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# Attitudes of Family Health Professionals on COVID-19 Vaccines and an Evaluation of Underlying Factors in Samandağ, Hatay, Turkey

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## ABSTRACT

**Objectives:** This study aimed to evaluate the attitudes of family healthcare providers on coronavirus disease 2019 (COVID-19) vaccines.

**Methods:** In this cross-sectional study, 67 (91.8%) of the total 73 family healthcare professionals in Samandağ, Hatay, Turkey, were included. A questionnaire comprising 17 questions, including questions on the sociodemographic and occupational characteristics of the health professionals and their attitude toward COVID-19 vaccines, was used.

**Results:** In the study, 67 healthcare professionals were included. The median age was 40.0 (26.0–62.0) years, and 40 (59.7%) of the participants were females. Of the participants, 19 (28.4%) had been diagnosed with at least one chronic disease, and 14 (20.9%) were living together with an individual over 65 years of age. Of the participants, 24 (35.8%) stated their willingness to get vaccinated if a COVID-19 vaccine gets approved in Turkey, and 29 (43.3%) of the participants did not decide. Fifteen (22.4%) professionals stated lack of comprehensive information on the vaccine as the main reason for their refusal to get vaccinated for COVID-19. The rate of physicians stating that they would get vaccinated was 30 (69.8%) and the rate of midwives/nurses was 13 (30.2%) ( $p=0.001$ ).

**Conclusion:** Vaccine hesitancy and refusal against COVID-19 are very important issues among family healthcare professionals. It is extremely important to organize in-service training and to ensure that all professionals have access to knowledge on the COVID-19 vaccines.

**Keywords:** Attitude, COVID-19, vaccines



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## INTRODUCTION

Vaccination is one of the basic building blocks of preventive medicine to ensure the protection and improvement of health globally.<sup>[1,2]</sup> The coronavirus pandemic has affected millions of people worldwide and has led to considerable effort for creating a safe, effective vaccine to prevent infection or minimize symptoms and reduce fatalities. In the long term, the development of vaccines against coronavirus disease 2019 (COVID-19) and providing global access to them are the main requirement to end this pandemic. However, the success of this strategy depends on the willingness of the people to get vaccinated.

With the availability of the very first vaccines against COVID-19, the issues of vaccine hesitancy and refusal have come to the attention of public health professionals and policymakers.<sup>[3,4]</sup> SAGE

Working Group on Vaccine Hesitancy stated, “vaccine hesitation is delaying or refusing to accept vaccination despite the availability of vaccination services.” Vaccine refusal is defined as refusing to be vaccinated without any medical reason. Determinants affecting vaccine hesitancy and refusal are evaluated in three groups: contextual factors (impacts of historical, sociocultural, environmental, health system/institutional, economic, or political factors), individual and group factors (impacts of personal or social/peer environment perceptions on vaccines), factors related to vaccine itself and vaccination-related effects (the reliability of vaccine or vaccination equipment, vaccination program, costs, knowledge level, and/or attitude of health professionals). Vaccine hesitancy and refusal will create difficulties in immunizing a sufficient percentage of the population to control the epidemic. They also pose threat not only to the individuals who are not vaccinated but also to the health of the whole society. Vaccine hesitancy and refusal were acknowledged by the World Health Organization (WHO) as “one of the top ten threats to global health” in 2019.<sup>[5]</sup> As this is a complex phenomenon involving different factors, it is important to understand, take necessary precautions, and make interventions during the decision-making process for vaccination policies.

As stated in the family medicine practice regulations, immunization services should be carried out by family physicians in Turkey.<sup>[6,7]</sup> In addition, family physicians and other family healthcare professionals have crucial roles in providing community education, answering people’s questions, and solving problems related to health services as well as being role models for proper healthcare decisions. Therefore, determining the attitudes of family physicians and other family healthcare professionals will be important before implementing vaccination policies.

In the review conducted on the vaccination rates in healthcare professionals in Turkey in 2017, it was seen that the rate of having the influenza vaccine varied between 12.3% and 35.3%.<sup>[8]</sup> There are a limited number of studies on hepatitis B vaccination rates of healthcare professionals, and the rate was found to be around 85%–90% in the studies. There are insufficient data on measles–mumps–rubella and varicella vaccine rates, and it has been estimated that the immunity rate is over 90% for these diseases. In another study conducted in 2019, it was found that 10.5% of healthcare professionals did not want themselves and their children to get vaccinated.<sup>[9]</sup>

This study aimed to evaluate the attitudes of family health center professionals on the COVID-19 vaccines.

## METHOD

This cross-sectional study was conducted on January 11–12, 2020, in Family Health Centers in the Samandağ district of Hatay, Turkey. There was a total of 73 health workers, including 39 (53.4%) family physicians and 34 (46.6%) other family health professionals, working in the district of Samandağ. It was aimed to reach all healthcare professionals working in Family Health Centers to participate in the study. The sample size was not calculated in this study. Of the 73 physicians and health professionals, 67 (91.8%) of them, who were contacted by the authors, agreed to be included in the study.

A questionnaire was used as a data collection tool. It consisted of 17 questions on the sociodemographic and occupational characteristics of the participants and their attitudes toward COVID-19 vaccines.

The analysis of the data was done using the IBM Statistical Package for the Social Sciences (SPSS) 25.0 (SPSS, Inc., Chicago, IL, USA) program. Normality tests were carried out using the Kolmogorov–Smirnov and Shapiro–Wilk tests. Frequency, percentage, median, maximum, and minimum were used for descriptive statistics. The Chi-squared test, Fisher’s exact test, and the Mann–Whitney U tests were used in group comparisons. The statistical significance threshold was considered at  $p < 0.05$ .

## RESULTS

In the study, 67 healthcare professionals were included. According to their professionals, 16 (23.9%) midwives, 21 (31.3%) nurses, and 30 (44.8%) physicians participated in the study. The median age of the healthcare professionals was 40.0 (26.0–62.0) years. Female participants were 40 (59.7%), 19 (28.4%) had at least one diagnosed chronic disease, and 14 (20.9%) were living together with and/or taking care of an individual over 65 years of age in their households. The sociodemographic characteristics of the participants are summarized in Table 1.

The median professional experience of the participants was 15.0 (2.0–41.0) years. Of the participants, 42 (62.7%) of them stated that they had Hepatitis B vaccine while working as a health professional. The conjugated pneumococcus vaccination rate was 25 (37.3%), and the seasonal influenza vaccination rate was 18 (26.9%). The vaccination history of the participants is summarized in Table 2.

Of the participants, 24 (35.8%) stated their willingness to get vaccinated if a COVID-19 vaccine gets approved in Turkey, and 29 (43.3%) of the participants did not decide. In

**Table 1.** Sociodemographic characteristics of the participants

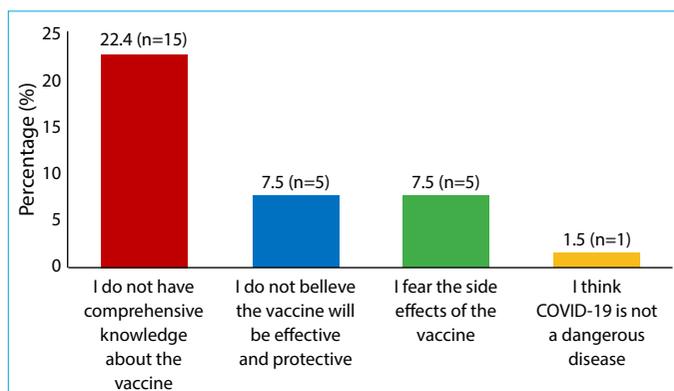
	n (%)
Gender	
Female	40 (59.7)
Male	27 (40.3)
Education status	
Associate / college	9 (13.4)
University	50 (74.7)
Expert/PhD	8 (11.9)
Profession	
Midwife	16 (23.9)
Nurse	21 (31.3)
Physician	30 (44.8)
Chronic disease	
Yes	19 (28.4)
No	48 (71.6)
Having a child	
Yes	56 (83.6)
No	11 (16.4)
Individuals (≥65 years) requiring assistance in the household	
Yes	14 (20.9)
No	53 (79.1)

the study, 14 (20.9%) refused to get vaccinated, and further inquiries about their nonacceptance were made in this group. Vaccine refusal reasons of the participants are shown in Figure 1.

The median age of professionals who would recommend COVID-19 vaccines to all patients was 44.0 (26.0–62.0) years and that of those who would not recommend was 39.0 (26.0–59.0) years ( $p=0.186$ ). In addition, the median dura-

**Table 2.** Vaccination history of the participants

	n (%)
Tetanus	45 (67.2)
Hepatitis B	42 (62.7)
Conjugate pneumococcal vaccine	25 (37.3)
Influenza	18 (26.9)
Measles	9 (13.4)
H1N1 vaccine	6 (9.0)
Rubella	5 (7.5)
Mumps	5 (7.5)
Varicella	2 (3.0)
Hepatitis A	2 (3.0)

**Figure 1.** Vaccine refusal reasons of participants.

tion of the profession of professionals who would recommend COVID-19 vaccines to all patients was 20.5 (2.0–40.0) years and that of those who would not recommend was 15.0 (2.0–41.0) years ( $p=0.326$ ). The sociodemographic characteristics of the participants according to their status of being vaccinated against COVID-19 are summarized in Table 3.

Of the participants, 23 (34.3%) of them stated that they would recommend COVID-19 vaccines to all patients, and 37 (55.2%) stated that they would recommend it only to patients in the risk group. Of the family healthcare professionals who participated in the study, 21 (31.3%) stated that they would recommend COVID-19 vaccination to all

**Table 3.** Sociodemographic characteristics of the participants according to their status of being vaccinated against COVID-19

	Yes (n=24)	No/undecided (n=43)	p
Gender			
Female	11 (45.8)	29 (67.4)	0.084*
Male	13 (54.2)	14 (32.6)	
Chronic disease			
Yes	10 (41.7)	9 (20.9)	0.071*
No	14 (58.3)	34 (79.1)	
Having a child			
Yes	18 (75.0)	38 (88.4)	0.182†
No	6 (25.0)	5 (11.6)	
Individuals (≥65 years) requiring assistance in the household			
Yes	4 (16.7)	10 (23.3)	0.525*
No	20 (83.3)	33 (76.7)	
Profession			
Midwife/nurse	7 (29.2)	30 (69.8)	0.001*
Physician	17 (70.8)	13 (30.2)	

Data are presented as n (%).  
\*Chi-square test, †Fisher's exact test.

their relatives, and 37 (55.2%) stated that they would do so only to those in the risk group. When asked about the criteria for "high-risk group" regarding COVID-19, 42 (62.7%) participants stated "being over 65 years old," 40 (59.7%) stated "having a chronic disease," 39 (58.2%) stated "being healthcare workers," and 35 (52.2%) stated "being immunosuppressed" as the main criteria for inclusion in the "high-risk" classification. Of the healthcare professionals, 47 (70.1%) stated that they followed updates on the COVID-19 disease through the Internet, 11 (16.4%) through journals and newspapers, and 38 (56.7%) through the communication networks of professional associations.

## DISCUSSION

Understanding the hesitations of healthcare professionals toward vaccines has important implications for the management of the COVID-19 pandemic. Healthcare professionals are at the forefront of combating the pandemic, and they routinely perform tasks involving the risk of contact with infectious agents. If they become infected with SARS-CoV-2, healthcare services would also be brought to a halt. In addition, healthcare professionals are the most direct and reliable sources of information for the public about vaccination.<sup>[10]</sup> WHO Vaccine Advisory Group also emphasized the role of healthcare professionals in building public trust in vaccines.<sup>[11]</sup> Moreover, it has been shown that healthcare workers whose attitudes toward vaccination are more positive tend to have higher rates of vaccination within the community for which they provide healthcare services.<sup>[12]</sup>

In this study, 20.9% of family physicians and other healthcare workers stated that they do not want to get vaccinated when an approved COVID-19 vaccine becomes available in their country, and 43.3% have undecided about getting vaccinated. In a study conducted with healthcare professionals in Malta, researchers found that 26% of the participants would not get the COVID-19 vaccine, and 23% did not decide.<sup>[13]</sup> In another study conducted with nurses in Hong Kong, it was reported that 63% would get the COVID-19 vaccine.<sup>[14]</sup>

Furthermore, other studies investigated the attitudes toward COVID-19 vaccines within the general population. For instance, in a study conducted in the United States, 10.8% of the adult participants stated that they would not get the COVID-19 vaccine, and 31.6% did not decide.<sup>[15]</sup> In a study involving approximately 20000 adults in 27 countries, 74% of the adults stated that they plan to have the COVID-19 vaccine, and the rates varied between countries. Willingness to be vaccinated was highest in China (97%), Brazil (88%), and Australia (88%). The lowest rates were

found in Russia (54%), Poland (56%), and Hungary (56%).<sup>[16]</sup> In another study conducted with university students, there was no difference between students studying in the field of health services and other university students.<sup>[17]</sup> These studies showed that there were significant differences in the attitudes toward the COVID-19 vaccination depending on the place where the study was conducted and the target population.

However, it is clear that the issue of hesitancy/refusal toward the COVID-19 vaccine is a significant problem in all studied groups. In the limited number of studies conducted among healthcare professionals, it appears that the hesitancy/refusal rates of the COVID-19 vaccines were similar to that of other populations.

In this study, the most common reason for vaccine rejection among healthcare workers was the lack of comprehensive knowledge about the vaccine (22.4% of the participants hesitating/refusing to be vaccinated). In the Maltase study, 34% of the participants also stated that they had insufficient knowledge about the COVID-19 vaccine, and 51% were afraid of its long-term side effects.<sup>[13]</sup> Studies performed in different countries highlight the additional training needs of healthcare professionals on vaccines, providing adequate knowledge and the confidence to provide guidance on immunization.<sup>[18-21]</sup> In a systematic review, Herzog et al. showed that the attitudes and behaviors of health professionals who were given adequate training were effective in increasing the vaccination rates in the community.<sup>[22]</sup> In-service training on COVID-19 vaccines and immunity-related issues for the family health professionals, who have the most important role in vaccination services, will contribute to dispelling refusal or hesitancy toward vaccines in the general public.

In this study, it was found that the rate of physicians who were willing to get the COVID-19 vaccine was higher than that of other family healthcare professionals who were not willing to get the vaccine. These results were in line with the findings of a similar study conducted in Malta where the rate of physicians interested to be vaccinated for COVID-19 was higher.<sup>[13]</sup> This study also found a relationship between education level and the knowledge on immunization, as well as between the level of knowledge and attitudes toward vaccination.<sup>[23]</sup> However, in this study, the information level about the COVID vaccine was not investigated, and comprehensive studies are needed to explain the difference between nurses and physicians.

It was found that 34.4% of the participants would recommend COVID-19 vaccine to all patients, 31% to their

relatives, and 55.2% to only patients in the risk group and their relatives in the risk group in this study.<sup>[24]</sup> In research conducted with physicians in Turkey, 90.7% of the participants reported that they advised and supported their relatives and family members about immunization. In a Finnish study conducted with healthcare professionals, 86% of the participants stated that they would recommend the people for whom they provide healthcare to get vaccinated.<sup>[25]</sup> These results demonstrate a lower rate of recommendation for COVID-19 vaccines by healthcare professionals when compared with the rates reported in previous studies.

In this study, 70.1% of healthcare professionals reported following updates on the COVID-19 pandemic through the Internet and 56.7% through the communication networks of professional associations. In this newly emerging and rapidly developing process of information flow, it is expected that the internet will be the most important source of information. However, the importance of the communication networks of professional associations during this period should not be ignored.

This study was conducted with family physicians and other family healthcare professionals who are directly responsible for the provision of vaccination services. It is important to determine the family medicine professionals' approach and attitudes toward vaccines not only in relation to service delivery but also due to their contribution to community education. However, as this study was conducted with a limited number of staff working for family medicine services in the Samandağ district, the results cannot be generalized.

## CONCLUSION

The hesitancy/refusal against COVID-19 vaccines is a very important issue among family healthcare professionals. In this study, it was observed that the nurses/midwives were more hesitant about vaccination than the doctors. Insufficient information about the vaccines was the most important factor underlying vaccine hesitancy/refusal. Inevitably, the vaccine hesitancy and/or refusal of the health professionals would have larger consequences for public health, leading to inadequate counseling and lack of guidance for the general public. It is important to organize in-service training to all healthcare professionals and to ensure that anyone working in the family health center should have the necessary and up-to-date information about the COVID-19 vaccines.

## Disclosures

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** There is no conflict of interest between authors for this study.

**Ethics Committee Approval:** Ethical approval was obtained from the Mustafa Kemal University ethics committee (Approval date: Nov 12, 2020, and Approval number: 27). In addition, the approval of the Ministry of Health for research on the topic of COVID-19 and administrative permission from the Health Directorate were obtained prior to the study. Written and oral consent of the participants was obtained before the study.

**Authorship Contributions:** Concept – D.K.; Design – D.K.; Supervision – D.K.; Materials – D.K.; Data collection and/or processing – D.K., M.M.Y.; Analysis and/or interpretation – D.K., M.M.Y.; Literature search – D.K., M.M.Y.; Writing – D.K., M.M.Y.; Critical review – D.K.

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