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ORIGINAL ARTICLE

Evaluation of the opinions of patients applying to the emergency department in the north of Syria about COVID-19 vaccine

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Abstract

Background: In north of Syria, health care is provided with humanitarian aid. Mass vaccinations, seen as a way out of the pandemic in Syria, are to be carried out with the support of WHO and under the supervision of Turkey. In this study, we assessed the knowledge and opinions of people who applied to hospital emergency departments in north of Syria Region about COVID-19 and the vaccine.

Methods: A face-to-face survey was conducted by trained interviewers among patients and their relatives who applied to the emergency department of Azez Vatan and Çobanbey Hospitals in North of Syria Region.

Results: A total of 331 subjects, 40.2% males and 59.8% females, participated in the study. The mean age was 36.06±12.69 years. While 42.9% of the participants wanted to be vaccinated, 42% said they did not want to be vaccinated, and 15.1% were undecided. When those who answered "No and I am undecided" to the question "Would you like to be vaccinated?" were asked about their hesitations about the vaccine, 129 people indicated that they did not think the vaccines were safe, and 107 people were not sure whether the vaccines provided protection. Belief was found to have no significant effect on the desire to be vaccinated.

Conclusions: It is believed that vaccine awareness in the global sense, misconceptions and concerns about vaccines are effective and should be taken into account in vaccination activities and pandemic response in Syria as well as around the world.

Keywords: COVID-19, Emergency Department, Syria, Vaccine.

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INTRODUCTION

COVID-19 (Coronavirus Disease 2019) was first detected in Wuhan in the last quarter of 2019 and declared a pandemic by the World Health Organization (WHO) (1). The COVID-19 pandemic, which has spread globally and caused international concern since its first appearance (2,3), has caused more than 4 million deaths and nearly 200 million diseases by July 2021 (4); the global economy affected by the epidemic contracted by 3.4-7.6% and caused a 7.9% loss of working hours worldwide (5). The pandemic disrupted many aspects of human activity and led to global socioeconomic challenges, including rising unemployment, income, food and housing insecurity, and intimate partner violence (6-9).

Even if the spread of the virus can be limited by medical services and mask-distance-hygiene measures in the community, problems in economic and social life will continue until effective mass immunity is achieved through vaccination (10). Indeed, many governments, as well as global health authorities, have indicated that mass vaccination against the virus is the easiest and possibly only path to normalcy and stability (11,12). In response to this evolving global crisis, in order to normalize human activity, institutions have had to take protective and preventive measures in addition to developing vaccines at a pace unprecedented in the history of vaccine production (13,14). While a typical vaccine development trial takes as long as up to 73 months, accelerated vaccine trials during the COVID-19 pandemic shortened that time to 14 months (15). Unfortunately, the speed of vaccine production has led to reservations about vaccines in society (16).

The Strategic Advisory Group of Experts on Immunization (SAGE) defines the term "vaccine hesitation" as a delay or refusal to vaccinate despite the availability of vaccination services. There are three major key factors responsible for vaccination hesitancy: First, the thought that the vaccine is unnecessary because the severity of the disease is not understood; second, low belief in the efficacy and safety of the vaccine and the thought that the health care system and its staff are inadequate; third, concerns that the vaccine is readily available, affordable, and easy to transport (17,18).

In the Middle East Syria has been on the rise for about 10 years. The country has been affected by internal unrest and half of its population has been displaced by internal and external migration (19). In northern Syria, health care is not under the control of a central health system, but is provided with humanitarian aid (20). This makes the region even more vulnerable to the pandemic. Mass vaccinations, seen as a way out of the pandemic in Syria, are to be carried out with the support of WHO and under the supervision of Turkey (21,22).

In this study, we assessed the knowledge and opinions of people who applied to hospital emergency departments in the Northern Syria Region, where internal unrest is ongoing, about COVID-19 and the vaccine. We aimed to shed light on the community-based barriers to vaccination trials in the region and contribute to regional and global vaccination trials.

MATERIALS AND METHODS

Study Design

Before the start of the study, The Ethics Committee of Hatay Mustafa Kemal University for non-interventional research (resolution number: 16) approved the study in 06.05.2021. The type of study is cross-sectional research. Between 15.05.2021-30.05.2021 a face-to-face survey was conducted among patients and their relatives who applied to the emergency department of two hospitals (Azez Vatan and Çobanbey Hospitals with 200 beds each) in Northern Syria Region. It is a survey study that included 331 participants. Addition, the study was conducted in accordance with the ethical principles of the Declaration of the World Medical Association of Helsinki.

Selecting participants

During the planning phase of the study, sample size calculation was made with A Priori power analysis. The minimum sample size needed for the study was calculated as 323 (Effect size w=0.30, α err probe=0.05, Power (1-β err probe) = 0.95, Df=17.). The sample size of the study was calculated with the program G*Power 3.1.9.7 (Franz Foul, Unversitat Kiel, Germany).

All participants are Arabs residing in Northern Syria. Informed consent was obtained from the participants in the survey and personal information was kept confidential.

People with mental disabilities and psychiatric illnesses and children under 18 years of age were excluded from the study. At the time of the study, only healthcare workers in the region had received the COVID-19 vaccine. None of the participants included in our study had yet received the COVID-19 vaccine.

Obtaining the data

The original questionnaire was created by us by scanning the literature. Firstly, demographic, medical and social questions such as age, education level, comorbidity, district of residence, type of housing, family type, and average income were asked. In addition, questions were organized to evaluate the perspectives of the participants on COVID-19 and its vaccine. The questionnaires were prepared in Arabic by local Syrian physicians and administered by trained interviewers.

Statistical Analysis

Statistical analyses of the study were performed using Statistical Package software for Social Sciences version 25.0 for Windows (IBM SPSS Statistics for Windows, version 21.0. Armonk, NY: IBM Corp., USA). The normality assumption was tested with the tests Kolmogorov-Smirnov and Shapiro-Wilk. Explanatory statistics of variables are reported as mean ± standard deviation, median (Min-Max) and n (%). For univariate analyses, the Chi-Square test and the Fisher-Freeman-Halton test were used, depending on the nature of the variables and the availability of assumptions.

RESULTS

A total of 331 subjects, 133 (40.2%) males and 198 (59.8%) females, participated in the study. The mean age was 36.06±12.69 years. 31 (15.7%) of the female participants were pregnant and 38 (19.2%) were nursing mothers. Of the participants, 171 (51.7%) lived in urban areas, 160 (48.3%) lived in rural areas and camps and 24.2% (n=80) had no house as accommodation. The average number of people living in the same house was 6. There were 260 participants (78.5%) living in nuclear families and 144 (43.5%) were unemployed. 73 of the respondents (22.1%) had a history of chronic illness. 84 of the participants (25.4%) had a university degree. The income level of 230 participants (69.5%) ranged between 501TL-3000TL (Figure 1).

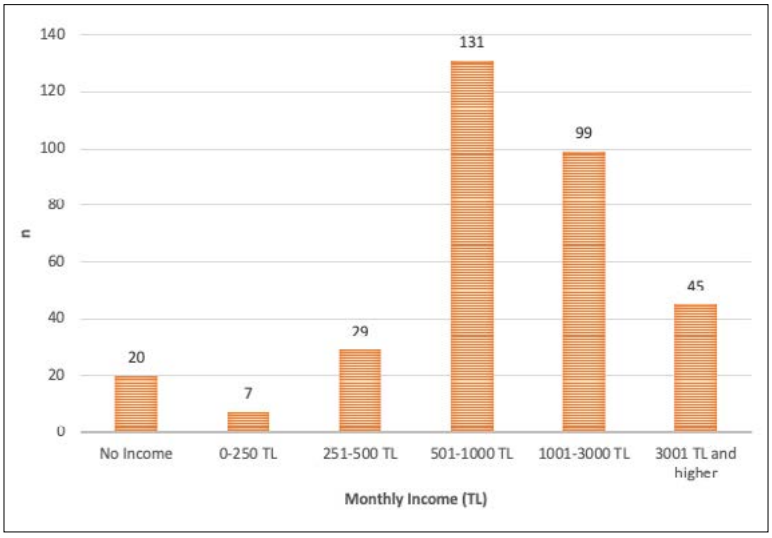

Figure 1. Income levels (n=331) of participants.

When asked who should receive the COVID-19 vaccine first, 253 participants (76.4%) responded as health care workers, 33 (10.0%) as education workers, 45 (13.6%) as religious officials, security personnel, and officers. When participants' views on COVID-19 in Syria were evaluated, 158 (47.7%) participants thought that COVID-19 was not common in Syria. The views of the participants about COVID-19 disease and what it is are shown in Figure 2. While 142 (42.9%) of the participants wanted to be vaccinated, 139 (42.0%) said they did not want to be vaccinated and 50 (15.1%) were undecided.

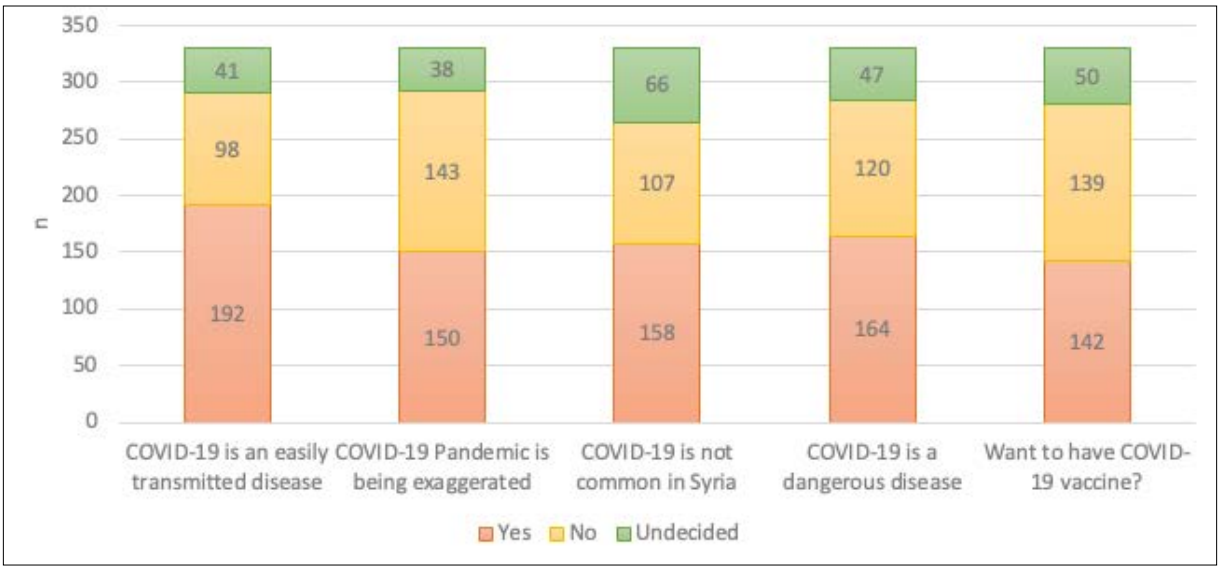

Figure 2. Participants' views of COVID -19 (n=331).

When those who answered "No and I am undecided" to the question "Would you like to be vaccinated?" were asked about their hesitations about the vaccine, 129 people (68.3%) indicated that they did not think the vaccines were safe, 114 people (60.6%) feared that the vaccine would cause harm, and 107 people (56.6%) were not sure whether the vaccines provided protection (Figure 3).

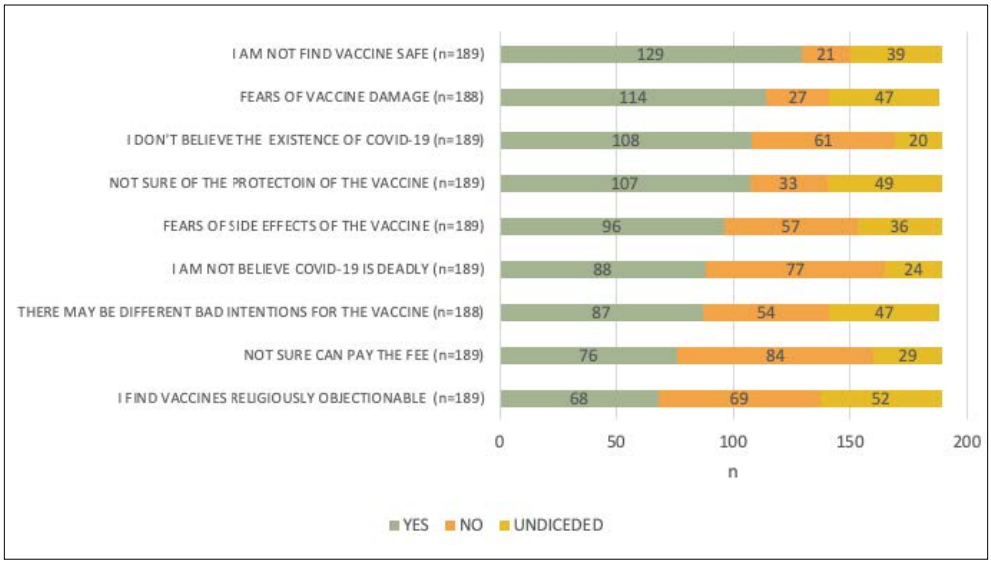

Figure 3. Reason for hesitation of those who answered "No and I am undecided" to the question "Do you want to get vaccinated?".

There was no significant association between gender, pregnancy, and breastfeeding status and the desire to be vaccinated (p=0.259, p=0.085, p=0.985 respectively). Although there was no significant difference between place of residence and desire to be vaccinated (p=0.082), the affirmative response (56.3%) of participants who lived in urban areas was higher than those who lived in rural areas and camps (43.7%). 33.8% (n=47) of those who wanted to be COVID-19 vaccinated and 35.4% (n=17) of those who were undecided had a university degree or higher level of education. The level of education was found to have a statistically significant relationship with participants' willingness to be vaccinated against COVID-19 (p=0.007) (Table 1).

Table 1. Comparison of desiring to be vaccinated against COVID-19 with demographic and chronic disease conditions

DESIRE TO BE VACCINATED AGAINST COVID-19						
Demographic and Chronic illness status		Yes n(%)	No n(%)	Undecided n (%)	Test Value	p
					Chi-Square test	
Gender (n=331)	Male (n=133)	51(38.3)	63(47.4)	19(14.3)	2.703	0.259[a]
	Female (n=198)	91(46.0)	76(38.4)	31(15.6)		
Working status (n=331)	Employed (n=187)	77(41.2)	79(42.2)	31(16.6)	0.921	0.631[a]
	Unemployed (n=144)	65(45.1)	60(41.7)	19(13.2)		
Chronic illness (n=331)	Yes (n=73)	31(42.5)	29(39.7)	13(17.8)	0.572	0.751[a]
	No (n=258)	111(43.0)	110(42.6)	37(14.3)		
Pregnancy (n=198)	Yes (n=31)	9(29.0)	17(54.8)	5(16.1)	4.928	0.085[a]
	No (n=167)	82(49.1)	59(35.3)	26(15.6)		
Breastfeeding (n=198)	Yes (n=38)	17(44.7)	15(39.5)	6(15.8)	0.030	0.985[a]
	No (n=160)	74(46.3)	61(38.1)	25(15.6)		
					Fisher-Freeman-Halton Test	
Place of residence (n=331)	City (n=171)	80(46.8)	69(40.4)	22(12.8)	10.210	0.082[b]
	Village (n=103)	43(41.7)	38(36.9)	22(21.4)		
	Camp (n=54)	19(35.2)	29(53.7)	6(11.1)		
	Others (n=3)	0(0.0)	3(100.0)	0(0.0)		
Education (n=324)	Illiterate (n=47)	15(31.9)	27(57.4)	5(10.6)	**23.664**	**0.007[b]**
	Literate (n=37)	16(43.2)	15(40.5)	6(16.2)		
	Primary school (n=47)	21(44.7)	19(40.4)	7(14.9)		
	Middle school (n=52)	23(44.2)	22(42.3)	7(13.5)		
	High school (n=57)	17(29.8)	34(59.6)	6(10.5)		
	University and Higher (n=84)	47(56.0)	20(23.8)	17(20.2)		

a :Chi-Square test, b :Fisher-Freeman-Halton Test

DISCUSSION

Although there is general consensus that mass vaccination is the fastest and probably the only way to end the pandemic of COVID-19 that has spread worldwide (23) and caused international concern since its first appearance in December 2019, vaccination opponents and hesitation is also a major issue on the agenda (24, 25).

In our study, we sought to learn the opinions and concerns of people in the region about COVID-19 vaccines by a questionnaire made to patients and their relatives who applied to the emergency services of the hospitals as part of the humanitarian response in northwestern Syria. The majority of participants were women and the average age of participants was 36.06 years. Although there is no complete information about the current population, this could explain the decrease of male population in the society after the war and the high percentage of women among the participants who accepted the questionnaire. Looking at the number of participants, 51.7% of them live in the city. This could be because people who live in the city have easier access to the hospital. Considering the social lives of the participants, the average number of people living in the same house was 6. In poor regions where underdevelopment and civil crowded are prevalent, there is crowded family life for various reasons. Knowing the views of an crowded family on infectious diseases and COVID-19 will be important for these and similar regions.

The mass vaccinations that began in November 2020 are not yet sufficient to prevent the COVID-19 pandemic. However, effective vaccination is important to minimize the risk of health system collapse. For this reason, health workers have been prioritized in vaccination trials in many countries, including Turkey and England, and in South Korea vaccination trials that began in February 2021 were initiated by health workers and caregivers. Because in community-based matrix studies, it has been shown that the risk of COVID-19 transmission to healthcare workers is higher than the general population (26-28). In a prospective population-based cohort study, it is estimated that 10-20% of COVID-19 cases are healthcare workers (29). In the study by Seyhan et al, it is shown that the number of healthcare workers who have COVID-19 is relatively high among the already small number of healthcare workers in the study conducted in Northwest Syria according to WHO (30). When participants in our study were asked to whom the COVID-19 vaccine should be administered first, the majority of them answered in line with the literature: healthcare workers. In this case, the preference for health workers in immunization activities launched in Northwest Syria Region in parallel with global policies may indicate that this strategy could be acceptable to the region's society.

Studies of awareness of COVID-19 in Arab societies generally consist of surveys conducted via social media or websites. In an online survey conducted in Jordan, Saudi Arabia and Kuwait, the general COVID-19 level of knowledge was 66.1%, while the level of knowledge about COVID-19 transmission was 43.3% (31). In an online survey conducted throughout Syria, the general awareness level of COVID-19 was found to be 75.6% and the knowledge level was 67% (32). In our study, the awareness level was found to be lower among the participants of Northeast Syria Region compared to the general Syrian population. In our study, which included Northwest Syria and evaluated participants' perspectives on COVID-19, most participants agreed that COVID-19 is an easily transmitted disease. However, about half of the participants thought that this epidemic is exaggerated, that COVID-19 is not prevalent in Syria, and that COVID-19 is not a dangerous disease. Since our study is a face-to-face survey, it can be expected to be more beneficial and more objective than similar studies in terms of incorporating the views of other segments of society that digital platforms cannot reach. When our study is evaluated together with other studies on this topic, it can be assumed that about half of the Syrian population does not have the desired level of knowledge and awareness about COVID-19.

In relation to mass vaccination, global and international studies in the literature have shown that 52.1% of participants worldwide refuse an approved vaccine. From a regional perspective, the countries with the lowest vaccine acceptance rate (<50%) were Egypt and Libya in Africa, and Afghanistan and Bangladesh in Asia. On the other hand, the vaccine acceptance rate was found to be 87% or more in Australia and other companion countries (33). In a study conducted in 19 different countries with an online panel, 71.5% of participants stated that they would agree to a possible COVID-19 vaccination. The highest rate of positive responses in accepting a vaccine with proven safety and efficacy was in China (88.6%), while the

highest rate of negative responses was in Poland (27.3%) and the lowest positive response rate was found in Russia (54.9%) (34). In a similar study, 66-88% of participants from 12 countries agreed to get vaccinated themselves and 67-91% of participants stated that they would recommend the vaccine to their relatives (35). In developed countries, acceptance of the vaccination was 62.1% in a European study (36). In a survey conducted by telephone and in person in the United States, 57.6% of participants said they would agree to be vaccinated (37). In a web-based survey study in the Arab world, only 12.6% of Arab respondents in 23 Arab countries and 122 other countries with Arab residents said they would accept an appropriate and safe vaccine, while 21.7% were undecided and 40.4% rejected it (38). In country-based studies, the rate of those who accepted the vaccine was 36.8% in Jordan, 53.1% in Kuwait, and 64.7% in Saudi Arabia (3,39,40). In a social media study among Syrians living in Syria or outside Syria, with a survey in Arabic, 35.92% of 1222 respondents accepted the COVID-19 vaccine (41). In a study conducted among Syrian immigrants in Lebanon, it was found that 66% of the participants tended to get vaccinated and 28.8% refused (42). It was found that 42.9% of the participants in our study wanted the vaccine for COVID-19. Compared to the literature, the acceptance of vaccination in our study is higher than in most Arabic countries and developing countries. Considering that almost all the world literature is written in English and with Latin alphabet, it can be assumed that access to accurate information in Arab societies may be limited due to the lack of Arabic sources in the literature and the absence of standard literature in Arabic language in Arab countries. In our study and similar studies, the low awareness of COVID-19 in Syria and other Arab societies can be explained by similar reasons.

Among the studies that looked at vaccine refusal and hesitation, a study conducted in Kuwait indicated that 83.7% of participants who did not consent to vaccination had concerns about the side effects of the vaccines, 71.8% did not think the vaccines were safe, and 69.9% had doubts about the vaccine's effectiveness (39). In a study conducted with hospital patients in Nigeria, 31.7% of patients did not think vaccines were safe, 6.9% found them religiously objectionable, 43.4% did not trust the companies that produce vaccines, 9.4% believed that people are branded with vaccines, 20.2% believed that vaccines have harmful side effects, 9.7% believed that the vaccine does not work, and 20% believed that vaccines would make them sick (43). In another study on the Middle East, while 53.1% of participants were concerned about the effectiveness of the vaccine, 59.4% were concerned about the safety and side effects of the vaccine, 24.5% said that the virus was made in a lab because of the vaccine and for financial reasons, 14.5% said that the vaccine would put a chip in people (3). In a survey conducted with Arab participants from 23 Arab countries and 122 other countries with Arab residents, 61.4% of the participants fear an unknown side effect of the vaccine, 33% do not trust the vaccine manufacturers, 21.8% believe that the vaccine will change our genetic structure, and 13.5% believe that the vaccine is lethal (38). In an international survey study involving Syrians, the percentage of those who fear the side effects of the vaccine is 66.2% among those who are hesitant about the vaccine and 52.1% among those who reject the vaccine, the percentage of those who said they doubt the vaccine's effectiveness was 33.4% among those who are hesitant about the vaccine and 41.82% among those who rejected it (41). In another survey conducted among Syrian immigrants in Lebanon, participants who did not want to be vaccinated expected to receive slightly more information about the vaccine (35%); 21% thought more public health interventions were needed and did not think the vaccine was necessary; 23% were afraid of the side effects of the vaccine, thought it might interact with other medications, and did not consider vaccination because they did not have confidence in the system (42). In our study, the majority of participants (68.3%) who do not want to be vaccinated and who are undecided did not think the vaccine was safe, feared that the vaccine would cause harm (60.6%), and felt that it would not effectively prevent the disease (56.6%). In addition, almost half of those who do not want to be vaccinated and who are undecided stated that they were afraid of the side effects of the vaccine, thought the vaccine was inconvenient because of their religious beliefs, that there might be hidden and evil intentions behind the vaccine, and that they thought they could not afford the vaccination fee. It is believed that these and similar misconceptions and concerns, which are widespread around the world, are effective and should be taken into account in vaccination activities and pandemic response among Syrians.

Among the studies evaluating vaccine hesitancy, vaccine rejection, or factors affecting vaccination, studies among societies in the US and the Middle East, it was shown that as the level of education increases, so does COVID-19 knowledge and vaccine acceptance rates (16,20,21). In our study, it was observed that the desire to be vaccinated against COVID-19 was highest in those with a university degree or higher education.

In this study, which investigates the opinion of the society in the Northern Syria Region on the COVID-19 epidemic and vaccines, it was found that although the majority of participants in the region accept that COVID-19 is an easily communicable disease, about half of them believe that COVID-19 is not prevalent in Syria, that this epidemic is exaggerated, and that COVID-19 is not a dangerous disease. The acceptance of vaccination in our study is higher than in most Arabic countries and developing countries. It has been found that the majority of participants who do not want to be vaccinated and who are undecided do not think the vaccine is safe; they fear that the vaccine will harm them and believe that it will not protect them from the disease; almost half fear the side effects of the vaccine; they find the vaccine reprehensible because of their religious beliefs; there may be hidden and evil intentions associated with the vaccine, and they believe that they cannot afford the vaccination fee. In line with the literature, our study found that most of those who agreed to be vaccinated had a university degree or higher level of education. It is believed that vaccine awareness in the global sense, misconceptions and concerns about vaccines are effective and should be taken into account in vaccination activities and pandemic response in Syria as well as around the world.

The COVID-19 pandemic is one of the largest pandemics that humanity has ever experienced. Although developed countries seem to be containing the COVID-19 epidemic at the national level thanks to diagnosis, treatment, and vaccination attempts at the national level, the failure to control the epidemic in neighbouring and underdeveloped countries suggests that national efforts may be in vain. In combating the COVID-19 pandemic, the only way seems to be for all countries to act with global common battle plans and to ensure social immunity in a global sense.

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Declarations

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This study was approved by the Ethics Committee of the Hatay Mustafa Kemal University for non-interventional research (Date: 06.05.2021, Ref No: 2021/16).

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