Clinical and Experimental Health Sciences

Determination of Attitudes Towards COVID-19 Vaccine and Affecting Factors of Individuals Applying to the Family Health Center

Ezgi Demirtürk Selçuk[1], Birsel Canan Demirbağ[2]

[1] Erzincan Binali Yıldırım University, Vocational School of Health Services, Department of Anesthesia, Erzincan, Türkiye.
[2] Karadeniz Technical University, Faculty of Health Sciences, Department of Public Health Nursing, Trabzon, Türkiye.

Correspondence Author: Ezgi Demirtürk Selçuk
E-mail: demirturkezgi@gmail.com
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ABSTRACT

Objective: This research was carried out to determine the attitudes of individuals who applied to primary care during the coronavirus disease-2019 (COVID-19) pandemic and the factors affecting the COVID-19 vaccine.

Methods: The descriptive study was conducted with individuals (n=190) who applied to five family health centers in Erzincan city center between March-June 2021. The data were collected using the "Personal Information Form" and the "Scale of Attitudes towards the COVID-19 Vaccine" by paying attention to the pandemic rules by face-to-face interview method.

Results: It was determined that 75.3% of the individuals were women, 41.1% were primary school graduates, 59.5% lived in a nuclear family and 74.2% had no chronic disease. Individuals Attitudes Towards COVID-19 Vaccine Scale mean score was 3.26±0.78 out of 5, positive attitude sub-dimension mean score was 3.32±0.99, and negative attitude sub-dimension mean score was 3.21±0.71. There is a statistically significant difference between the mean scores of the Attitudes Towards COVID-19 Vaccine Scale and the status of individuals thinking that COVID-19 vaccine is necessary for public health, worrying about getting COVID-19 infection, having COVID-19 vaccine, and following information about COVID-19 vaccine.

Conclusions: It was determined that the attitudes of these individuals towards the COVID-19 vaccine were at a positive level. The reasons for participants' concerns about the COVID-19 vaccine are fear of side effects of the vaccine and the production of the vaccine in a very short period of time.

Keywords: Attitude, COVID-19, Family health center, Vaccine

1. INTRODUCTION

Coronavirus disease-2019 [Coronavirus Disease-2019 (COVID-19)], in which the first case was detected in December 2019 in the city of Wuhan, China's Hubei province, is an infectious disease that caused the World Health Organization (WHO) to declare it a pandemic (1,2). The COVID-19 pandemic harms the lives, health and economy of individuals. Vaccination, along with hygiene practices and other behavioral measures, helps prevent the spread of infection (3). We have seen the results of the use of vaccines in the past years. The incidence of polio, measles, and other childhood diseases has decreased worldwide, and the smallpox virus has completely disappeared (4). It is stated that vaccination is important and mandatory in the control of the COVID-19 pandemic (5). In addition, vaccines have proven to be the most effective and economical way to prevent and control infectious diseases (6). Numerous COVID-19 vaccines have been developed and approved with ongoing studies since the beginning of the pandemic. Nowadays, vaccines developed against COVID-19 seem to be important in preventing and controlling COVID-19 (7). However, it is a known fact that the pandemic cannot be prevented if these vaccines are not widely accepted by the majority of the population.

There are uncertainties about whether the COVID-19 vaccine will be accepted by all communities globally. Although great progress has been made in vaccination so far, hesitation in vaccination with the COVID-19 vaccine remains a worldwide problem (6). Lack of clinical trials for the vaccine, fear of vaccine side effects, and rumors of active viruses in vaccines are some of the main obstacles hindering the success of the COVID-19 vaccine campaign (8). In a study investigating the public's acceptance or rejection of a pandemic vaccine (H1N1), people's perceived risk of infection appears to be influenced by the severity of the event, personal consequences, and previous vaccination history (9).

The coronavirus pandemic has dramatically changed people's health, economic well-being, lives and behavior of communities around the world, and has affected the health

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of individuals. Therefore, some people may be hesitant about the COVID-19 vaccine for ethical, religious, social or economic reasons (10). WHO, recommends developing strategies to overcome vaccine hesitancy and build confidence in the vaccine once a vaccine is available. In order to develop these strategies, it is important to understand the changing vaccination attitudes of different groups and geographies (11). There are studies to estimate the level of vaccine acceptance before the COVID-19 vaccine is introduced (12,13). However, no study was found to determine the attitudes of individuals who applied to the family health center towards the COVID-19 vaccine. For these reasons, the aim of our study is to determine the attitudes of individuals who applied to the family health center towards the COVID-19 vaccine and the affecting factors.

Research questions:

1. What is the attitude towards the COVID-19 vaccine?
2. What are the factors affecting attitude towards the COVID-19 vaccine?

2. METHODS

2.1. Participants

This descriptive study was conducted between March and June 2021 in five family health centers located in the city center of Erzincan, which allowed the research. The population of the study consisted of individuals who applied to the family health center for any reason between the specified dates. The study was completed with 190 individuals who did not have serious mental disorders such as any physical disorder (hearing, speech disorder), mental disability and psychotic disorder. At the time of the study, 38 people who refused to participate in the study because they did not have time to participate were excluded from the study. At the beginning of the study, the participants were informed about the study and their informed consent was obtained verbally and in writing. The data were collected by the researcher by face-to-face interview method in the waiting rooms of family health centers by taking the necessary protective measures (social distance, mask) according to the pandemic conditions.

Dependent and Independent Variables of the Research: While creating the independent variable of the research, the introductory features specific to the participants; Attitudes Towards the COVID-19 Vaccine Scale scores constituted the dependent variable.

2.2. Data Collection Tools

The data of the study were collected in 10-15 minutes by face-to-face interview method using the "Personal Information Form", which includes socio-demographic characteristics, and the "Scale of Attitudes towards the COVID-19 Vaccine".

Personal Information Form: The information form prepared by the researchers consists of 24 questions describing the socio-demographic characteristics of individuals and questioning their thoughts on the COVID-19 vaccine.

Attitudes Towards the COVID-19 Vaccine (ATV-COVID-19): This scale was developed by Genis et al. (2020). It consists of 9 items and has two sub-dimensions (positive and negative attitudes). The statements in the scale are evaluated as "Strongly disagree (1)", "Disagree (2)", "Undecided (3)", "Agree (4)", "Strongly agree (5)". A value between 1-5 is obtained by dividing the total score obtained by summing the item scores in the scale sub-dimension by the number of items in that sub-dimension. High scores obtained from the positive attitude sub-dimension indicate that the attitude towards the vaccine is positive. It is calculated after the items in the negative attitude sub-dimension are reversed, and the high scores in this sub-dimension indicate that the negative attitude towards the vaccine is less. Reverse items are coded as 1-5, 2-4, 3-3, 4-2, 5-1. The Cronbach alpha value of the scale is 0.80 (14). In this study, the reliability coefficient of the scale was found to be 0.89.

2.3. Statistical Analysis

Statistical analysis was performed using SPSS (Statistical Package for the Social Sciences) for Windows 22.0 software. Number, mean, standard deviation, minimum and maximum values were used to display the descriptive statistics of continuous numerical variables, and frequency and percentage distributions were used to display categorical variables. Evaluation of the normality of the variables was done with Kolmogorov Smirnov statistical test and it was found that they showed normal distribution. Differences between the groups were evaluated with a sample t-test and ANOVA independent of parametric tests. Statistical significance was accepted as $p< 0.05$.

2.4. Ethical Considerations

Erzincan Binali Yıldırım University Human Research Ethics Committee Permission (Dated 26/02/2021 and numbered 2021/03-30) and written permission from Erzincan Provincial Health Directorate (Dated 03/03/2021 and numbered 15872173-771) were obtained. Written or verbal consent was obtained from the individuals participating in the study, and the principles of informed consent and the Declaration of Helsinki were adhered to.

3. RESULTS

The mean age of the individuals participating in the research is 39.48±12.16 (minimum: 17, maximum: 69). It has been determined that 75.3% of the individuals are women, 82.1% are married, 73.1% are not working and 50.5% of them are equal to their income and expenses. It was determined that 68.4% of the individuals had not received influenza vaccination in the past, 98.5% had not refused any other recommended vaccine in the past, 60.5% had COVID-19 infection, 91.1% of the people in their immediate environment had COVID-19 infection, and 44.2% of them did not consider having their

children vaccinated against COVID-19. When individuals were asked about the precautions, they take to protect themselves from COVID-19 infection, 92.6% of them stated that they use masks (Table 1).

It was determined that 37.4% of the individuals had concerns about COVID-19 vaccines because they were afraid of the side effects of the vaccine (Figure 1).

Table 1. *Socio-demographic and Covid-19 vaccine characteristics of individuals*

		n	%
Sex	Female	143	75,3
	Male	47	24,7
Marital status	Married	156	82,1
	Single	34	17,9
Working status	Working	51	26,9
	Not working	139	73,1
Income status	Income less than expenses	62	32,6
	Income equal to expenses	96	50,5
	Income more than expenses	32	16,8
Have you had the flu vaccine in the past?	Yes	60	31,6
	No	130	68,4
Have you refused the recommended vaccine in the past?	Yes	20	10,5
	No	170	98,5
Were you diagnosed with COVID-19	Yes	115	60,5
	No	75	39,5
Has anyone in your close circle been diagnosed with COVID-19 infection?	Yes	173	91,1
	No	11	8,9
Are you considering getting your child vaccinated for COVID-19?	Yes	36	18,9
	No	84	44,2
	Undecided	28	14,7
Measures taken by ındividuals to protect themselves from COVID-19 ınfection *	Using a mask	176	92,6
	Washing hands	153	80,5
	Continuously ventilate the workplace and home environment	149	78,4
	Not meeting people, not going out	98	51,5
	Consuming healthy food, drinking water, resting, taking vitamin supplements	84	44,2
	Continue a normal life	3	1,5
Age	Mean: 39.48±12.16 years (minimum: 17, maksimum: 69)		

** Participants gave more than one answer*

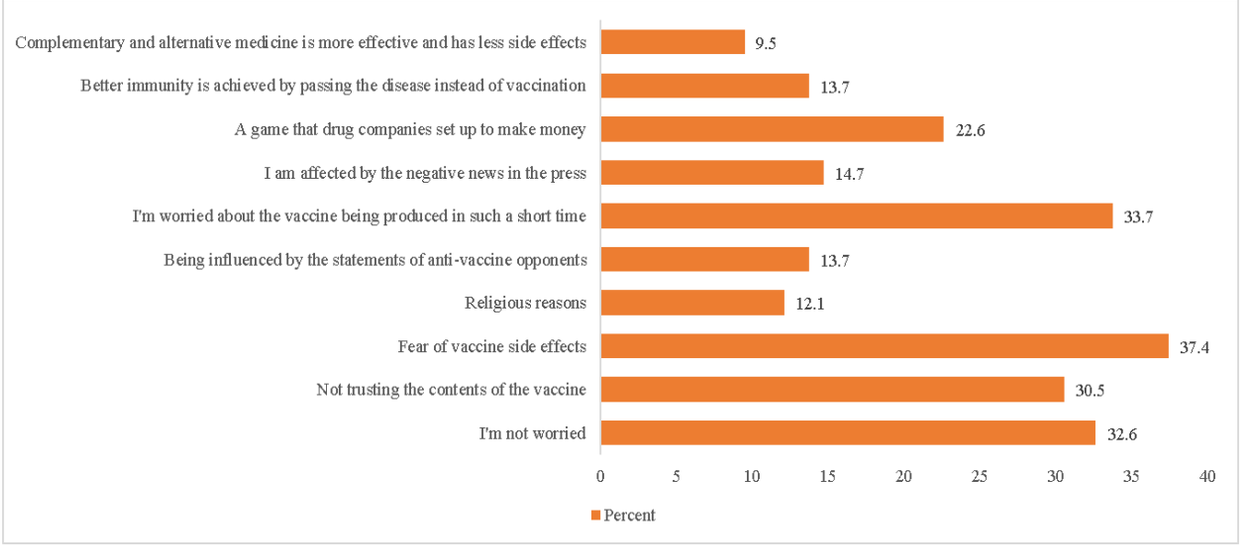

Figure 1. *Reasons for individuals' concerns about vaccination*
**Participants gave more than one answer*

A significant difference was determined between the number of children, educational status, family type, and chronic illness and the mean scores of the attitudes towards the COVID-19 vaccine scale. A significant difference was determined between the mean scores of the attitudes towards COVID-19 vaccine scale according to the individuals' thinking that the COVID-19 vaccine is beneficial for public health, being worried about getting COVID-19 infection, having the COVID-19 vaccine, the preferred type of vaccine, and following the information about the COVID-19 vaccine ($p<0.05$) (Table 2).

The values for the participants' attitudes towards the COVID-19 vaccine were 3.26±0.78 out of 5, 3.32±0.99 for the positive attitude sub-dimension, and 3.21±0.71 for the negative attitude sub-dimension (Table 3). When the mean scores of the scale are evaluated, it can be said that the positive attitudes of the participants towards the vaccine are above the average. As the scores obtained from the sub-dimension in negative attitudes increase, it can be said that the negative attitudes are below the average, since the level of negative attitudes decreases.

Table 2. *Distribution of ATV-COVID19 score averages according to socio-demographic and Covid-19 vaccine characteristics of individuals*

Thoughts on COVID-19		n	%	Positive Attitude score		Negative Attitude score		ATV-COVID 19 score	
				Mean±Sd	Test and p	Mean±Sd	Test and p	Mean±Sd	Test and p
Number of children	1 and 2 children	82	43.2	3.47±1.02	t*=2.56	3.32±0.78	t*=2.37	3.39±0.82	t*=2.655
	3 children and above	66	34.7	3.04±1.01	p=0.011	3.03±0.72	p=0.019	3.03±0.80	p=0.009
Educational level	Primary school	78	41.1	3.35±0.98		3.29±0.66		3.32±0.75	
	Secondary school	24	12.6	3.42±1.00	F**=5.05	3.37±0.76	F**=5.34	3.39±0.81	F**=5.859
	High school	52	27.4	2.95±0.85	p=0.002	2.89±0.64	p=0.001	2.91±0.67	p=0.001
	University	36	18.9	3.75±1.02		3.40±0.76		3.55±0.79	
Family type	Nuclear family	113	59.5	3.48±0.95	F**=3.651	3.30±0.69	F**=2.265	3.38±0.74	F**=3.435
	Extended family	63	33.2	3.11±1.01	p=0.028	3.08±0.74	p=0.107	3.09±0.80	p=0.034
	Broken family	14	7.4	3.03±0.97		3.05±0.77		3.04±0.81	
Chronic disease	Yes	49	25.8	3.07±0.97	t*=2.083	3.07±0.77	t*=1.593	3.07±0.82	t*=1.995
	No	141	74.2	3.41±0.98	p=0.039	3.26±0.69	p=0.113	3.33±0.75	p=0.048
Do you find the vaccination application necessary for public health?	Yes	161	84.7	3.57±0.82	t*=12.52	3.35±0.05	t*=7.13	3.45±0.66	t*=12.229
	No	29	15.3	1.93±0.61	p=0.000	2.43±0.52	p=0.000	2.21±0.46	p=0.000
Worried about contracting COVID-19 infection?	Very worried	77	40.5	3.50±0.91	F**=5.34	3.33±0.69	F**=3.44	3.40±0.76	F**=5.092
	Little worried	73	38.4	3.38±0.91	p=0.006	3.22±0.66	p=0.034	3.29±0.69	p=0.007
	Not worried	40	21.1	2.89±1.16		2.97±0.799		2.93±0.88	
Have you had the COVID-19 vaccine?	Yes	144	75.8	3.68±0.77	t*=11.34	3.40±0.64	t*=1.31	3.52±0.63	t*=2.135
	No	46	24.2	2.21±0.75	p=0.000	2.61±0.61	p=0.100	2.43±0.60	p=0.035
Which vaccine do you prefer?	Sinovac	29	15.3	3.86±0.74		3.46±0.66		3.64±0.63	
	Bion Tech	37	19.4	3.33±0.75	F**=23.63	3.19±0.57	F**=12.80	3.25±0.59	F**=21.794
	Local vaccine (Turcovac)	52	27.5	3.62±0.80	p=0.000	3.44±0.60	p=0.000	3.52±0.62	p=0.000
	Idon't mind	26	13.7	3.84±0.74		3.48±0.58		3.64±0.60	
Where do you follow the information about the COVID-19 vaccine?	TV	28	14.7	3.41±0.93		3.25±0.58		3.32±0.66	
	Internet/social media	65	34.2	3.66±0.86	F**=4.58	3.45±0.69	F**=4.75	3.54±0.71	F**=5.679
	Ministry of health website	92	48.5	3.07±1.02	p=0.003	3.03±0.72	p=0.003	3.04±0.80	p=0.001
	Don't follow	5	2.6	3.15±1.15		3.20±0.80		3.17±0.81	

**Student T-test; **ANOVA*

Table 3. *Distribution of Individuals' Attitudes Towards COVID-19 Vaccine Sub-Dimension Mean Scores*

	Min-Max	Mean±Sd
Positive Attitude	1-5	3.32±0.99
Negative Attitude	1-5	3.21±0.71
Total Scale	1-5	3.26±0.78

4. DISCUSSION

In this study, it was aimed to evaluate the attitudes of individuals who applied to the family health center towards the COVID-19 vaccine and the affecting factors. In this study, it was found that the participants had a positive attitude towards the vaccine. In the studies on this subject in the literature, it has been determined that individuals have positive opinions about the COVID-19 vaccine (15-17). The results of our study are similar to the literature. Vaccination provides the prevention of diseases that will prevent the progression of the disease (18).

The 2019 Novel Coronavirus (2019-nCoV), the causative agent of COVID-19, is transmitted through droplets and contact. In this study participants stated that they were protected from COVID-19 infection by using masks and washing their hands. In a study, it was determined that 97.3% of individuals wear masks and wash their hands (19). In the case of coughing and sneezing, infectious particles enter the body through the mouth and nose when the hands come into contact with the mouth, nose, eyes and face after contact with the particles on the surfaces. The way to prevent this type of contamination is to use face masks, practice hand hygiene and ensure the cleanliness of the surfaces (20).

In our study, individuals stated that they were worried about COVID-19 vaccines because they were afraid of the side effects of the vaccine. In a study conducted jointly in 7 European countries, it was reported that 55% of the participants were concerned about the possible side effects of the vaccine. The reasons for these concerns are mistrust of vaccines and the health system, lack of knowledge about vaccines, lack of information about vaccine-preventable diseases and misconceptions (21-23). Misinformation leading to vaccine refusal can put public health at risk instead of improving the current situation. In order to prevent this, individuals should be provided with appropriate education on the safety and efficacy of vaccines.

Another noteworthy finding in this study is that the participants stated that they do not plan to vaccinate their children against COVID-19. In contrast to this result, a study shows that parents are willing to have their children vaccinated against COVID-19 (24). In a different study, parents agree for their children to participate in a clinical trial of the COVID-19 vaccine (25). The results of our study differ from the literature. Since parents have the right to decide whether their children should be vaccinated, the mild or asymptomatic course of COVID-19 among children may have caused parents to be less anxious and reluctant to vaccinate their children (26).

In this study, a significant difference was found between educational status and the mean score of the Attitudes Towards COVID-19 Vaccination Scale. Studies have shown that those with a bachelor's degree or higher are more willing to be vaccinated, and there is a significant difference between education level and vaccination status (27,28). It can be thought that the awareness of individuals increases with education and this situation also affects the attitude of being vaccinated.

In this study, it was seen that people who have children and live with their nuclear family have a positive attitude towards the vaccine. The same results were found in the study of Kaplan et al (29). In another study, individuals stated that they wanted to be vaccinated against COVID-19 to protect themselves and their families (30). Accordingly, we can say that vaccination positively affects individuals' attitudes towards vaccination to protect their families from the negative effects of the pandemic.

In our study, it was determined that individuals with chronic diseases had a positive attitude towards the COVID-19 vaccine. In the study conducted by Williams et al., 86% of the elderly and individuals with chronic respiratory diseases stated that they wanted to be vaccinated against COVID-19 (31). We think that individuals with chronic diseases are more at risk for COVID-19 complications and therefore want to be vaccinated against COVID-19.

Most of the participants think that the vaccine against COVID-19 is necessary for public health and it is seen that individuals have positive attitudes towards the COVID-19 vaccine due to the concern of contracting COVID-19 infection. As a result of the studies, it has been observed that individuals who feel a certain level of anxiety about a subject reach a better solution about that subject (32,33). Head et al. found that the intention to receive SARSCoV-2 vaccine increased with increasing anxiety (34). Several factors contribute to vaccine-related concerns. These include perceived risks and benefits, certain religious beliefs, lack of knowledge and awareness levels of individuals (19).

It was determined that 75.8% of the individuals participating in our study had the COVID-19 vaccine. In a study conducted in the USA, 70% of adults and 71% of individuals in France stated that they wanted to be vaccinated against the COVID-19 pandemic (16,35). The acceptance of the vaccine by individuals varies according to culture, social class, time and human behavior (17).

It was found that the participants wanted to receive the Turcovac vaccine, which is a local vaccine. In addition, it was found that there was a significant difference between the mean scores of the attitude scale towards COVID-19 vaccine and the preferred vaccine. In a different study, the same conclusion was reached (24). Individuals' preference for the Turcovac vaccine shows that the positive opinion towards the local vaccine has increased.

It has been determined that the individuals participating in our study follow the information about the COVID-19 vaccine from the website of the Ministry of Health and have a positive attitude towards the COVID-19 vaccine. In a study, the sources of information that individuals trust the most about COVID-19 are the university/training-research hospitals in their province, the World Health Organization and the Ministry's Coronavirus Science Board, respectively (2). In another study, it was concluded that the participants who stated that they did not trust social media platforms such as Facebook, Twitter and Instagram had a positive attitude towards the vaccination (36). Government agencies and health professionals have made the most significant impact of information resources on individuals' attitudes towards vaccines. Trusting government agencies, health authorities and experts is critical in reducing vaccine resistance (37). People may find scientific information difficult to understand and may adopt rumors that are easier to understand but of unclear origin. Therefore, the explanations about the vaccine should be in a way that the public can understand and

institutions should carry out vaccine studies transparently (24).

5. CONCLUSION

As a result of this study, it was determined that individuals' attitudes towards COVID-19 vaccine were positive. They stated that they were protected from COVID-19 infection by using masks and washing their hands. It was determined that individuals thought that the COVID-19 vaccine was beneficial for public health, but the production of the vaccine in a very short time and fear of the side effects of the vaccine caused them to be concerned about the COVID-19 vaccine. Participants reported that they had been vaccinated against COVID-19 and that they did not plan to vaccinate their children against COVID-19. It was determined that the participants followed the information about the COVID-19 vaccine on the website of the Ministry of Health and wanted to receive the Turkovac vaccine, which is a local vaccine. We believe that it would be beneficial to inform individuals who experience anxiety and hesitation against the COVID-19 vaccine in the society, taking into account the reasons for fear and anxiety, and to take measures before the social and economic consequences increase.

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Design of the study: EDS, BCD
Acquisition of data for the study: EDS
Analysis of data for the study: EDS, BCD
Interpretation of data for the study: EDS, BCD
Drafting the manuscript: EDS, BCD
Revising it critically for important intellectual content: EDS, BCD
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