-19/ COVID-19 vaccine-related questions. Part (4) the reason why they had not been vaccinated.

Due to the outbreak of COVID-19, a web-based self-reported questionnaire was designed by researchers. The survey was delivered to the HCPs working in 2 participating pandemic hospitals via in-hospital social media links. This questionnaire was prepared by authors XXX and

XXX.

Statistical analysis

All analyses of the data were performed using IBM SPSS Statistics for Windows version 23.0 (IBM Corp., Armonk, NY, USA). Data are expressed as number and percentage or median (min-max), as appropriate. The conformity of the data to the normal distribution was examined with the Kolmogorov Smirnov test. Significance was defined as a two-tailed P-value of less than 0.05.

Ethical considerations

The Ethics Committee at XXX (date:24.05.2021 decision no:21/4-XIV) provided ethical approval for this study. All the participants provided online informed consent form in accordance with the revised Declaration of Helsinki, prior to participation. The participants were asked to complete the online questionnaire anonymously. To ensure confidentiality, data was stored in the principal investigator's encrypted computer.

Results

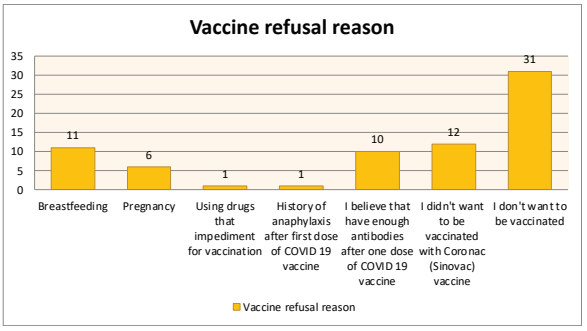
A total of 58 HCPs were excluded from the study because they did not answer all of the survey questions. Only 74 participants who were not fully vaccinated could be included in the study.

A large majority of respondents were female (n=49,66.2%) and nurses (n=35,47.3%), the average age of HCPs was 32.2 ± 7.8 year. Most (86.4%) of unvaccinated HCPs were between the years of 21-40 age (Table 1).

68.9 % of HCPs was never been infected with COVID-19, 55.4 % of HCPs was not vaccinated against COVID-19, 44.6 % of HCPs was one dose COVID-19 vaccinated (Table 2).

50% of HCPs were confused about the COVID-19 vaccine, 51.4 % of HCPs stated that they did not trust the statements of the Ministry of Health and the World Health Organization regarding COVID-19 vaccines. 36.5 % of HCPs gave 2 points as COVID-19 vaccine confidence score answer (interval was min 0- max 5 points). 63.5% of HCPs were not vaccinated as they were waiting for a different form of the current vaccine. 58.1% of HCPs believe that the vaccine doesn't effective as vaccinated people became infected (Table 3).

Most (n=31,41.9%) of HCPs did not vaccinate as they only not to be vaccinated and not to be vaccinated with inactive Coronac (Sinovac) vaccine (Graphic 1).



Graphic 1. Reasons of the vaccine refusal among HCPs (n).

DISCUSSION

Vaccination programs prevent vaccine-preventable infectious diseases, therefore aims to prevent deaths or permanent sequelae. Individual immunity is provided by vaccination and the person is free from the disease and at the same time provides social immunity. As the number of vaccinated individuals in society increases, the number of people susceptible to an infection in society decreases.[7,8] Twenty years ago, the concepts of "vaccine hesitancy/vaccine rejection" were introduced in the world, and the increasing cases of vaccine rejection have caused decreases in vaccination rates and have led to an increase in the incidence of preventable diseases. In Turkey, the opposition to vaccination has been present for about 10 years.[9] Vaccine hesitancy/rejection can be caused by many reasons, such as religious/traditional beliefs, individual/philosophical beliefs, and concerns about the safety of vaccines in general.[10]

Table 1. The summary table of characteristics of HCPs.		
Characteristic	n (%)	
Age		
18-20 years	2 (10.8)	<0.001 (21-30 years and 31-40 years)
21-30 years	32 (43.2)	
31-40 years	32 (43.2)	
>41 years	8 (10.8)	
Gender (female)	49 (66.2)	<0.001
Department		
Ward	32 (43.2)	<0.001 (ward)
Intensive care unit	8 (10.8)	
Policlinic	17 (23)	
Laboratory	5 (6.8)	
Other	12 (16.2)	
Marital status (Married)	55 (74.3)	<0.001
Education level		
Primary	8 (10.8)	<0.001 (university)
High school	17 (23)	
University	45 (60.8)	
Post graduate	4 (5.4)	
Occupation		
Doctor	21 (28.4)	<0.006 (Nurse)
Nurse	35 (47.3)	
Patient care staff	5 (6.8)	
Technician (laboratory or radiology)	5 (6.8)	
Other	2 (2.7)	
Experience years		
<1 years	3 (4.1)	0.087
1-4 years	11 (14.9)	
5-10 years	28 (37.8)	
>11 years	32 (43.2)	
H**aving chronic disease**	12 (16.2)	0.752
Chronic drug usage	13 (17.6)	0.989
*Total participians: 74		

Table 2. COVID-19/ COVID-19 vaccine related questions.

Answers	**n (%)**	**p**
Have you ever had COVID-19 infection?		
none	51 (68.9)	<0.001 (not infected)
mild infection	18 (24.3)	
hospitalized	1 (1.4)	
no idea	4 (5.4)	
Have you heard of the COVID- 19 vaccine?(Yes)	73 (98.6)	<0.001
Where did you heard about the COVID-19 vaccine?		
TV	32 (43.2)	0.036 (TV)
Internet	19 (25.7)	
Social media	4 (5.4)	
Scientific publications	19 (25.7)	
What is your level of knowledge about COVID-19 vaccines?		
I have very detailed information	32 (43.2)	0.989
I don't have the exact information.	42 (56.8)	
Does anyone in your family or friends unvaccinated against COVID-19?		
Yes	61 (82.4)	<0.001
No	13 (17.6)	
Have you been vaccinated against COVID-19?		
No		0.899
Yes		
If you did not vaccinated for recommended dose, how many doses of vaccine did you not receive?		
Two	41 (55.4)	0.788
One	33 (44.6)	
*Total participians: 74		

Table 3. COVID-19 vaccine hesitation related questions.		
Answers	**n (%)**	**p**
Do you trust the COVID-19 vaccine?		
Yes	27 (36.5)	0.588
No	9 (12.2)	
Confused	37 (50)	
No idea	1 (1.4)	
Do you trust the statements of the Ministry of Health and the World Health Organization about COVID-19 vaccines?		
Yes	20 (27)	<0.05 (no)
No	38 (51.4)	
Confused	14 (18.9)	
No idea	2 (2.7)	
What is your confidence score for the COVID-19 vaccine? (Score from 1 to 5 points)		
1 points	3 (4.1)	<0.05 (2 points)
2 points	27 (36.5)	
3 points	11 (14.9)	
4 points	18 (24.3)	
5 points	15 (20.3)	
I want to wait for the side effects to become clearer		
Yes	21 (28.4)	>0.05
No	29 (39.2)	
Confused	21 (28.4)	
No idea	3 (4.1)	
I believe that my antibodies are sufficient since I had COVID-19 infection before.		
Yes	8 (10.8)	<0.001 (no)
No	45 (60.8)	
Confused	14 (18.9	
No idea	7 (9.5)	
I was not vaccinated as I was waiting for a different form of the current vaccine.		
Yes	47 (63.5)	<0.001 (yes)
No	15 (20.3)	
Confused	11 (14.9)	
No idea	1 (1.4)	
I was afraid of being vaccinated.		
Yes	38 (51.4)	<0.001 (yes)
No	20 (27)	
Confused	14 (18.9)	
No idea	2 (2.7)	
I'm allergic to many vaccines.		
Yes	10 (13.5)	<0.001 (no)
No	50 (67.6)	
Confused	9 (12.2)	
No idea	5 (6.8)	

I had a previous history of anaphylaxis against vaccines.		
Yes	3 (4.1)	<0.001 (no)
No	60 (81.1)	
Confused	3 (4.1)	
No idea	8 (10.8)	
I don't believe the vaccine is protective.		
Yes	12 (16.2)	<0.05 (no)
No	35 (47.3)	
Confused	25 (33.8)	
No idea	2 (2.7)	
COVID-19 vaccine can cause paralysis		
Yes	5 (6.8)	<0.05 (no)
No	36 (48.6)	
Confused	24 (32.4)	
No idea	9 (12.2)	
I may be disabled after the COVID-19 vaccine.		
Yes	4 (5.4)	<0.05 (no)
No	37 (50)	
Confused	22 (27.9)	
No idea	11 (14.9)	
I may be infertile after COVID- 19 vaccine.		
Yes	20 (27)	<0.05 (no)
No	38 (51.4)	
Confused	14 (18.9)	
No idea	2 (2.7)	
I can die after COVID-19 vaccination.		
Yes	8 (10.8)	<0.05 (no)
No	35 (47.3)	
Confused	19 (25.2)	
No idea	12 (16.2)	
There were people who became infected with COVID-19 after the COVID-19 vaccination, which proves the vaccine doesn't effective.		
Yes	43 (58.1)	<0.05 (yes)
No	15 (20.3)	
Confused	15 (20.3)	
No idea	1 (1.4)	
Do you think that not being vaccinated is a bad example for other individuals?		
Yes	29 (39.2)	>0.05
No	26 (35.1)	
Confused	18 (24.3)	
No idea	1 (1.4)	
*Total participians: 74		

The most important part of society and management in epidemics are HCPs, certainly. In addition, HCPs have a higher risk for COVID-19 infection. This group has to comply fully with infection control measures and should be fully vaccinated.[1,11] However, as seen in our study, it was determined that some of the HCPs still did not receive the COVID-19 vaccine. In our study, we aimed to investigate the reasons for this situation.

In Turkey, CoronaVac (Sinovac) vaccines which were brought from China, and "Emergency Use Approval" were given after the analyzes were completed by the Turkish Medicines and Medical Devices Agency. After that vaccines were started to be applied to HCPs on 14 January 2021 all over our country. The first CoronaVac vaccine was given to the Minister of Health of Turkey.[12] At the time of our study, the time elapsed from the start of Coronovac vaccination was approximately three months, and there were approximately 400 HCPs estimated to be unvaccinated in two hospitals. On the other hand, 132 people agreed to participate in the online survey based on volunteerism. 58 of the participants were not included in the study because they did not answer all of the survey questions.

In the USA the KFF COVID-19 Vaccine Monitor project, which is an ongoing research project, tracks the public's attitudes and experiences with COVID-19 vaccinations. It uses a combination of surveys and qualitative research. And it aims to track the dynamic nature of public opinion as vaccine development and distribution unfold, including vaccine confidence and acceptance, information needs, trusted messengers, and messages. As of May 2021, 37% of adults have not yet received the COVID-19 vaccine. The unvaccinated group has a younger age, lower education levels, and lower income than the vaccinated group. c In our study; a large majority of respondents were female (n=49,66.2%) and mostly (86.4%) of not vaccinated HCPs were between the years of 21-40 age. Although the KFF COVID-19 Vaccine Monitor project contains a lot of detailed information about unvaccinated people, including political views, no gender information was found. This project highlights, unvaccinated adults reported having different concerns, a number of people taking a "wait and see" approach, and some of these people reported that some encouragement might persuade them. Examples of these were different incentive requests, from the U.S. Food and Drug Administration (FDA) approval of vaccines to the organization of sports competitions and even free concert tickets.[13] It was determined that 51.4% of the participants in our study were not trusted the information provided by WHO and the Ministry of Health, 28.4% of HCPs were only the ''wait and see" group.

As well as COVID-19 studies, studies are continuing to prevent anti-vaccination and to encourage people to be vaccinated. French et al.[14] had published practice guidelines for the COVID-19 vaccination strategy. This guide aims to set out in short form-critical guidelines to enhance the impact of a COVID-19 vaccination strategy[14]. However, these studies are limited and COVID-19 vaccine hesitation continues to globalize.

A similar study from Canada with 2,761 respondents included the study. The most important reasons for vaccine rejection were that the vaccine was new and wanting to see other people's vaccination results. 74% of healthcare professionals who refused to vaccinate reported that they would agree to vaccinate in the future.[15] Our study included a small number of participants as only 2 pandemic hospitals were included in this study. And 63.5% of HCPs were not vaccinated as they want to wait for a different form of the current vaccine.

To date, serious side effects have not been encountered in the clinical studies and current vaccine applications for COVID-19 vaccines. Side effects after vaccination are often mild. These are mild side effects such as fatigue, headache, fever, chills, muscle/joint pain, vomiting, diarrhea, pain in the injection area, redness, and swelling. However, although rare, allergic reactions may occur.[16] As the COV-

ID-19 pandemic continues to spread, HCPs have a duty to not only be involved in the treatment of COVID-19 patients but also to inform the public about developments in COVID-19.[16,17] In a study from Italy, factors associated with COVID-19 vaccine hesitancy were using Facebook as the main source of information and being a non-physician HCPs.[18] In our study, it was determined that most of the HCPs who refused the vaccine obtained information about COVID-19 from TV (43.2%). To avoid vaccine hesitancy, the level of knowledge on the HCPs COVID-19 vaccine needs to be increased. Therefore, especially HCPs should keep their knowledge up to date from reliable scientific sources.

When vaccine rejection and vaccine instability are examined, various reasons emerge. Among these, lack information, negative perspective caused by the perception of defamation against vaccination, distrust of the vaccine, fictional approaches, belief, worry that the vaccine will not work, the idea that the vaccine is an economic market, not at risk, health problems that the vaccine will bring, the difficulty of geographical conditions, ineffectiveness government policies, the way the vaccine is produced, the idea that vaccination is used as a tool of globalization (infertility, playing with people's gene structures, etc.), negative attitudes and behaviors of healthcare workers towards the vaccine.[19-21] In our study, most of the responders don't have negative perspectives on the COVID-19 vaccine.

The movement of vaccine rejection and vaccine hesitancy not only frightened people but also caused the re-emergence of eradicated diseases in various parts of the world. Increasing vaccine rejection continues to increase infectious diseases and is a serious public health epidemic. This situation has brought up vaccine-preventable diseases, vaccine efficacy, and clinical features of vaccines again.[19-25] Vaccines developed in various countries have been made available for the COVID-19 pandemic, which is the last experienced in the world and still affects the world effectively. However, here too, vaccine rejection, vaccine hesitancy, and vaccine hesitancy are at a visible level in both the public and healthcare professionals. Anti-vaccination demonstrations were held in many countries, and opinions and emphasis that compulsory vaccination is against medical freedom drew attention.[26] In the months when the epidemic was intense, the rate of waiting for the vaccine is quite high all over the world, people are willing to vaccinate and the vaccine is the hope of humanity, but after the vaccination applications started, this rate started to decrease. Yadigaroğlu et al.[25] conducted a study in 15 countries from January 28-31, 2021. They reported that the intention to be vaccinated for COVID-19 is high worldwide (88% in Brazil, 85% in China, 71% in the USA, and Germany). 68% and 57% in France). When the reasons for COVID-19 vaccine rejection are investigated, in addition to the general reasons for vaccination rejection, there are conspiracy theories about current COVID-19 vaccines as the production technique of the vaccines is fast despite the developing technology. Different causes of vaccine reflux have also been reported in the literature, such as the thought that current vaccines will be ineffective due to the constant mutation of SARS COV 2, the side effects of the vaccine, and the opinions that the vaccine is mandatory in some countries.[27,28]

In a similar study from France, 1,965 HCPs were included[29]. 60% of auxiliary nurses and technicians expected to be vaccinated, compared to 60-79% of nurses and support workers, and>80% of medical professionals. Age, occupation, vaccine experience, and the AstraZeneca vaccine tolerability dispute were all found to be independently linked with COVID-19 vaccine intention in a multivariate analysis.[29] In a similar study from Cape Town, South Africa, it was found that % of HCWs, including physicians, nurses, biomedical scientists, allied HCPs, hospital administrators, and others, were afraid of the COVID-19 vaccination. HCPs have a prevalence of 41%, which is fairly significant.[30] In a systematic review, only studies published by July 2021 were included. And it was found that there was a 40.8% prevalence of vaccine hesitancy among HCPs

in the United States.[31]

Most HCP accept vaccines, according to a recent study from the United States, but many expressed reservations about COVID-19 vaccines due to the psychological antecedents of vaccination: confidence (vaccines are effective), complacency (vaccines are unnecessary), constraints (difficult to access), calculation (risks/benefits), and collective responsibility (need for vaccination when others vaccinate). HCP who were only hesitant about COVID-19 vaccines differed from those who were hesitant about all vaccines: those with lower confidence were more likely to be younger and female, those with higher constraints were more likely to have clinical positions, those with higher complacency were more likely to have recently cared for COVID-19 patients, and those with lower collective responsibility were more likely to be non-white. These findings can be used to develop interventions to persuade HCPs to use COVID-19 vaccinations.[33]

A similar study from Turkey, observed that healthcare professionals' willingness to be vaccinated against COVID-19 differed according to their roles in the hospital, and doctors were the widest group to accept vaccination.[34]

Concerns about safety, efficacy, and side effects were shown to be the top three significant reasons for COVID-19 immunization hesitation among HCWs in the vast majority (> 75 %) of studies[30-34]. Insufficient knowledge about the vaccines, belief that COVID-19 does not exist or is not a serious disease, vaccine development speed, politics surrounding vaccine development, misinformation from social media, previous COVID-19 infection or health conditions, and mistrust in authorities, health experts, and pharmaceutical companies were among the other reasons for COVID-19 vaccination hesitancy[30-34]. In our sudy, 50% of HCPs were confused about the COVID-19 vaccine, 51.4 % of HCPs stated that they did not trust the statements of the Ministry of Health and the World Health Organization regarding COVID-19 vaccines.

COVID-19 vaccine hesitancy was reported by 22.51 % of 76,471 HCWs worldwide, according to the findings of a review. Given the nature of HCWs' work, the public would expect that they would have no reservations about taking the COVID-19 vaccine.[35] The male gender was shown to be an enabling factor in the majority of research when it came to characteristics related with decreased COVID-19 vaccination reluctance and increased willingness for COVID-19 immunizations.[35] Female gender was found to be a statistically significant predictor of vaccine hesitancy in our study. But our study results were limited to the lack of participants.

CONCLUSION

The COVID-19 pandemic has once again left humanity in a dilemma about vaccination. On the one hand, the fear of the epidemic is stuck between the unproven and vague discourses about vaccine rejection, which has been expected for months as the only remedy. Opposition to vaccination, the risk and fear of death created by the epidemic, and the desire to return to normal life have driven human beings to a dead end, and human beings in the middle have exhibited various health behaviors. The solution to the problem is seen as possible by believing in science, trusting science, and enlightening society by providing accurate information from governments. Due to the fact that the HCPs group is considered to be highly risky for exposure to COVID-19 infection, it is crucial to ensure that the entire group of HCPs is vaccinated against COVID-19. To ensure an adequate workforce to treat patients, health systems must attain high COVID-19 immunization coverage rates among frontline HCPs as soon as a vaccine is available. It is their obligation to educate HCPs so that they can make solid vaccine recommendations and successfully respond to vaccine-skeptical patients. Future study in this area should concentrate on practicing physicians, nurses, and dentists, as well as students in these fields, because all of these professionals are involved in direct patient care and may be tasked with giving vaccine recommendations to patients.

Limitations of study

Our research has some limitations. First, because subjects are recruited on a voluntary basis, representability cannot be guaranteed. During the study period, we were able to gather COVID-19 vaccine intention from almost a third of the unvaccinated population. Furthermore, in terms of occupation and age, the features of our sample were comparable to the entire structure of our hospital workforce (data not shown). Second, our research was conducted in two centers over the course of two weeks, and the results may not apply to other situations. This constraint is especially important considering the wide range of vaccination reluctance across time and across countries. Finally, we only collected declarative data and were unable to control answer accuracy.

Conflict of interest

The authors declare no conflicts of interest.

References

1. Dindar Demiray E, Alkan Çeviker S. Aşı ve Toplumsal Korunma. Journal of Biotechnology and Strategic Health Research. 2020; 4: 37-44.
2. https://www.aa.com.tr/tr/dunya/salgindan-cikisin-umudu-kovid-19-asilari-dunyada-uygulanmaya-basladi/2093271 [Accessed date: 10. April. 2021].
3. "Here's Why It's Taking So Long to Develop a Vaccine for the New Coronavirus". ScienceAlert. https://www.sciencealert.com/who-says-a-coronavirus-vaccine-is-18-months-away [Accessed date: 8. April. 2021].
4. Zhao J, Zhao S, Ou J, et al. COVID-19: Coronavirus Vaccine Development Updates. Front Immunol. 2020; 11:602256. doi:10.3389/fimmu.2020.602256
5. https://www.who.int/news-room/q-a-detail/coronavirus-disease-(covid-19)-vaccines. [Accessed date: 20. June. 2021].
6. https://covid19asi.saglik.gov.tr/TR-77709/covid-19-asisi-uretim-teknolojileri.html. [Accessed date: 20. June. 2021].
7. Dubé E, Vivion M, MacDonald NE. Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications. Expert Rev Vaccines. 2015; 14:99–117.
8. Fine P, Eames K, Heymann DL. Herd immunity: a rough guide. Clin Infect Dis. 2011;52:911–916.
9. Gür E. Aşı kararsızlığı- aşı reddi. Türk Pediatri Arşivi. 2019; 54:1–2.
10. Ergur A. Social Causes of Vaccine Rejection-Vaccine Indecision Attitudes in the Context of Criticisms of Modernity. Eurasian J Med. 2020;52(2):217-223. doi:10.5152/eurasianjmed.2020.20132
11. ElBagoury M, Tolba MM, Nasser HA, et al. The find of COVID-19 vaccine: Challenges and opportunities. J Infect Public Health. 2021;14(3):389-416.
12. https://www.aa.com.tr/tr/koronavirus/coronavac-asisi-saglik-calisanlarina-uygulanmaya-baslandi/2109379. [Accessed date: 20. June. 2021].
13. https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-profile-of-the-unvaccinated/ [Accessed date: 20. June. 2021].
14. French J, Deshpande S, Evans W, et al. Key Guidelines in Developing a Pre-Emptive COVID-19 Vaccination Uptake Promotion Strategy. Int J Environ Res Public Health. 2020;17(16):5893.
15. Dzieciolowska S, Hamel D, Gadio S, et al. Covid-19 vaccine acceptance, hesitancy, and refusal among Canadian healthcare workers: A multicenter survey. Am J Infect Control. 2021:S0196-6553(21)00274-1. doi: 10.1016/j.ajic.2021.04.079.
16. https://covid19asi.saglik.gov.tr/TR-77715/covid-19-asisi-sonrasi-yan-etkiler.html [Accessed date: 20. June. 2021].
17. World Health Organization. World Health Organisation; 2020. Public statement for collaboration on COVID-19 vaccine development. [Internet]. [Accessed date: 20. June. 2021].
18. Di Gennaro F, Murri R, Segala FV, et al. Attitudes towards Anti-SARS-CoV2 Vaccination among Healthcare Workers: Results from a National Survey in Italy. Viruses. 2021;13(3):371. doi: 10.3390/v13030371.
19. Özata F, Kapusuz S. Aşı Kararsızlığı ve Aşı Reddi Konusuna Sosyal Pazarlama Bakış Açısından Çözüm Önerileri. Anadolu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi. 2019: 20 (1); 65-83.
20. Butler R, MacDonald NE. Diagnosing the determinants of vaccine hesitancy in specific subgroups: The Guide to Tailoring Immunization Programmes (TIP). Vaccine. 2015:33; 4176–4179.
21. MacDonald NE; SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: Definition, scope and determinants. Vaccine. 2015;33(34):4161-4164. doi: 10.1016/j.vaccine.2015.04.036.
22. http://www.who.int/immunization/sage/meetings/2013/april/1_Model_analyze_driversofvaccine Confidence_22_March.pdf
23. Bozkurt BH. Aşı Reddine Genel Bir Bakış ve Literatürün Gözden Geçirilmesi. Kafkas J Med Sci. 2018;1: 71-76.
24. Aker A. Aşı Karşıtlığı. Toplum ve Hekim. 2018: 33(3); 175-186.
25. Azap A. Aşı Karşıtlığının Toplumsal Sonuçları.Toplum ve Hekim. 2018: 33(3); 217-219.
26. Yadigaroğlu H. Covid-19 ve Aşı Karşıtlığı. Karadeniz Teknik Üniversitesi - Stratejik Araştırma Merkezi. Protokol Dergisi. 2021:2(1);61-71.
27. NTV, (2020, 14 Aralık). İngiltere'de covid-19 önlemleri ve aşı karşıtı gösteri. https://www.ntv.com.tr/galeri/dunya/ingilterede-covid19-onlemleri-ve-asi-karsiti gosteri,rJ19xqcz6EWBH04okcI6hA/bAxDdDcCHU6EZljM k92rog. [Access date: 16.06.2021]
28. IPSOS. (2021, 16 Feb. Global attitudes: COVID-19 vaccines. https://www.ipsos.com/en/global-attitudes-covid-19- vaccine-january-2021 [Access date: 16.06.2021]
29. Teyit. Aşı Karşıtlığı ve Covid-19. https://teyit.org/dosya-asi-karsitligi-ve-covid-19. [Access date: 16.06.2021].
30. Paris C, Bénézit F, Geslin M, et al COVID-19 vaccine hesitancy among healthcare workers. Infect Dis Now. 2021;51(5):484-487.
31. Wiysonge CS, Alobwede SM, de Marie C Katoto P, et al. COVID-19 vaccine acceptance and hesitancy among healthcare workers in South Africa. Expert Rev Vaccines. 2022;21(4):549-559.
32. Yasmin F, Najeeb H, Moeed A, et al. COVID-19 Vaccine Hesitancy in the United States: A Systematic Review. Front Public Health. 2021;9:770985. doi:10.3389/fpubh.2021.770985
33. Navin MC, Oberleitner LM, Lucia VC, et al. COVID-19 Vaccine Hesitancy Among Healthcare Personnel Who Generally Accept Vaccines. J Community Health. 2022:1–11. doi: 10.1007/s10900-022-01080-w. Epub ahead of print.
34. Kader Ç, Erbay A, Demirel MS, et al. [Evaluation of attitudes and behaviors of healthcare professionals towards COVID-19 vaccination]. Klimik Derg. 2022;35(1):30-35.
35. Biswas N, Mustapha T, Khubchandani J, Price JH. The Nature and Extent of COVID-19 Vaccination Hesitancy in Healthcare Workers. J Community Health. 2021;46(6):1244-1251. doi: 10.1007/s10900-021-00984-3.