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Evaluation of knowledge thought and attitudes of Health Services Vocational School students regarding COVID-19 vaccine applications

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Abstract

In the fight against the pandemic, vaccines play an effective role in preventing diseases by producing a long-term immunological memory. For a variety of reasons, vaccine hesitancy can be observed among healthcare workers and students enrolled at health-related programs of universities. Inevitably, the students at Health Services Vocational School (HSVS) who have the potential to be employed as auxiliary health workers in near future will undertake significant duties in preventing the spread of the COVID-19 pandemic and fighting with its effects. Therefore, thoroughly studying the reasons for vaccine hesitancy of these groups that serve as a reference point for society is important to increase vaccination rates. This study aims to evaluate the knowledge, views, and attitudes that the students of HSVS have about COVID-19 vaccination practices. This research was conducted by using an online survey that was comprised of 17-questions and applied between 25 July 2021 - 15 August 2021 to 660 students who were aged 18-25 years and enrolled at the programs of HSVS of universities in Istanbul, Turkey. In the period when the survey was applied to the participant students, 27.0% of the participants said that they already got the first dose of the COVID-19 vaccine whilst 32.9% of them told that they already got the second dose of the COVID-19 vaccine. While 26.7% of the participants stated that they did not get the COVID-19 vaccine yet, 13.5% of them said that they did not think of getting the COVID-19 vaccine. The participants asserted that they acquired their current information about the benefits and side effects of the COVID-19 vaccines mostly from printed & visual media (21.52%) and social media (21.52%). On the other hand, it was found that the students of HSVS who were anxious about being infected with the COVID-19 disease were worried mostly about the health of their families (52.12%). According to the results of this study, it is discerned that the vaccination rate of the students of HSVS was a bit lower than the average vaccination rate for Turkey and the vaccination rate for Istanbul province. It cannot be denied that acquiring the current information about the vaccine mostly from the channels of social media and printed & visual media affected these results. Hence, ensuring that these individuals who are still in the learning stage participate in scientific platforms to be organized on this topic particularly at the higher education institutions where they are enrolled is important for them to acquire information from more sound channels about this issue which is also of concern to public health.

Keywords: COVID-19, vaccine applications, vaccine hesitancy, Health Services Vocational School students

Introduction

Throughout human history, deadly infectious diseases came forward as the most frightening disasters threatening societal life [1]. When reviewed at the global scale, it is discerned that infectious diseases threaten the health of human beings of all ages.

They kill adults at an advanced age and children, and also, create serious risks for individuals with obesity, diabetes, or cardiovascular diseases. The COVID-19 infection that was one of the most wide-ranging disasters of the world was declared by

the World Health Organization (WHO) as a ‘pandemic’ on 11 March 2020. How important to develop drugs for preventing the COVID-19 infection is highly evident. The great achievements were attained particularly by means of antiviral drugs that were recently developed for the treatment of viral diseases. On the other hand, the primary goal in the fight against viral diseases should be “not to get sick” in the first place. Thus, it is clearly discerned that the most effective method to be protected from infectious diseases is vaccination. The WHO defined vaccines as “the pharmaceutical products enabling our immune system to recognize pathogens like viruses and bacteria to fight with them and protecting our body from diseases caused by these pathogens” [2]. Besides, the WHO emphasized that substantial progress in controlling the pandemic would be achieved only with the development of a safe and effective vaccine for fighting against the COVID-19 infection.

As the vaccines played an active role in the prevention of diseases

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by creating a long-term immunological memory for the control of infectious diseases, efforts to develop vaccines likely to be effective in preventing and alleviating the COVID-19 infection were increased across the entire world. Throughout the world, numerous firms, academic institutions, and research centers performed studies about the COVID-19 vaccine to be developed with a variety of methods including recombinant vectors, mRNA, DNA, inactivated virus, live attenuated virus, virus-like particles, and protein subunits in lipid nanoparticles [3]. To increase the efforts on this topic, the “Vaccine and Drug Development Virtual Conference” was organized in Turkey on 2 April 2020 under the leadership of the COVID-19 Platform. In Turkey, vaccine development efforts continue in more than ten universities and science centers [4]. Numerous researchers clearly state that, as well as protecting from infectious diseases, vaccination is the most effective method for reducing the number of serious disabilities or deaths caused by infectious diseases particularly in the old population and patients with chronic diseases [5,6]. The vaccine hesitancy observed in certain segments of society, unfortunately, leads to falls in vaccination rates, and accordingly, to increase vaccination rates, studying the basis of vaccine hesitancy thoroughly is of importance. The COVID-19 vaccine hesitancy reverses the progress to be made in the fight against this disease [7]. While the progress in the development of the COVID-19 vaccine continues, efforts to raise awareness about the necessity and importance of vaccines will help to increase the vaccination rates [8].

Besides the health workers, the students who have the education to pursue a career in health services are also viewed as sources of reliable guidance for society on health-related topics. There are plenty of uncertainties particularly about the vaccines and vaccine practices that were recently developed and used across the world to eliminate the ongoing pandemic. At this stage, it is important that society have access to information from accurate and reliable sources. Unfortunately, a delay in the vaccination of health workers who are at higher risk and students who do an internship at health facilities is a source of global concern as it can easily lead to the emergence and spread of new COVID-19 variants that can overcome the immunization acquired via vaccines. A variety of research studies performed up to the present analyzed whether the health workers in countries with different income distributions accepted or rejected the vaccine [9]. On the other hand, little is known about the vaccine acceptance by the students of HSVS that form one of the groups for which the large-scale vaccination goal was set. In this respect, this study aims to evaluate the knowledge, views, and attitudes of HSVS students about the COVID-19 vaccination practices.

Materials and Methods

This study relies on the survey data produced by the researchers in an electronic platform. The population of this descriptive research is comprised of students aged 18 years or above and enrolled at the HSVS programs in Istanbul, Turkey. Of 660 HSVS students who participated in the survey and were aged 18-25 years, 136 students (20.6%) were male, and 524 students (79.4%) were female. The HSVS programs where 660 participant students were enrolled and the percentages of students per HSVS program were as follows: Oral and Dental Health (7.9%), Operating Room Services (13%),

Anesthesia (14.8%), Physiotherapy (3.6%), Emergency and First Aid (12%), Audiometry (6.1%), Radiotherapy (5.8%), Medical Imaging Techniques (6.4%), Medical Documentation (2.9%), Medical Laboratory Techniques (22.1%), and other programs (Electroneurophysiology, Opticianry, and Pathology Laboratory Techniques, 5.5%).

The research was conducted between 25 July 2021 – 15 August 2021 with students enrolled at HSVS programs of different universities in Istanbul. In the study, the survey questions were created via Google Forms and shared with HSVS students via WhatsApp Messenger. From among the HSVS students who voluntarily filled in the survey form via Google Forms, only those who answered all survey questions were included in the research sample, on the other hand, the HSVS students were told that they were not obliged to answer a Likert item in the survey form only if they thought that the Likert item did not exactly reflect their views.

The electronic survey form shared with the HSVS students was composed of 17 questions in total, namely, 10 multiple choice questions and 7 Likert items. All HSVS students who volunteered to participate in the study had 4 questions about sociodemographic characteristics (gender, age, marital status, and the HSVS program), 2 questions about the status of having the COVID-19 infection, and 11 questions about vaccines and vaccination practices.

This research was approved by the Institutional Ethics Committee of Altınbaş University, Medical Faculty (approval number: 15274) and performed according to the ethical (Declaration of Helsinki) and legal standards in Turkey. No personally identifiable information was collected or stored.

Data analysis and statistical analysis

The data obtained from students in HSVS were transferred to the computer. Data were analyzed with descriptive statistics and graphical analyses using SPSS 21.0 statistical analysis software (SPSS Inc. Chicago, IL, USA). The chi-square test was used to compare the groups. Also The distribution of the answers to the Likert-type questions was analyzed with the chi-square homogeneity test. $p < 0.05$ was considered to be statistically significant.

Results

Of 660 HSVS students who voluntarily took part in this study, 79.4% were female, 20.6% were male, and only 1.5% were married. Besides, 22.6% of the participant students ($n=149$) said that they already had the COVID-19 infection whilst 43.0% of them ($n=284$) told that a family member already had the COVID-19 infection (Table 1).

In the period when the participant students responded to the survey form, 27.0% of the participants already got the first dose of the COVID-19 vaccine whilst 32.9% of them already got the second dose of the vaccine. While the percentage of participant students saying that they did not get the COVID-19 vaccine yet was 26.7%, 13.5% of them stated that they did not think that they would get vaccinated (Table 1). Next, it was discerned that, as per the variable of gender, there was no statistically significant difference in the distribution of answers given by the participant students to the

question asking whether they got vaccinated. On the other hand, it was identified that, as per the variable of having the COVID-19 infection or the variable of having a family member who had the

COVID-19 infection, there was a statistically significant difference in the distributions of answers given by the participant students to the above question (Table 1).

Table 1. COVID-19 vaccination and infection status of the participants

Variables	“Your COVID -19 vaccination status”				p-value
	I had the 1 st dose of vaccine (n=178, %27.0)	I had the 2 nd dose of vaccine (n=217, %32.9)	I haven't been vaccinated (n=176, %26.7)	I don't plan to be vaccinated (n=89, %13.5)	
Gender					0.444
Male (n=136, %.20.6)	30 (%16.85)	51 (%23.50)	36 (%20.45)	19 (%21.35)	
Female (n=524, %79.4)	148 (%83.15)	166 (%76.50)	140 (%79.55)	70 (%78.65)	
COVID-19 infection					0.030
I had the infection (n=149, %22.6)	40 (%22.47)	39 (%17.97)	53 (% 30.11)	17 (%19.10)	
I did not have the infection (%..n=511, %77.4)	138 (%77.53)	178 (%82.03)	123 (%69.89)	72 (%80.90)	
COVID-19 infection of a family member					0.043
She/He had been infected (n=284, %.43.0)	77 (%43.26)	80 (%36.87)	90 (%51.14)	37 (%41.57)	
She/He had not been infected (n=376, %57)	101 (%56.74)	137 (%63.13)	86 (%48.86)	52 (%58.43)	

In relation to the COVID-19 vaccines in use in Turkey, 73.03% of the participant students said that they thought that the mRNA-based vaccine (Pfizer-BioNTech) was safe while 13.64% of them told that they thought that the inactivated vaccine (Sinovac) was safe (Figure 1). Besides, 12.73% of the participant students asserted that they would consider the national COVID-19 vaccine safer than others and prefer it after its development was finalized. Moreover, only 0.61% of the participant students thought the Sputnik V vaccine was safer than other vaccines (Figure 1).

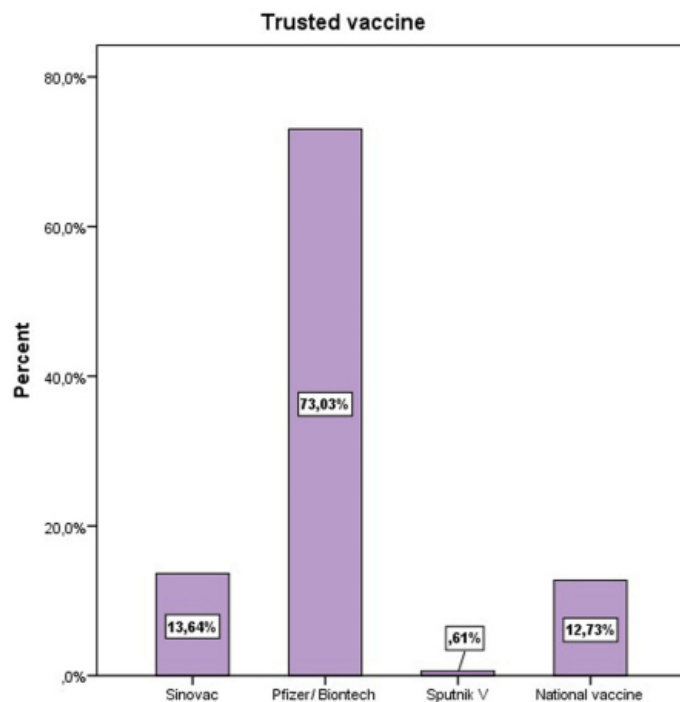


Figure 1. The distribution of answers given by participants to the question, “Which vaccine that is currently in use or likely to be in use soon in Turkey is the safest according to you?” (n=660)

As a response to the question, “Where did you primarily get your current information about the benefits of the COVID-19 vaccines and their likely side effects?”, a significant part of the participant students said that they obtained their current information about the benefits of the COVID-19 vaccines and their likely side effects from printed & visual media (21.52%) and social media (21.52%) (Figure 2).

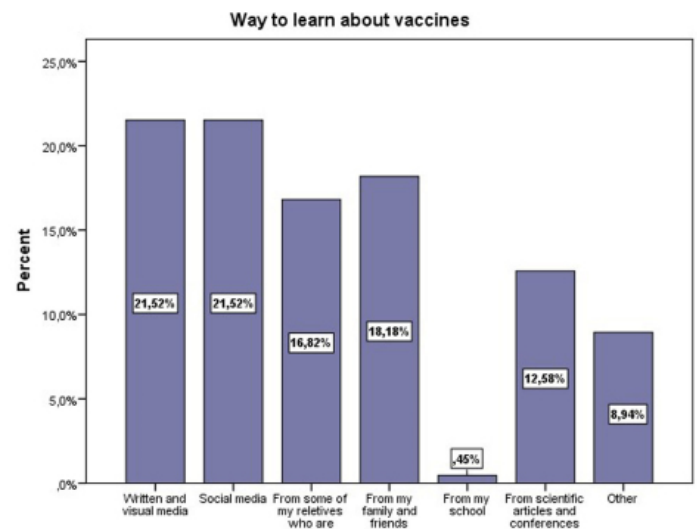


Figure 2. The distribution of answers given by participants to the question, “Where did you primarily get your current information about the benefits of the COVID-19 vaccines and their likely side effects?” (n=660)

In the research, it was discerned that the answers given by the participant students to 7 Likert items were not homogeneously distributed (Table 2). First of all, with respect to the Likert item, “I have information about legal regulations concerning vaccination practices in Turkey.”, only 8.2% of the participants said that they strongly agreed. Second, in relation to the Likert item, “I am concerned that the vaccine will not adequately protect me.”,

86.4% in total of the participants said that they were concerned that the vaccine would not protect them adequately (Table 2). Third, regarding the Likert item, “I am concerned about the side effects of the vaccine.”, 88.4% of the participants stated that they were more or less concerned about the side effects of the vaccine (Table 2). Fourth, with respect to the Likert item, “I feel pressured to get the COVID-19 vaccine.”, 53.2% in total of the participants said that, at varying degrees (more or less), they felt pressured to get vaccinated (Table 2). Fifth, in relation to the Likert item, “If the government or my workplace makes it mandatory to get the COVID-19 vaccine, I will get vaccinated.”, 43.3% of the participants said that they strongly agreed, 13.3% of them told that they agreed to a large extent, 21.6% of them stated that they

somewhat agreed, 8.4% of them said that they agreed very little, and 13.4% of them told that they strongly disagreed (Table 2). Sixth, regarding the Likert item, “If my school requires every employee/student to get the COVID-19 vaccine, I will leave the school.”, 72.7% of the participants said that they strongly disagreed (Table 2). Seventh, with respect to the Likert item, “I am concerned about contracting the COVID-19 infection during my education or while doing my job.”, 81.6% in total of the participants said that they were concerned in this respect (Table 2). A large part of the participant students (52.12%) put forward that putting the health of their families in danger was the most significant reason for them to have anxiety about being infected with COVID-19 disease (Figure 3).

Table 2. Answers given by participants to likert-type questions about the COVID-19 vaccine

Survey Questions	N	I strongly agree	I agree to a large extent	I somewhat agree	I agree very little	I strongly disagree	p-value
If the government or my workplace makes it compulsory to have the COVID-19 vaccine, I get the vaccine	656	284(%43.3)	87(%13.3)	142(%21.6)	55 (%8.4)	88 (%13.4)	0.000
If my school requires every employee/student to have the COVID-19 vaccine, I will leave the school	658	45 (%6.8)	18 (%2.7)	46 (%7)	71 (%10.8)	478 (%72.7)	0.000
I have information about the legal regulations regarding vaccination practices in Turkey	658	54 (%8.2)	107 (%16.3)	242 (%36.8)	164 (%24.9)	91 (%13.8)	0.000
I am concerned that the vaccine will not adequately protect me	658	134 (20.4)	78 (11.9)	206 (31.3)	150 (22.8)	90 (13.6)	0.000
I am concerned about the side effects of the vaccine.	659	179 (27.2)	92 (14.0)	180 (27.3)	131 (19.9)	77 (11.6)	0.000
I feel pressured to get the COVID-19 vaccine	658	103 (15.7)	49 (7.4)	109 (16.6)	89 (13.5)	308 (46.8)	0.000
I am concerned about contracting COVID-19 infection during my education or while doing my job	658	167 (25.4)	76 (11.6)	193 (29.3)	101 (15.3)	121 (18.4)	0.000

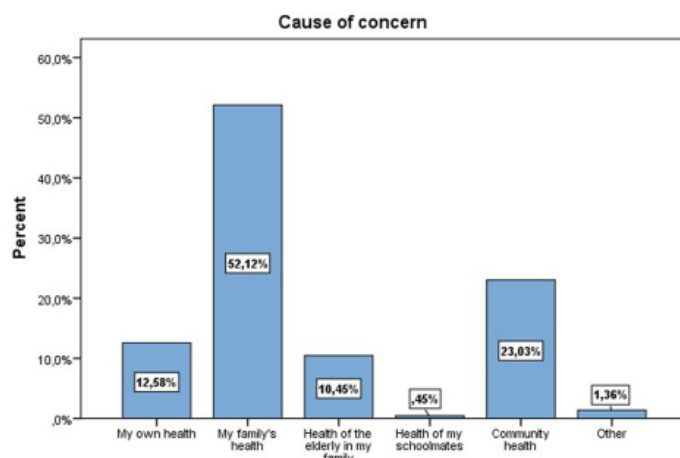


Figure 3. The distribution of answers given by participants to the question, “What would be the biggest cause of your anxiety if you were infected?” (n=660)

Discussion

How significant a duty the health workers undertook for the protection of public health was once again acknowledged during the pandemic. Thousands of people serve in the health system in Turkey as health services staff. A significant part of these staff is the health workers who are HSVS graduates. As per the university program selection booklet issued in 2020 by the Measurement, Selection, and Placement Center of Turkey (OSYM), it is discerned that thousands of students are accepted to different programs of

130 HSVS of public and foundation universities, 32 of which are located in Istanbul [10].

Analyzing the vaccine rejection/acceptance attitudes of HSVS students, who are among the groups with the highest risk of being infected with the COVID-19 disease, and their reasons for rejecting or accepting the vaccines is important to raise the vaccination rates and take measures in this direction. This is a survey study targeting to examine whether the HSVS students get vaccinated for COVID-19 disease in Istanbul which is among the cities with the highest population density in Turkey and the highest number of graduates of HSVS programs, and also this study aims to identify these HSVS students' vaccine rejection/acceptance attitudes and their reasons for rejecting or accepting the vaccines. As the rapid vaccination of health workers is, in particular, targeted during the COVID-19 pandemic, the vaccine hesitancy observed in this population of students with the potential to work in health services in the future can create significant challenges for the public health authorities. Not addressing such challenges in the context of the COVID-19 pandemic can obstruct the efforts of the country to manage the pandemic. Therefore, it is important to identify the factors determining the HSVS students' intentions toward the acceptance or rejection of the COVID-19 vaccine. Considering the current vaccination practices relevant to the target study group, it is anticipated that the findings of the current study will contribute to the fight with the COVID-19 pandemic and serve as a guide for the practices in the future.

While the legal aspect of mandatory vaccination practices changes across countries, its ethical aspect is discussed by groups advocating two different views referring to the conventions on international human rights. Mandatory vaccination has multiple dimensions concerning these rights. The first one is the right to life and the second one is the right to bodily integrity [11]. While the results of studies conducted by the scientists focus on the need to get vaccinated for the protection of the right to life, those opting out of getting vaccinated advocate that making vaccination mandatory will violate bodily integrity [11]. This topic occupied a place also at the agenda of Turkey alongside its pre-pandemic legal and ethical aspects, and the parents who did not want to have their children vaccinated brought lawsuits against the Ministry of Health of Turkey [12,13]. In relation to these lawsuits, a variety of judgments were issued on different grounds by the first instance courts and the Court of Cassation of Turkey. Lastly, on 11 November 2015, by a majority vote, the Constitutional Court of Turkey issued a judgment stating that the mandatory vaccination was in violation of the right to protect and improve corporeal and spiritual existence as enshrined in Article 17 of the Turkish Constitution but not in violation of the right to bodily integrity. The Public Health Law of Turkey (Law no. 1593) has no provision about the application of vaccines developed against the COVID-19 disease. Thus, at this stage, there is no legal regulation about the topic. The right to life is enshrined in Article 17 of the Turkish Constitution, Article 2 of the European Convention on Human Rights, and Article 6 of the International Covenant on Civil and Political Rights. In Turkey, the state has a positive obligation to ensure the full protection of this right [11]. The most important step to be taken at this stage by the state to fulfill its above obligation is to launch the legislative process for the enactment of the law including the regulation on vaccination. In this period, the authorized committees in Turkey decided that, as of 6 September 2021, a person who was not vaccinated had the obligation to submit a negative PCR test to join activities in which the people collectively participated, such as concerts, cinemas, and theaters. Additionally, it was announced that the person who was not vaccinated or did not previously get the COVID-19 disease would be asked to present a negative PCR test to have intercity trips with buses, trains, or other modes of mass transportation, except for private vehicles. Just as in the case of several other countries across the world, coercive measures are taken in Turkey at the current stage to eliminate legally and ethically problematic situations that are likely to arise due to the mandatory vaccination practice. What sort of consequences such measures will bring about in Turkey will be better understood in the coming days?

While the pressure of modern life on the body is considered as the basis of vaccine rejection, the suspicions about the profit-oriented activities of large pharmaceutical companies are also among the basis of vaccine rejection [14]. It is asserted that, in Turkey, vaccines were rejected by 183 thousand families in 2011, nearly 10 thousand families in 2016, and more than 120 thousand families in 2017 [12]. In light of these figures, it is observed that the developments and discussions taking place across the world affected the rise of the anti-vaccine attitude in Turkey as well [15]. As per a survey study performed by Doğan et al. on the general population about the COVID-19 vaccination in Turkey, 14.5% of the participants thought of not getting vaccinated and 15.3% of them thought that the vaccine was not effective in

the fight with infectious diseases [15]. Likewise, in two studies conducted in Hong Kong with nurses in the early phase of the pandemic (February 2020 and March 2020), it was stated that the percentages of nurses accepting the COVID-19 vaccine were not so high (respectively 40.0% and 63%) [16,17]. In the same vein, it was put forward that the percentage of health workers accepting the COVID-19 vaccine was quite low in the Democratic Republic of the Congo (27.7%) [18]. Also, in our study, it was observed that a total of 40.2% of the participants, including those who stated that they had not been vaccinated yet (26.7%) and those who did not plan to be vaccinated (13.5%), did not. In a similar vein to the studies above, still having a high percentage of those not yet vaccinated and rejecting vaccines despite the devastating effects of the pandemic is engrossing considering the date of application of the survey in the current research. This situation is quite worrying also in view of the role to be played by the participant HSVS students, who have the potential to be employed as health service workers in the future, in guiding the society in pandemic periods.

The data about the vaccination program implemented across Turkey are posted daily for each province on the website of the Ministry of Health of Turkey. As the vaccination rate changed every day, the period of application of the survey was specified as 20 days to have a healthier comparison of the vaccination rates of the target population of the current study to those of the general population in Turkey. On 25 July 2021 when the survey was launched, it was announced that the percentage of individuals who were aged 18 years or above and already got at least one dose of the vaccine was 63.8% in Istanbul while this percentage was 63.6% for Turkey on average. On 15 August 2021 when the application of the survey was finalized, it was identified that the percentage of individuals who were aged 18 years or above and got at least one dose of the vaccine went up to 70% in Istanbul whilst this percentage reached 70.9% for Turkey [19]. According to the results of the survey applied between the dates above, it was discerned that 59.9% of the participant HSVS students got at least one dose of the vaccine (Table 1). It is observed that the percentage of vaccinated participant HSVS students was a bit lower than both the average percentage for Turkey and the percentage for Istanbul. It was supposed that the most significant reason for this situation was that the target population of the current study was comprised of relatively young individuals (aged 18-25 years). Besides, it can be put forward that another significant reason is the channels from which the participant HSVS students obtained information about the vaccines. It is a quite engrossing fact that the participant students obtained their current information about vaccines mostly from social media (21.52%) and printed & visual media (21.52%) whereas the percentage of students obtaining their current information about vaccines from the schools where they were still enrolled was quite low (0.45%) (Figure 2). Thus, it must be ensured that these individuals who are still in the learning stage will obtain information from more scientific channels on these issues that are also of concern to public health.

Vaccine hesitancy comes forward as a crucial factor for the rejection of the COVID-19 vaccine [7]. The Strategic Advisory Group of Experts on Immunization (SAGE) defines vaccine hesitancy as 'the delay in acceptance or refusal of vaccines despite the availability of vaccination services' [20]. Even if the vaccine hesitancy varies across time, place, and vaccine, it can be affected

by factors such as suitability and trust [7,9]. Previous studies indicated that vaccine hesitancy was common at the global level and various factors were effective in the rejection of vaccines [21-22]. On the other hand, the most common factors were identified as the insufficient knowledge about the benefits of vaccines for perceived risks and the lack of information and awareness about vaccines [23-25]. In the study in which Shekhar et al. applied a survey to healthcare workers, more than half of the participants stated that they preferred delaying their vaccination decisions until more data about the vaccine were available [26]. Previous studies performed on the acceptance of COVID-19 and flu vaccines reported the safety of the vaccine, its effectiveness, and the fear of adverse reactions as the significant factors for the vaccine rejection [27-29]. The finding of the current study about the percentage of participant students having high-level anxiety about the side effects of COVID-19 vaccines (41.2%) is in support of the findings of previous studies (Table 2). These results show that the presentation of information to HSVS students through effective and accurate channels will be quite useful for HSVS students to make decisions about vaccination.

In the current research, it was discerned that, as per the variable of gender, there was no statistically significant difference in the distribution of answers given by participants to the question asking whether they got vaccinated (Table 1). However, in certain studies performed in a similar vein to the current study, it was stated that, between the two sexes, there was a statistically significant difference in terms of vaccine hesitancy [30,31]. It is supposed that this difference between the findings was due to the differences in socio-demographic characteristics of the target populations addressed in each study. On the other hand, it is a very important finding that there is a statistically significant difference in the distribution of responses according to the COVID-19 infecting status of the participants or a close family member (Table 1). It can be said that the anxiety felt upon being infected with the disease and the confrontation with the devastating effects of the disease did not, unfortunately, lead to an increase in vaccination rates (Table 1). It is thought that this may be due to the time required to wait for vaccination after infection. In the prospective campaigns to be initiated to increase vaccination rates, this situation should be taken into consideration.

Two types of COVID-19 vaccines, namely, an mRNA-based vaccine (Pfizer-BioNTech) and an inactivated vaccine (Sinovac), were used in Turkey up to the present during the pandemic. In this context, to evaluate the viewpoints about the vaccine types, the participant students were asked which vaccine they trusted most, and the vaccines with the potential to be applied in the near future were also included in the choices in this question. A large majority of the participant students (73.03%) told that they found the Pfizer-BioNTech vaccine safer (Figure 1). This situation can be evaluated as HSVS students adapt faster to new techniques and technologies.

In previous studies, it was found that the health workers who were vaccinated were highly likely to advise their friends and families to get vaccinated [19-20]. In the current study, it was identified that the most significant concern for the participant HSVS students who had anxiety about being infected with the COVID-19 disease was the health of their families (52.12%) (Figure 3). The results of the current study indicate that the HSVS students deciding to

get vaccinated upon being informed through scientific, adequate, and effective methods will recommend the vaccine also to their families and friends.

Conclusion

It is inevitable that the participant students who have the potential to be employed as auxiliary health workers in near future will undertake significant duties in preventing the spread of the COVID-19 pandemic and fighting with its effects. According to the results of this study, it is discerned that the vaccination rate of the HSVS students was a bit lower than the average vaccination rate for Turkey and the vaccination rate for Istanbul province. It cannot be denied that acquiring the current information about the vaccine mostly from the channels of social media and printed & visual media affected these results. Thus, ensuring that these individuals who are still in the learning stage participate in scientific conferences to be organized on this topic particularly at the higher education institutions where they are still enrolled is important for them to acquire information from more sound channels about this issue which is also of concern to public health. However, it was observed that there was a fall in the vaccination rates if the HSVS student or a family member of the HSVS student already got the COVID-19 infection. In efforts to be made to raise the vaccination rates, this situation should be taken into consideration.

Conflict of interests

The author declares that they have no competing interests.

Financial Disclosure

The author declares no financial support.

Ethical approval

This research was approved by the ethical committee of the University of Altınbaş University, Medical Faculty (approval number: 15274) and performed according to the ethical (Declaration of Helsinki) and legal standards in Turkey.

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