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Reflection of vaccine and COVID-19 fear in young groups in the COVID-19 pandemic

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SUMMARY

OBJECTIVE: This study aims to determine the fear of COVID-19 through the opinions of individuals under the age of 18 on the COVID-19 vaccine and vaccination.

METHODS: This cross-sectional study was conducted on 290 high school students studying in a central district between February 15, 2021, and March 1, 2021. The questionnaire consisted of questions about the sociodemographic characteristics of the students and COVID-19 infection and the Fear of COVID-19 Scale.

RESULTS: The age of the participants ranged from 14–18; 76.9% of the study group consisted of female students; and 76.9% of the participants declared that they live in middleincome households. Participants reported that they lived in the same house with at least 2 and a maximum of 12 people; 9.7% of the participants reported that they had a COVID-19 infection; 62.4% of the participants reported that they want to get the COVID-19 vaccine; and 55.2% of the participants reported that the COVID-19 vaccine will reduce the transmission. The mean obtained from the Fear of COVID-19 Scale is 3.38±4.75 in the whole group. It was determined that there was a significant difference between genders, the effect of the vaccine on the incidence, the status of having a COVID-19 infection, and the score of the Fear of COVID-19 Scale.

CONCLUSION: The attitudes of young individuals, who are one of the vulnerable groups during pandemic periods, toward vaccination are important in terms of infecting those they come into contact with and increasing the rate of infection.

KEYWORDS: Adolescent. COVID-19. Fear. Infection. Vaccine.

INTRODUCTION

Coronavirus (SARS CoV-2), which emerged in China in 2019, causing the illness of about 197 million people and the death of 4.2 million people worldwide, can be considered as a global unifying problem that the whole world is fighting simultaneously[1], because countries are in search of solutions to prevent the spread of the disease and other epidemics that may occur in the following years. Therefore, prevention studies, medical treatment, and vaccine studies continue simultaneously in many parts of the world[2]. Vaccination is the most effective way to control infectious diseases. However, there are many factors that affect the vaccination or non-vaccination status of individuals. Religious beliefs, family lifestyles, receiving alternative treatments, perceived risk of disease, effectiveness and side effects of the vaccine, social environment, and cultural values are among the factors that affect the frequency of vaccination[3,4]. Similar to adults, COVID-19 is common in children[5]. Children are leading among important groups in vaccination against infectious

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diseases[6]. Vaccination of the child group, which is one of the most vulnerable groups in the COVID-19 pandemic, remained in the background compared with other age groups due to the milder course of the disease and not being included in the vaccine efficacy studies. Since January 2020, regional and local measures, keeping the children under the age of 18 at home (restriction of educational institutions and outdoor activities), are known to cause feelings of hopelessness, anxiety, and stress. Studies have shown that stress, fear, and anxiety increase more in children and adolescent groups[6,7]. This study aims to determine the fear of COVID-19 by the opinions of individuals under the age of 18 on the COVID-19 vaccine and vaccination.

METHODS

This cross-sectional study was conducted on high school students studying at Eskişehir Mustafa Kemal Atatürk Vocational and Technical Anatolian high school in a central district between February 15, 2021, and March 1, 2021. This study was approved by the Harran University Ethical Committee (04.01.2021; session: 01; decision no: 26). In addition, permission was obtained from the Ministry of Health. Students were informed online before participating in the study, and they were asked to approve the voluntary participation form.

Inclusion criteria were as follows: studying at Eskişehir Mustafa Kemal Atatürk Vocational and Technical Anatolian high school, having a smartphone, and volunteering to participate in the study. The questionnaire link was first sent to classroom teachers via a messaging network. The classroom teachers shared the questionnaire link on the classroom messaging network and asked the students to fill it out.

The data were collected by applying an online questionnaire to the students. The first part of the questionnaire consisted of questions about the sociodemographic characteristics of the students and COVID-19 infection. The questionnaire defining the sociodemographic characteristics consisted of the student's age, gender, family income status, and the number of people living at home. This section consists of a total of nine questions: whether students have COVID-19 infection, whether they want to get the COVID vaccine, whether they think the COVID vaccine will reduce the transmission, and reasons for getting the COVID vaccine or not. In the second part, the fear experienced during the COVID period was evaluated with the Fear of COVID-19 Scale (FCV-19S). FCV-19S is a Likert-type scale consisting of seven questions in total. Each item is scored with five points ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The score that can be obtained from the scale varies between 7 and 35, and the high score indicates that the fear of coronavirus has increased. The Fear of COVID-19 Scale was developed by Ahorsu et al. (2020) (Cronbach's alpha value is 0.86), and its Turkish validity and reliability were determined by Haktanır et al. (2020) (Cronbach's alpha value=0.83)[8]. The Cronbach's alpha value calculated for this study was 0.81.

The number of students studying at Eskişehir Mustafa Kemal Atatürk Vocational and Technical Anatolian high school was 619. The sample size was determined by the calculation made in societies whose universe[9] is known, which is 238. The study was completed with 290 students in accordance with the inclusion criteria.

The data obtained were evaluated with the IBM SPSS Statistics for Windows, Version 20.0 (IBM Corp., Armonk, NY) in the computer environment. The frequency and percentage distribution of descriptive data on sociodemographic and COVID-19 infection were calculated. The COVID-19 fear score was compared with independent variables by *t*-test in independent groups. A value of $p<0.05$ was considered statistically significant.

RESULTS

The age of the study group ranged between 14 and 18 years, and the mean was 15.57±1.22. While 53.5% of the study group was in 15 age group, 46.5% was in 16 age group; 76.9% of the students in the study group were females and 23.1% were males; and 76.9% of the participants declared that they live in middle-income households. The number of individuals that the study group lives with at home was 2–12, and the mean was 4 (Table 1).

Table 2 shows the distribution of the data of the study group on COVID-19 infection; 9.7% of the study group reported that they had a COVID-19 infection; and 62.4% of the study

Table 1. Sociodemographic characteristics.

	n	%
Gender		
Female	223	76.9
Male	67	23.1
Age		
15 and low	155	53.5
16 and above	135	46.5
Family income		
High	61	21.0
Medium	223	76.9
Low	6	2.1
Number of individuals living in the house	2–12 mean 4.37	

group stated that they wanted to have the COVID-19 vaccine. While 55.2% of those in the study group thought that the COVID-19 vaccine would reduce the transmission, 37.6% stated that they did not think that the COVID-19 vaccine would reduce the transmission. Among the reasons for the people in the study group who want to get the COVID-19 vaccine, the highest frequency is the concern of transmitting the virus to my family and loved ones with 46.2%. The reason of the 8.6% of the study group for getting the COVID-19 vaccine is the threat during the pandemic, and 7.9% of those is the illness and death anxiety; 30% of the study group did not want to be vaccinated with the concern that it may cause side effects, 5.9% because of not believing the effectiveness of the vaccine, and 3.4% for feeling like a guinea pig (Table 2).

The scores of the study group from FCV-19S range from 5–22, with a mean of 3.38±4.75 (data not shown in the table). According to the independent samples *t*-test, it was determined that scores of FCV-19S of the study group are significantly different according to gender (t=3.233, p=0.000). In the study group, the mean score of FCV-19S of those who do not think that the vaccine will have an effect on the incidence was higher than those who think that the vaccine will have an effect on the incidence, and it was found that there is a significant difference between them (t=1.348, p=0.027). It was found that the mean score of FCV-19S of those in the study group who did not want to be vaccinated was higher than those who wanted to be vaccinated, and there was a significant difference between them (t=0.471, p=0.036) (Table 3).

Table 2. Variables related to COVID-19 infection.

	n	%
Have you had a COVID-19 infection?		
Yes	28	9.7
No	262	90.3
Would you get the COVID-19 vaccine?		
Yes	181	62.4
No	109	37.6
Do you think COVID-19 vaccine have an effect on reducing the incidence?		
Yes	160	55.2
No	130	44.8
Reason for willing to get COVID-19 vaccine		
The fear of transmitting the virus to their family and loved	134	46.2
Threat of pandemic	25	8.6
Fear of disease and death	22	7.9
Reason for unwilling to get COVID-19 vaccine		
Side effect	84	30.0
Not believing the effectiveness of the vaccine	15	5.9
Feeling like a guinea pig	10	3.4

DISCUSSION

Pandemics in world history have always been trying times. COVID-19 has affected the lives of people around the world, including children and adolescents, in an unprecedented manner[7]. In the COVID-19 pandemic caused by the SARS CoV-2 virus origin, the number of cases, deaths, and the impact caused by the disease are in a wide range. It is known that the disease is mostly seen in vulnerable people, people with advanced age, and people with chronic diseases. However, in addition to these data, the adolescent group is one of the groups that are not considered at risk due to the low incidence of the disease. Although children appear to be less affected than adults, there have been cases in children since the infection emerged[10,11]. According to the systematic review of Ludvigsson (2020), pediatric cases constitute 1–5% of the cases[11]. In our study, it was determined that 9.7% of the participants were diagnosed with COVID-19. This frequency is almost 1 in 10 people. In South Korea, the frequency of cases reported in individuals under 19 during the epidemic period is 18%. Azhar et al. reported that 2% of the cases involved children in the SARS-CoV epidemic that spread in 2002[12]. In the light of these data, it is possible to say that the effect of SARSCov-2 on the population under the age of 18 is more severe than the pandemics experienced in the past. Therefore, the inclusion of children in the vaccination program may affect the course of the pandemic. Zimer et al. and Boehmer et al. emphasized that children and adolescents should also be included in vaccine groups so that the pandemic does not worsen[13,14].

Table 3. Comparison of COVID-19 Fear Scale Score with independent variables.

	Mean±SD	t-value	p-value	95%CI
Gender				
Female	3.87±0.33	3.233	0.000	0.825–3.393
Male	1.76±0.41			
Effect on the vaccine to the incidence				
Yes	3.04±4.16	1.348	0.027	0.348–1.860
No	3.80±5.38			
Would you get the COVID-19 vaccine?				
Yes	3.13±4.41	0.471	0.036	2.310–1.418
No	3.81±5.27			

Vaccination studies, which are the main preventive treatments, are of great importance, especially in periods when diseases such as pandemics spread rapidly, because vaccination increases population or herd immunity. The willingness of people for vaccination is possible only if they are adequately informed about this issue[15]. In our study, we found that six out of 10 participants (62.4%) wanted to be vaccinated, and almost four (37.6%) out of 10 participants did not want to be vaccinated. Brant et al. reported that 75.9% of the participants wanted to be vaccinated in their study examining the willingness of young people between the ages of 14 and 24 for vaccination[15]. In a study comparing the vaccine willingness with a mixed sample of doctors, nurses, and the society, 70% of the general population, compared with the doctor and nurse groups, reported that they wanted to have the COVID-19 vaccine for their children in the future[1]. Lucia et al. (2020) reported that, despite the potential risks of COVID-19 infection, 8 out of every 10 students were in favor of vaccination in their studies investigating the anti-vaccination among medical faculty students[16].

Vaccines, which are a medical measure in relation to preventing epidemics, are, unlike drugs, expected to have an effect on both the individual and the community level[17]. In our study, 55.2% of the participants think that the COVID-19 vaccine will reduce the transmission of COVID-19 disease. The results obtained show that one of every two students did not believe that the disease could be controlled by vaccination. In fact, in addition to individual effort, vaccination, which is a socially integrated mobility, is one of the most effective ways to control pandemics. Kurtulus et al.[4] reported that 74.9% of the participants in their studies involving 183 healthcare workers believed that the vaccine would reduce the incidence of COVID-19[4]. The reason why our study results are low compared with Kurtuluş et al.[4] study results may be due to the low level of knowledge of young people about the effect of vaccination studies on disease incidence.

Vaccination is an extremely safe, effective, and inexpensive method in preventing life threatening infectious diseases at all ages[18]. In addition, individuals' approach to vaccination varies depending on many environmental and cultural factors. Use of alternative medicine, religious beliefs, side effects of the vaccine, perceived risk, family lifestyle, and race are some of these[3,15]. In our study, 4 (46.2%) out of every 10 participants stated that they are willing to get the COVID-19 vaccine because of the concern of infecting their family and loved ones, and 3 (30%) out of 10 participants stated that they are unwilling to be vaccinated for the concern that it might cause side effects. Dror et al. found that 76% of them accept the vaccine because it is safe, 13% of them accept the vaccine because it is effective, and 11% of them accept the vaccine because it will alleviate the disease[1]. It is seen that the reasons for vaccination/anti-vaccination can vary from society to society. In order to structure the perceptions, it is essential to carry out awareness-raising activities for the societies by those who are competent in health education.

In the COVID-19 pandemic, measures such as quarantine and social distancing were taken to protect the health of the public. However, these measures also have negative effects[19]. In fact, it is known that fear of COVID-19 causes delays[20] in accessing health services and suicide[21]. In our study, the scores obtained from the FCV-19S ranged from 5–22, and the mean score was 3.38±4.75 (data not shown in the table). Our study results showed that the mean score of FCV-19S is significantly higher in females than that in males (Table 3). This is expected as it is known that women suffer more from psychological disorders than men[22,23]. As a result of womens' motivation to help and protect, the high level of anxiety brings with it the fear of COVID-19. In our study, it was determined that the scores obtained from FCV-19S were significantly higher in those who thought that the vaccine would affect the incidence of the disease compared with those who did not and in those who did not want to be vaccinated compared with those who did. Nyguyen et al. (2020) found that being a woman is a reason for the fear of COVID-19 in their study that investigated the fear of COVID-19 in medical faculty students[19]. Akarsu et al.[24], in their study examining the COVID-19 vaccine attitudes in individuals over the age of 18 through a web survey, reported that the gender of the people who wanted to have the COVID-19 vaccine and their willingness to be vaccinated were in a significant relationship[24].

As far as we know, our study contributed to the literature as the first study examining high school students' fear of COVID-19 and their views on vaccination. The COVID-19 infection continues to threaten the health of the public with different effects in different age groups. In addition to the complex infection effects it creates, it can cause psychological problems with restriction, quarantine, and closure measures. The attitudes of young individuals, who are one of the vulnerable groups during pandemic periods, toward vaccination are important in terms of infecting those they come into contact with and increasing the rate of infection. In addition, according to our findings of the study, being a woman, not wanting to be vaccinated, and thinking that the vaccine will not affect the disease incidence are variables that increase the fear of COVID-19. Our suggestion is to organize encouraging and informative programs that will improve young people's attitudes toward vaccination.

There were some limitations in our study. First of all, it was difficult to reach students who did not have a smartphone because the study was a web survey. Second, the crosssectional design of our study was a barrier to causal inference.

AUTHORS' CONTRIBUTIONS

RC: Conceptualization, Data curation, Formal analysis, Supervision, Validation, Visualization, Writing-original draft, Writing-review & editing. **ŞK:** Conceptualization, Data curation, Formal analysis, Supervision, Validation, Visualization, Writing-original draft, Writing-review & editing.

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