RESEARCH ARTICLE

Betul Ozkan [1]
Ilhami Unluoglu [2]

[1] Eskişehir Osmangazi University Faculty of Medicine Department of Family Medicine, Eskişehir, Türkiye

***Corresponding Author:***
*Betul Ozkan*
*mail: drozkanbetul5@gmail.com*

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konuralptipdergi@duzce.edu.tr
konuralptipdergisi@gmail.com
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# Evaluation of the Relationship between Sociodemographic Factors, COVID-19 Fear Levels and Vaccination Status in Patients Applying to Family Medicine Outpatient Clinics in a University Hospital

**ABSTRACT**

**Objective:** This study has aimed to examine the relationship between sociodemographic factors and COVID-19 fear levels in patients aged 18-65 years and their COVID-19 vaccination status.

**Method:** The study sample consists of 866 patients aged 18-65 who applied to the Family Medicine Polyclinics of a university hospital between 01.03.2022 and 01.06.2022. Personal Information Form and Fear of COVID-19 Scale were used to collect data. As the score obtained from the scale increases, the level of fear of COVID-19 increases. The analyzes of the study were done in SPSS 21.0 package program. Kruskal Wallis test and Mann Whitney U test were used for comparisons.

**Results:** 52.3% of the participants in the study were women and the mean age was 36.59±12.32 years. Compared to men, women's fear of coronavirus was statistically significantly higher. The coronavirus fear levels of those who received at least one dose of vaccine compared to those who did not get vaccinated at all and those who received more doses of vaccines compared to those who received only one dose were found to be statistically significantly higher.

**Conclusion:** As the level of fear of COVID-19 increased, it was determined that the vaccination behavior of individuals was positively affected. COVID-19 is a vaccine preventable disease. With vaccination in all healthcare institutions, it will be possible to prevent morbidity and mortality, as well as economic and social losses that may be caused by the COVID-19 pandemic.

**Keywords:** COVID-19, Pandemic, Fear, Vaccine.

# Bir Üniversite Hastanesinde Aile Hekimliği Polikliniklerine Başvuran Hastalarda Sosyodemografik Faktörler, COVID-19 Korku Düzeyleri ve Aşılanma Durumu Arasındaki İlişkinin Değerlendirilmesi

**ÖZET**

**Amaç:** Bu çalışmada 18-65 yaş arası hastalarda sosyodemografik faktörler ve COVID-19 korkusu düzeylerinin, COVID-19 aşılanma durumu ile ilişkisini incelemek amaçlanmıştır.

**Yöntem:** Çalışma örneklemi bir üniversite hastanesinin Aile Hekimliği Polikliniklerine 01.03.2022-01.06.2022 tarihleri arasında başvuran 18-65 yaş arası 866 hastadan oluşmaktadır. Veri toplamada Kişisel Bilgi Formu ve COVID-19 Korkusu Ölçeği kullanıldı. Ölçekten alınan puan arttıkça COVID-19 korkusu düzeyi yükselmektedir. Çalışmanın analizleri SPSS 21.0 paket programında yapıldı. Karşılaştırmalarda Kruskal Wallis testi ve Mann Whitney U testi kullanıldı.

**Bulgular:** Çalışmaya katılanların %52.,3'ü kadındı ve yaş ortalaması 36.,59±12.,32 yıldı. Erkeklerle karşılaştırıldığında kadınların koronavirüs korkusu düzeyi istatistiksel olarak anlamlı düzeyde daha fazlaydı. Hiç aşı yaptırmayanlarla karşılaştırıldığında en az bir doz aşı yaptıranların ve sadece bir doz aşı yaptıranlarla karşılaştırıldığında, daha fazla doz aşı yaptıranların koronavirüs korkusu düzeyleri istatistiksel olarak anlamlı düzeyde daha yüksek bulundu.

**Sonuç:** COVID-19 korkusu düzeyi yükseldikçe bireylerin aşı olma davranışlarının pozitif yönde etkilendiği belirlendi. COVID-19 aşı ile önlenebilir bir hastalıktır. Sağlık hizmeti verilen tüm kurumlarda aşılama ile COVID-19 pandemisinin neden olabileceği morbidite, mortalitenin yanı sıra ekonomik ve sosyal kayıpların önüne geçilmesi mümkün olacaktır.

**Anahtar Kelimeler:** COVID-19, Pandemi, Korku, Aşı

## INTRODUCTION

Declared as a pandemic by the World Health Organization (WHO) on March 11, 2020; COVID-19 has caused fear and anxiety among people worldwide (1,2). The lack of a definitive treatment for the infection has led to uncertainty; this has increased the fear levels of societies towards COVID-19 (3). People resort to protective measures such as masks, distance, and hygiene to protect themselves from the COVID-19 epidemic (4). One of the best ways to prevent the epidemic is to develop and distribute the vaccine. The number of people vaccinated here is also significant. Vaccines not only limit the signs and symptoms of COVID-19 infection; but also help prevent transmission (4). Vaccination against all diseases, especially COVID-19; it is the best cost-effective method for providing herd immunity against infections and for the development of healthy communities (5). The aim of this study is to evaluate the relationships between the behaviors of being vaccinated in individuals during the COVID-19 pandemic and their fear levels towards the transmission of COVID-19. In addition, it was aimed to examine the relationship between these parameters and sociodemographic factors and to determine the factors affecting the COVID-19 vaccine behavior. We think that these factors can make a supportive contribution to the development of vaccination policies.

Coronaviruses are enveloped, single-stranded, positive polarity Ribonucleic Acid (RNA) viruses. The COVID-19 virus causes symptoms such as runny nose, dry cough, and shortness of breath in patients by binding to the Angiotensin Converting Enzyme-2 (ACE-2) receptors in the respiratory system mucosa (6). COVID-19 infection can be overcome with asymptomatic or mild symptoms; pneumonia, septic shock, multi-organ dysfunction and eventually mortality may occur (7). The gold standard in diagnosis is Polymerase Chain Reaction (PCR) test (8). Many drugs mainly used in different indications such as hydroxychloroquine, favipiravir, remdesivir, lopinavir/ritonavir have been tried in treating COVID-19 with special permissions (9). Similar to other viral infection treatments, it is recommended to start antiviral therapy as early as possible. However, there is no antiviral agent whose safety and efficacy have been definitively proven (10). Vaccination is the most effective way to end the pandemic, as it was in the past. Since the end of 2020, different vaccines have been developed and some of them have been approved for emergency use. These are whole virus vaccines, protein-based vaccines, viral vector vaccines and nucleic acid vaccines. Among the vaccines used in our country, Sinovac and Turkovac vaccines are complete virus vaccines; BioNTech is a nucleic acid vaccine (11).

COVID-19 has caused the world to be perceived as an uncertain, confused and volatile place; fear of this infection has arisen. The thought of being unable to access healthcare facilities, long quarantine periods, constant exposure to media news about the pandemic, illness or death of relatives have caused a serious increase in anxiety and fear about COVID-19 (12).

## MATERIALS AND METHODS

**Study Design and Sample Size:** This research is a descriptive cross-sectional study. Considering the distribution of vaccine numbers, 866 patients between the ages of 18-65 who applied to Eskisehir Osmangazi University Health Practice and Research Hospital Family Medicine Polyclinics between 01.03.2022 and 01.06.2022 were included in the study. This article was produced from the specialty thesis in medicine. Approval was obtained from Eskisehir Osmangazi University Non-Interventional Clinical Research Ethics Committee with the decision number 28 on 28.09.2021. Also necessary permissions were obtained from the Republic of Turkey Ministry of Health and the responsible author of the scale used. The questionnaire form of the study was applied to the patients by face-to-face interview method.

**Data Collection Tools:** Participants were asked in the personal information form; age, gender, education level, marital status, working status, presence of chronic and/or psychological illness, status of being vaccinated against COVID-19, if so how many doses, whether or not she/he had COVID-19 infection, how she/he survived, his/her relative whether or not had the disease, and if she/he had, how did she/he end up. The participants were directed to Fear of COVID-19 Scale along with the personal information form. The Fear of COVID-19 Scale was developed by Ahorsu (2020) and his friends to determine the level of fear of COVID-19 experienced by individuals during the pandemic period. The Turkish validity and reliability study of the scale was carried out by Bakioğlu, Korkmaz, Ercan. In the Turkish validity and reliability study, the Cronbach Alpha reliability coefficient of the scale was found to be 0.82. The Fear of COVID-19 Scale is a one-dimensional 5-point Likert-type scale consisting of 7 items (1: Strongly Disagree, 5: Strongly Agree). There is no reverse item in the scale. The total score obtained from all items of the scale determines the level of coronavirus fear experienced by the individual. A minimum of 7 and a maximum of 35 points can be obtained from the scale. An increase in the score obtained from the scale means an increase in the level of fear of COVID-19 (13).

**Statistical Analysis of Data:** The analyzes of the study were made in the SPSS 21.0 package program. Categorical variables were summarized as numbers, percentages, continuous numerical variables as mean±standard deviation, and median

(min–max) values. Chi-square test and Fisher's exact test were used to compare categorical variables between groups. Conformity of continuous numerical variables to normal distribution was checked with the Shapiro Wilk test. It was determined that the numerical data were not normally distributed among the categories. Mann-Whitney U test was used for comparison of continuous numerical variables between two groups, and Kruskal Wallis test was used for comparison between more than two groups. In determining the groups from which statistical significance originates, p values are presented by making Bonferroni correction. The relationship of continuous numerical variables with each other was checked with the Spearman Correlation test. Statistically, p value less than 0.05 was accepted as the limit of significance.

## RESULTS

**Descriptive Features of the Cases:**866 patients between the ages of 18-65 who applied to family medicine outpatient clinics were included in the study. 52.3% of the patients were female and the mean age was 36.59±12.32 years. 68.3% of the individuals had a bachelor's degree or higher, 58.2% were married, 71.9% were working, and 17.9% had at least one chronic or psychological illness.

**Table 1.** Some sociodemographic characteristics and chronic disease status of the participants

| Variables | Number | Percent |
|---|---|---|
| **Gender** | | |
| Male | 413 | 47.7 |
| Female | 453 | 52.3 |
| **Education level** | | |
| Illiterate | 2 | 0.2 |
| Primary school | 33 | 3.9 |
| Middle school | 52 | 6.0 |
| High school | 91 | 10.5 |
| Associate degree | 96 | 11.1 |
| Undergraduate and above | 591 | 68.3 |
| **Marital status** | | |
| Single | 362 | 41.8 |
| Married | 504 | 58.2 |
| **Working Status** | | |
| Working | 623 | 71.9 |
| Not working | 243 | 28.1 |
| **Chronic or psychological illness** | | |
| Yes | 155 | 17.9 |
| None | 711 | 82.1 |

When the vaccination status was examined, it was seen that 89% of the participants had at least one dose, and 10.5% had 4 doses or more. When examining the situations of affected by COVID-19 infection, 31.9% of the people stated that they, 83.2% of a relative had COVID-19, 2.2% of them stated that they were hospitalized, 7.5% of them stated that their relative died due to COVID-19.

**Table 2.** Participants' experiences with COVID-19 infection and COVID-19 vaccine

| Variables | Number | Percent |
|---|---|---|
| **COVID-19 vaccine** | | |
| At least one dose vaccinated | 770 | 89.0 |
| Never done | 96 | 11.0 |
| **Number of COVID-19 vaccine doses** | | |
| 1 | 49 | 5.7 |
| 2 | 463 | 53.5 |
| 3 | 167 | 19.3 |
| 4 and above | 91 | 10.5 |
| **COVID-19 infection** | | |
| Get the illness | 276 | 31.9 |
| Not get the illness | 590 | 68.1 |
| **How she/he survived COVID 19** | | |
| At home | 257 | 29.7 |
| At hospital | 19 | 2.2 |
| **The status of relative get the illness** | | |
| Don’t know | 24 | 2.8 |
| Yes | 721 | 83.2 |
| None | 121 | 14.0 |
| **How did his/her relative survive the illness?** | | |
| At home | 551 | 63.9 |
| At hospital | 84 | 9.6 |
| Died | 66 | 7.5 |
| In the intensive care unit | 20 | 2.2 |

**Conclusions on Fear of Coronavirus:** Compared to men, women's fear of coronavirus was statistically significantly higher ($p<0.001$). There was no statistically significant correlation between the age of the subjects and their FVC-19S score ($r=-0.043$, $p=0.215$). No correlation was found between education level, marital status, employment status, presence of chronic disease and FCV-19S score ($p>0.05$).

Those who had at least one dose of vaccinated compared to those who had never been vaccinated and those who had only one dose of vaccinated had a statistically significant higher FCV-19S score ($p<0.001$). Among those whose relatives had COVID-19, compared to those whose relatives had the disease at home or in the hospital, the FCV-19S score of those whose relatives died was statistically significantly higher ($p=0.001$).

**Table 3.** Comparison of COVID-19 fear level according to some sociodemographic characteristics and chronic disease status of the participants

| Variables | FCV-19S Score | | |
|---|---|---|---|
| | Mean±SD | Median (min-max) | *p* |
| **Gender** | | | |
| Male | 14.71±4.15 | 14 (8-35) | **<0.001** |
| Female | 17.25±5.07 | 17 (8-35) | |
| **Education level** | | | |
| Illiterate | 22.5±10.61 | 22.5 (15-30) | 0.216* |
| Primary school | 16.33±5.04 | 17 (8-28) | |
| Middle school | 15.35±4.49 | 14.5 (8-32) | |
| High school | 15.24±4.81 | 14 (8-30) | |
| Associate degree | 15.65±4.55 | 15 (8-30) | |
| Undergraduate and above | 16.23±4.85 | 15 (8-35) | |
| **Marital status** | | | |
| Single | 16.19±4.81 | 15 (8-35) | 0.322 |
| Married | 15.92±4.83 | 15 (8-35) | |
| **Working status** | | | |
| Working | 15.88±4.62 | 15 (8-35) | 0.330 |
| Not working | 16.42± 5.31 | 15 (8-35) | |
| **Chronic or psychological illness** | | | |
| Yes | 16.39±5.04 | 16 (8-35) | 0.366 |
| None | 15.95±4.77 | 15 (8-35) | |

*Kruskal Wallis test was used for comparisons. Mann Whitney U test was used for other comparisons.

**Table 4.** Comparison of COVID-19 fear level according to participants' experiences with COVID-19 infection and vaccine

| Variables | FCV-19S Score | | |
|---|---|---|---|
| | Mean±SD | Median (min-max) | *p* |
| **COVID-19 vaccine** | | | |
| Never vaccinated | 14.1±4.47 | 12 (8-30) | **<0.001** |
| At least 1 dose vaccinated | 16.27±4.81 | 15 (8-35) | |
| **Number of COVID-19 vaccine doses** | | | |
| 1 | 14.4±3.49 | 13.5 (10-24) | **<0.001*** |
| 2 | 16.55±5.01 | 16 (8-35) | |
| 3 | 16.39±4.81 | 15 (8-30) | |
| 4 and above | 15.68±4.13 | 15 (9-25) | |
| **COVID-19 infection** | | | |
| Not get the illness | 16.12±4.68 | 15 (8-35) | 0.167 |
| Get the illness | 15.84 ± 5.12 | 15 (8-35) | |
| **How she/he survived COVID 19** | | | |
| At home | 15.7±5.06 | 15 (8-35) | 0.102 |
| At hospital | 17.68±5.63 | 17 (10-30) | |
| **The status of relative get the illness** | | | |
| Don't know | 17.78±5.11 | 17 (11-35) | 0.108* |
| None | 16.37±4.85 | 15 (8-31) | |
| Yes | 15.92±4.8 | 15 (8-35) | |
| **How did his/her relative survive the illness?** | | | |
| At home | 15.71±4.64 | 15 (8-32) | **0.001*** |
| At hospital | 15.22±4.25 | 14 (8-30) | |
| Died | 18.38±5.87 | 18 (9-35) | |
| In intensive care unit | 16.1±5.36 | 14.5 (10-29) | |

**Comparison of Sociodemographic Factors and Vaccination Status:** 87.4% of female participants and 90.6% of male participants received at least 1 dose of vaccine. The frequency of vaccination among primary school graduates was 90.9%, similar to those with a bachelor's degree or higher (91%). In addition, 2 illiterate people participated in our study, and both of them had at least 1 dose of vaccine (100%, p=0.015). When we excluded 2 illiterate people from the evaluation, no significant relationship was found between education level and vaccination status. Compared with married, singles (p<0.001); vaccination frequency among working people were statistically significantly higher (p=0.015) compared to non working people.

**Table 5.** COVID-19 vaccination status according to sociodemographic characteristics

| | COVID-19 vaccine | | | | |
|---|---|---|---|---|---|
| | At least one dose | | Never done | | |
| **Variables** | **Number** | **Percent** | **Number** | **Percent** | ***p*** |
| **Gender** | | | | | |
| Male | 374 | 90.6 | 39 | 9.4 | 0.142 |
| Female | 396 | 87.4 | 57 | 12.6 | |
| **Education level** | | | | | |
| Illiterate | 2 | 100.0 | 0 | 0.0 | **0.015** |
| Primary school | 30 | 90.9 | 3 | 9.1 | |
| Middle school | 40 | 76.9 | 12 | 23.1 | |
| High school | 79 | 86.8 | 12 | 13.2 | |
| Associate degree | 80 | 83.3 | 16 | 16.7 | |
| Undergraduate and above | 538 | 91.0 | 53 | 9.0 | |
| **Marital status** | | | | | |
| Single | 338 | 93.4 | 24 | 6.6 | **<0.001** |
| Married | 432 | 85.7 | 72 | 14.3 | |
| **Working Status** | | | | | |
| Working | 564 | 90.5 | 59 | 9.5 | **0.015** |
| Not working | 206 | 84.8 | 37 | 15.2 | |
| **Chronic or psychological illness** | | | | | |
| Yes | 140 | 90.3 | 15 | 9.7 | 0.538 |
| None | 630 | 88.6 | 81 | 11.4 | |

Row percentage is given. Chi-square test was used for comparisons.

Compared to men, women's fear of coronavirus was statistically significantly higher (p<0.001). Those who had at least one dose of vaccinated compared to those who had never been vaccinated and those who had only one dose of vaccinated had a statistically significant higher FCV-19S score (p<0.001) (Figure 1). Among those whose relatives had COVID-19, compared to those whose relatives had the disease at home or in the hospital, the FCV-19S score of those whose relatives died was statistically significantly higher (p=0.001) (Figure 2).

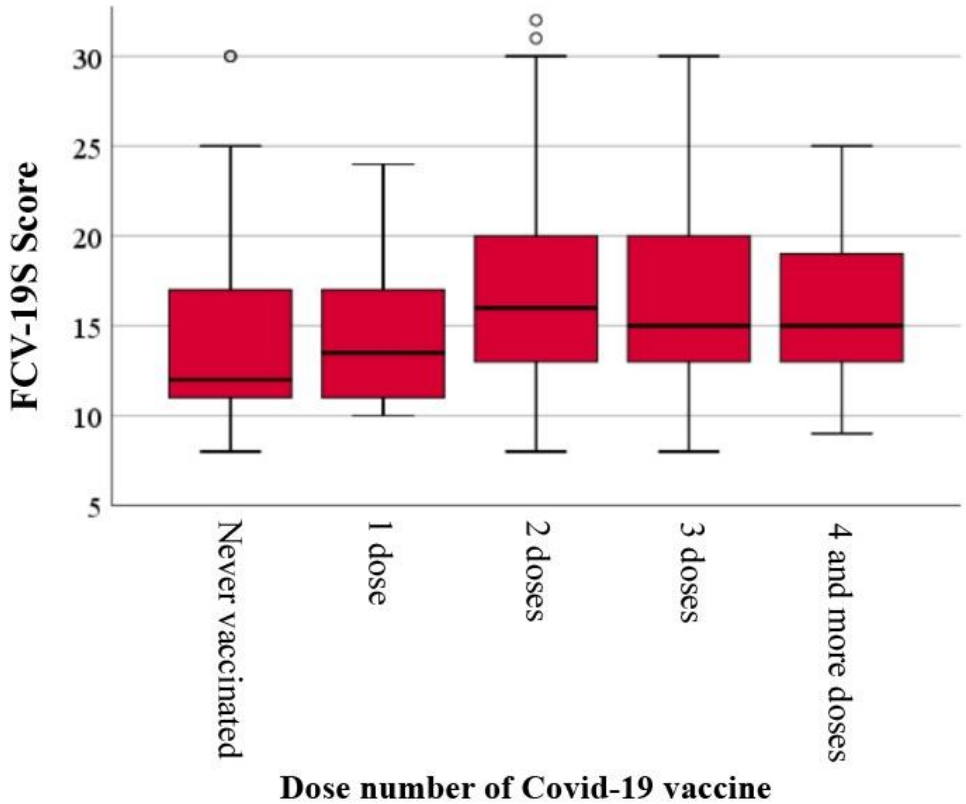


**Figure 1.** Graphical representation of the distribution of the number of COVID-19 vaccine doses and FCV-19S scores of the participants

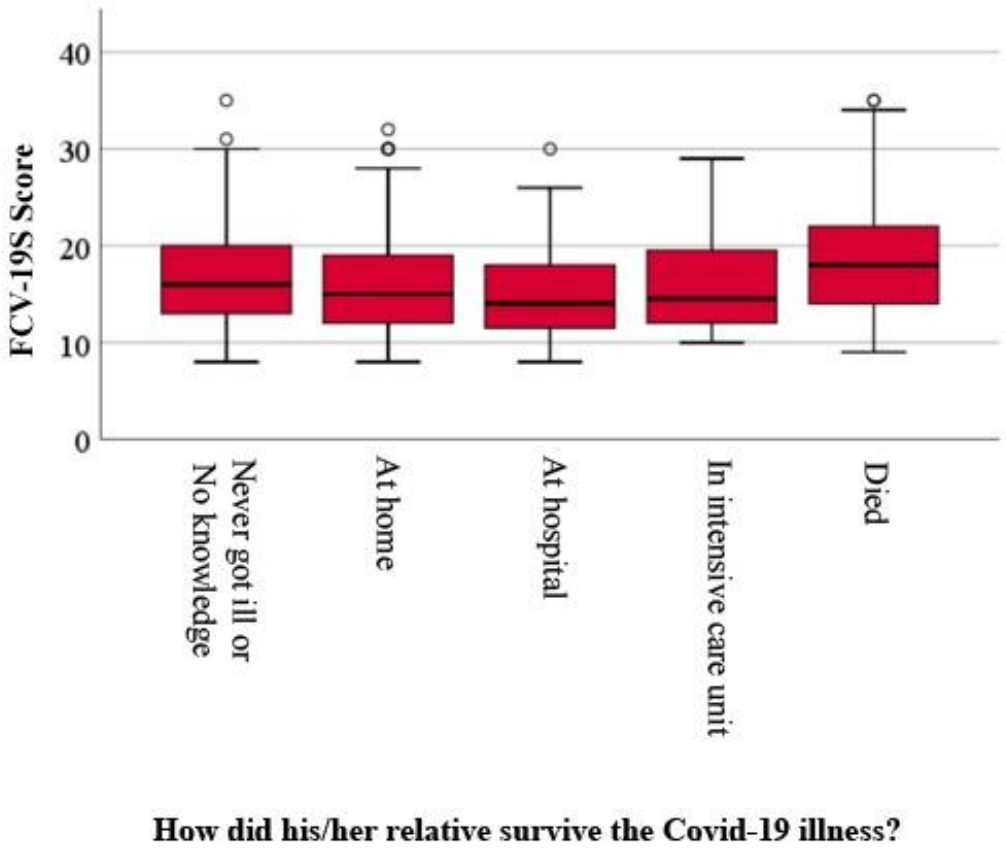


**Figure 2.** The relationship between the outcome of the disease of the relatives of the participants who had COVID-19 and the FCV-19S score

**DISCUSSION**

Since people between the ages of 18-65 are the population that contributes to production and provides economic value to the country, individuals from this age group were included in our research. In addition, since most of the people between the ages of 18-65 are involved in education and working life; it is more risky than childhood and old age in terms of being exposed to the transmission of COVID-19 or causing it to be transmitted to others. Therefore, vaccination of this age range is very important for the control of the pandemic. According to the results related to the fear of coronavirus; women had higher coronavirus fear levels than men. Although men have a higher risk of death due to this infection compared to women, women's fear of coronavirus is higher than men (14-17). When similar studies in the literature were examined, it was seen that they were in line with the results of this study. In the study, the level of fear of COVID-19 of those who lost a relative due to coronavirus was found to be significantly higher than those whose relative had the disease at home or in the hospital. Similar to the results obtained; in an article published in The Journal of Social Science, among university students; The COVID-19 fear levels of those whose relatives died due to coronavirus were found to be significantly higher than those of the students who did not experience a loss due to the same reason (18). Single people compared with married people and working people compared with non-working people were more likely to get at least 1 dose of the vaccine. The number of COVID-19 vaccination doses varied statistically significantly according to marital status and working status, similar to vaccination status. In a study conducted among healthcare professionals in China; being single was found to be associated with higher vaccine acceptance (19). In a study by Malik et al. in the USA, it was determined that working people were more likely to accept any COVID-19 vaccine than those who did not work (20). Based on the results of the study, it can be thought that the fact that people who take an active role in working life are more exposed to crowded environments and that single people do not have someone to care for them when they get sick may cause more vaccination behavior. Compared to those who have never been vaccinated, the fear of coronavirus was found to be higher in those who had at least 1 dose of vaccination. In addition, compared to those who received only 1 dose of vaccine, the fear of coronavirus was found to be higher in those who received more doses. According to the results of this study, as the level of fear of COVID-19 increases, the doses of vaccination against COVID-19 increase; it can be said that those who have

never been vaccinated decide to be vaccinated. In the study of Türktemiz et al., it was found that individuals' fears of COVID-19 caused positive vaccination attitudes; in the study of Bendau et al., subjective anxiety and fear were found to be important in vaccine acceptance (4,21). The available literature supports the results of this research.

## CONCLUSION

The most important result obtained in this study; as the level of fear of COVID-19 rises, the vaccination behavior of individuals is positively affected. As the level of fear of COVID-19 rises; it can be said that people who have never been vaccinated decide to be vaccinated, while the vaccination doses of vaccinated people increase. Being single compared to being married; It was determined that being working can increase vaccine acceptance compared to not working. According to the results of the research; Women's fear of coronavirus was found to be higher than men. In addition, it was determined that losing a relative due to COVID-19 may cause the fear of COVID-19 to rise.

To effectively combat the pandemic; more informative studies on COVID-19 infection and vaccine should be organized. Public service announcements and social campaigns can be organized by the Ministry of Health to raise awareness on this issue. In addition, the COVID-19 pandemic can be limited by facilitating access to the vaccine by institutions and organizations affiliated with the Ministry of Health and by providing access to cheap, fast and reliable diagnostic tests in case of infection symptoms. The society's responsibility in this regard is to trust the health authorities; is to comply with the preventive measures implemented throughout the world and the country. COVID-19 can be prevented by vaccination and family physicians play an important role in vaccination. In particular, institutions providing primary health care bear the burden of vaccination. In addition to the morbidity and mortality that may develop secondary to COVID-19 infection with vaccination in all institutions providing health services, especially in primary care; it will be possible to prevent economic and social losses.

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