

## INVESTIGATION OF HEALTHCARE WORKERS ATTITUDES AND PRACTICES TOWARDS THE COVID-19 PANDEMIC

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### ABSTRACT

**Objective:** To evaluate the behaviors and attitudes of healthcare workers toward COVID-19.

**Methods:** A total of 280 healthcare workers (172 females and 108 males) answered an online questionnaire about the biosafety procedures for and their attitudes about COVID-19. The average age of participants was  $33.57 \pm 7.78$ . The data were analyzed using descriptive statistical methods and the chi-square test.

**Results:** The study sample consisted of 39.5% medical doctors, 32.1% dentists, 14.3% nurses, 4.6% technicians, 2.9% physiotherapists, 3.6% secretaries, and 3.2% auxiliary staff. Of these healthcare workers, 151 (53.9%) had children. A great majority of the participants (91.8%) stated that they were afraid of being infected with the COVID-19 virus. There was no significant difference by gender, but the difference between having a child (95.4%) and not having a child (87.6%) was statistically significant ( $p=0.042$ ). A little more than half (54.3%) of the participants answered yes to the question of whether they quarantined themselves, and this was found to be significantly higher in those who had children (42.4%) than those who did not (33.3%) ( $p=0.001$ ).

The precautions worn by healthcare workers while working were as follows: masks (89.3%), gloves (80.1%), N95/FFP2 masks (17.4%), face protective shields (39.1%), glasses (28.5%), and bonnets (33.1%). Sources of information for health workers about COVID-19 included the websites or social media accounts of professional organizations such as the Ministry of Health, the Association of Dentists, and the World Health Organization (82.2%); published scientific articles (47.3%); and social media accounts like Instagram and Twitter (48%).

**Conclusions:** While healthcare workers responded well to the standard measures and attitudes they have to protect themselves against COVID-19 contamination, their practice on the extra measures they can take should be improved. In addition to personal protective equipment, efforts should be made to protect the immunity and mental health of healthcare workers.

**Keywords:** COVID-19, dental student, attitudes, dental education.

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### Introduction

At the end of 2019, a few cases of pneumonia of unknown etiology appeared in Wuhan, Hubei Province, China<sup>(1)</sup>. Pneumonia quickly spread to other cities and abroad. The World Health Organization (WHO) and Chinese authorities started working together and the etiological agent causing the pneumonia was installed as a new virus named the novel coronavirus (2019-nCoV)<sup>(2)</sup>. On January 31, the WHO declared COVID-19 an international emergency that threatened public health. Later, the infection involved 114 countries and on March 11,

the WHO updated the situation by declaring COVID-19 a pandemic<sup>(2)</sup>.

Global pressure on healthcare power continues to intensify. The first major problem is the potentially overwhelming disease burden on the health system's capacity and the second are the negative effects on HCWs, including the risk of infection<sup>(3)</sup>.

The working group that OSHA (Occupational Safety and Health Administration) categorizes as a high-risk group in terms of the risk of COVID-19 infection consists of healthcare workers (HCW). Those who apply aerosol-producing procedures (e.g., intubation, cough induction, bronchoscopy,

mouth-throat-nose examination, ophthalmological examinations, central catheter insertion, nebulizer use, cardiopulmonary resuscitation, oxygen therapy, non-invasive ventilation, some dental procedures), laboratory workers, patient care physicians, nurses, and assistant health workers are all defined as risk groups<sup>(4,5)</sup>.

For this reason, the WHO recommends taking adequate prevention and control measures for HCW. The WHO recommends that HCWs use personal protective equipment (PPE) such as medical masks, gloves, gowns, and eye protection<sup>(6)</sup>.

HCWs and researchers in this area are aware of the potential impact of this disease on them<sup>(7)</sup>. An estimated 3,000 HCWs in China have been infected and at least 22 people have died. The main reasons for this are lack of equipment and that the necessary training for infection prevention and control is not provided<sup>(8)</sup>.

HCWs and co-partners who are at risk of encountering symptomatic or asymptomatic COVID-19 patients at all times are at high risk. For this reason, HCWs should be vigilant against COVID-19. This study aimed to evaluate the attitudes and practices of HCWs in different fields against COVID-19.

## Material and methods

The cross-sectional study was carried out on healthcare professionals working in health institutions in Elazig in the first week of April. An online questionnaire was developed in Google Forms containing 25 questions about HCWs' attitudes and practices regarding COVID-19. The study was submitted and approved by the Research Ethics Committee (2020/28-7). The link created for the survey was sent to the hospitals' WhatsApp groups. It was explained at the start of the questionnaire that the purpose of the data collection was scientific research. From the total number of 340 HCWs, 280 completed the whole questionnaire (participation rate: 82.3%).

We prepared the questions in three parts. In the first part, the participants were asked to supply demographic data (age, gender, education level, and marital status); in the second part, questions involved attitudes (about the fear of infecting themselves or their environment while treating someone with COVID-19 or about whether their psychology was affected negatively by COVID-19); and in the third part, questions involved biosafety procedures applied for COVID-19 (individual and infection control measures).

## Data analysis

SPSS 21.0 for Windows was used to make a statistical analysis of the data. Descriptive statistical methods and a chi-square test were employed. The significance level was set at  $p < 0.05$ .

## Results

A total of 280 HCWs, 108 (38.6%) men and 172 (61.4%) women, were included in the study. The ages of the participants ranged between 21-60, and the average age of participants was  $33.57 \pm 7.78$ . In terms of education levels, 15 (5.4%) participants had completed high school, 146 (52.1%) had completed university, and 119 (42.5%) were postgraduate-educated. Of these HCWs, 151 (53.9%) had children. The study sample consisted of 110 (39.5%) medical doctor, 90 (32.1%) dentist, 40 (14.3%) nurse, 13 (4.6%) technician, 8 (2.9%) physiotherapist, 10 (3.6%) secretary, and 9 (3.2%) auxiliary staff.

Table 1 shows the HCWs' attitudes toward COVID-19, as shown by their questionnaire responses. About three-quarters of the participants (76.1%) responded positively to the question about whether a meeting or seminar-like information had been given in their institution about COVID-19.

A little more than half (54.3%) of the participants answered yes to the question of whether they quarantined themselves, and this was found to be significantly higher in those who had children (42.4%) than those who did not (33.3%) ( $p = 0.001$ ).

To the question of whether they were afraid of being infected by the COVID-19 virus because of their profession, a total of 91.8% of the participants responded in the affirmative. There was no significant difference by gender, but the difference between having a child (95.4%) and not having a child (87.6%) was statistically significant ( $p = 0.042$ ).

To the question of whether they were afraid of infecting family or people around them with the COVID-19 virus because of their profession, 97.1% of the participants responded in the affirmative. There was no statistically significant difference in terms of gender and having children.

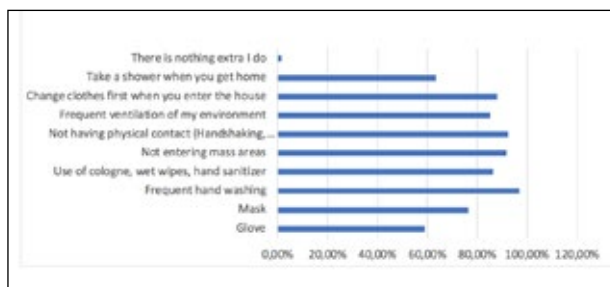
The question of whether their COVID-19 experiences had affected them psychologically received a negative response from the majority (80.7%) of participants. The difference between males (71.3%) and females (86.6%) was statistically significant ( $p = 0.001$ ); the difference between those who had children (85.4%) and those who did not (75.2%) was also statistically significant ( $p = 0.009$ ).

Questions		Male (n=108) %	Female (n=172) %	P value	Having children (n=151) %	Not Having children (n=129) %	P value
Have you held an informative meeting or seminar about covid 19 in your institution?	Yes	71.3%	79.1%	.091	19.8%	36.3%	.001*
	No	28.7%	20.9%		80.2%	63.7%	
Do you inform your patients about covid 19?	Yes	97.2%	2.8%	.426	19.8%	36.3%	.001*
	No	98.3%	1.7%		80.2%	63.7%	
Did you need to quarantine yourself?	Yes	57.4%	51.2%	.185	42.4%	33.3%	.001
	No	42.6%	48.8%		57.6%	66.7%	
As a healthcare worker, are you afraid of becoming infected with covid 19?	Yes	91.7%	91.9%	.731	95.4%	87.6%	.042*
	No	5.6%	4.1%		3.3%	6.2%	
	Undecided	2.7%	4.0%		1.3%	6.2%	
As a healthcare worker, are you afraid of infecting Covid-19 to your family or people around you?	Yes	98.1%	96.5%	.511	99.3%	94.6%	.053
	No	0%	1.2%		0%	1.5%	
	Undecided	1.9%	2.3%		0.7%	3.9%	
As a healthcare professional, do you think your psychology is affected negatively from covid 19?	Yes	71.3%	86.6%	.001*	85.4%	75.2%	.009*
	No	17.6%	4.7%		9.9%	9.3%	
	Undecided	11.1%	8.7%		4.6%	15.5%	
Would you hesitate to treat or contact a patient who has come through after recovering Covid-19 infection?	Yes	31.5%	39%	.023*	35.8%	36.4%	.964
	No	58.3%	42.4%		48.3%	48.8%	
	Undecided	10.2%	18.6%		15.9%	14.7%	
Do you think that after your Covid-19 pandemic, you will be more careful in your standard measures regarding contamination in your patients?	Yes	86.1%	84.9%	.568	82.8%	88.4%	.281
	No	9.3%	7.6%		10.6%	5.4%	
	Undecided	4.6%	7.6%		6.6%	6.2%	
Did you regret being a healthcare worker with the Covid-19 outbreak?	Yes	11.1%	23.8%	.014*	19.8%	17.8%	.852
	No	73.1%	57.6%		63.6%	63.6%	
	Undecided	15.8%	18.6%		16.6%	18.6%	

**Table 1:** Attitudes of healthcare workers about COVID-19.

\*Chi-square test  $p < 0.05$

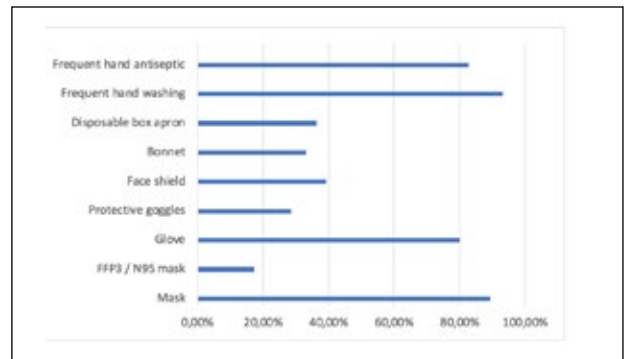
A total of 36.1% of the participants (31.5% of the males and 39% of the females) replied in the affirmative to the question of whether they would hesitate to treat or contact a patient who had recovered from a COVID-19 infection, which was statistically significant ( $p = 0.023$ ). No significant difference was found between those who had children (35.8%) and those who did not have children (36.4%) ( $p = 0.964$ ).



**Fig. 1:** Individual measures taken healthcare workers against COVID-19 in their daily lives.

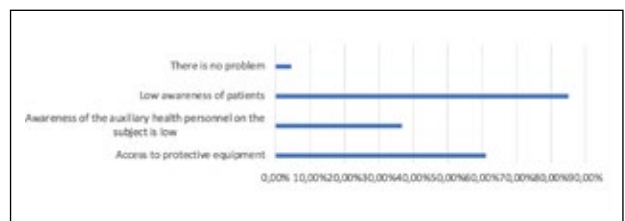
Fig. 1 shows the individual measures taken by HCWs against COVID-19. To the question of which individual measures they were taking against COVID-19, wearing gloves and masks received responses of 59.1% and 76.5%, respectively; frequent hand-washing was 96.8%, using cologne, wet wipes and hand disinfectants was 86.1%, not entering public areas was 91.8%, not having physical contact

(handshaking, kissing, etc.) was 92.5%, frequently ventilating the environment was 85.1%, and changing clothes and taking a shower upon arriving home were 87.9% and 63.3%, respectively.



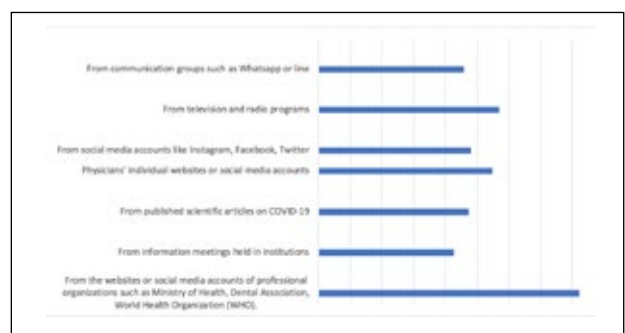
**Fig. 2:** Measures that healthcare workers take while working against COVID-19.

Fig. 2 shows the precautions taken by HCWs for themselves when working. These participants responded to the above question on which measures they were taking in the following proportions: masks (89.3%), gloves (80.1%), ffp3/n95 mask (17.4%), face protective shield (39.1%), glasses (28.5%), medical bonnets (33.1%), disposable boxes (36.3%), frequent hand-washing (93.2%), and frequent hand antiseptic (82.6%).



**Fig. 3:** Problems you encounter with COVID-19 where you work.

Fig. 3 shows the problems encountered in the study area. A total of 85.1% of the participants stated that the patients were insensitive about COVID-19 61.2% of them had difficulties in accessing PPE, 36.7% of the hospital assistants were insensitive, and 4.6% had not encountered problems.



**Fig. 4:** Sources about information about COVID-19.

Fig. 4 shows the sources of information about the disease and virus. To the question of where they gained information about COVID-19, 82.2% indicated the websites or social media accounts of professional organizations, such as the Ministry of Health, the Dental Association, and the WHO; 42.7% indicated the information meetings held in institutions; 47.3% indicated published scientific articles; 54.8% indicated physicians' individual websites or social media accounts; and 48% indicated social media accounts, like Instagram and Twitter, 56.9%.

## Discussion

COVID-19, a highly contagious infection, spreads especially through droplets and direct contact<sup>(9)</sup>. The most important way to prevent the disease is by not being exposed to the virus. However, as the number of cases increases rapidly in our country and in the world, the possibility of HCWs encountering both symptomatic and asymptomatic cases increases day by day. This study aimed to evaluate the attitudes and practices of HCWs toward COVID-19 during the pandemic.

In this study, 76.1% of HCWs reported that meetings or seminars were held about COVID-19 in their workplaces. Although the COVID-19 pandemic has spread rapidly, it is satisfactory that HCWs have achieved such a high percentage. In another study, this rate was limited to 23.19%<sup>(10)</sup>. Because the data about COVID-19 are constantly updated, both HCWs and the public must also be constantly updated.

The HCWs in our study used the social media accounts and websites of the Ministry of Health and the , their main sources of information (82.2%). Contrary to our study, social media appears as the main source of information in other studies<sup>(10-12)</sup>. We think it is very important to use the website and social media accounts of the Ministry of Health in order to get correct information, which reflects HCWs' trust in the Ministry of Health. Although social media is an easy and accessible way to obtain information, it can easily be the source of false information. In Egypt, the spread of news that drugs containing hydroxychloroquine can be used to treat COVID-19 on Facebook has motivated many people to take these drugs<sup>(12)</sup>. The false news spread on social media in Japan has caused problems with xenophobia against the Chinese<sup>(13)</sup>. For this reason, HCWs should refer to the right sources of information to prevent potential problems and set an example to the society in

which they live. When using these platforms, it is necessary to avoid news that is incorrect and fabricated. Nearly half (47.3%) of the participants used scientific articles as sources of information. It is very gratifying to use scientific articles, one of the most reliable sources for correct information.

In this study, 91.8% of HCWs stated that they were afraid of getting COVID-19. In February, nearly 85% of HCWs in hospitals in Henan Province, China reported that they feared being infected with COVID-19. Also interesting is that HCWs working on the front lines feel more confident than those who do not<sup>(14)</sup>. This motivation and optimism shown by the healthcare professionals on the front lines may be related to the intensive material and maintenance support provided to them<sup>(15)</sup>.

Almost all of the HCWs (97.1%) stated that they were afraid of infecting their families and the people around them, but only 54.3% stated that they had quarantined themselves. These results are likely to be related to a lack of information about prevention and isolation strategies in healthcare institutions. Contagion to family members is widely reported. This disease is usually transmitted from individuals who give symptomatic. Among asymptomatic individuals, transmission to family members has been reported<sup>(16)</sup>. It is very important for HCWs to use PPE and to follow infection procedures to prevent COVID-19 from infecting colleagues and people outside the hospital.

The majority of the participants (80.7%) stated that COVID-19 had negatively affected them psychologically; the differences between men and women (71.3% and 86.6%, respectively) and those with children and those without children (85.4% and 75.2%, respectively) were also statistically significant ( $p=0.001$  and  $p=0.009$ , respectively). In a study at a medical school in China, it has been shown that the psychology of female and male students was similarly affected by the COVID-19 outbreak<sup>(17)</sup>. Physiological sensations about stress, social phobia, depression, panic, and fear are common in women, and we think they may be related to anxiety. It can be said that women are more negatively affected by these stressful periods than men and that anxiety is positively associated with this psychological condition<sup>(18)</sup>.

A little more than one in three (36.1%) of the participants stated that they would hesitate to treat or contact a patient who had recovered from a COVID-19 infection. In a public study in Egypt, 23% of people stated that they were afraid of being stigma-

tized with COVID-19. It is believed that such unreported cases can cause a rapid spread of the disease<sup>(12)</sup>. It has been shown that there is a high rate of stigma among HCWs in Egypt against patients with AIDS<sup>(19)</sup>. COVID-19 is lethal and highly contagious, thus stigma may occur in humans against this disease. In our study among HCWs, we have been concerned that the hesitation in treating or contacting patients with COVID-19 may turn into a stigma. Appropriate educational and health policies should be developed to reduce the possibility of stigma against patients with COVID-19.

Most of the participants (85.4%) stated that they would be more careful in their standard measures of contamination after the COVID-19 pandemic. We think that COVID-19 improves the awareness of HCWs about the risks of infectious diseases.

Regarding the institutions where the HCWs worked, patient intake partially decreased for 49.8%, only emergency patients were taken for 38.4%, patients were not taken in 2.1%, and nothing changed for 9.6%.

Many individual measures have been taken with regard to COVID-19 in HCWs' daily lives; some of these include frequent hand washing (96.8%), avoiding physical contact (92.5%), not entering public places (91.8%), changing clothes when coming home (87.9%), using disinfectants or cologne (86.1%), and wearing masks (76.5%) or gloves (59.1%). We think that HCWs are conscious of the individual measures they take in their daily lives. The cautious compliance of HCWs with such measures creates awareness among patients and gives an important message to individuals in the community<sup>(19,25)</sup>.

The precautions taken by HCWs while working include the following: mask use (89.3%), N95/FFP2 mask use: (17.4%), face shield (39.1%), glasses (28.5%), bonnet use (33.1%), disposable box use (36.3%), frequent hand washing (93.2%), and hand antiseptic use (82.6%). For HCWs, good information, positive attitude, and PPE such as gloves, protective clothing, goggles, and face masks are important as they offer treatment to symptomatic or asymptomatic patients<sup>(20)</sup>. In other studies, we see that healthcare professionals have good practice with PPE. Similar to other studies, in our study the greatest precautionary act was hand washing (93.2%).

In some cases involving aerosol-producing procedures, the WHO has recommended using N95/FFP2 respirator masks<sup>(21)</sup>. In this study, the use of the N95/FFP2 mask was limited to 17.4%, and this was only related to the HCWs who produced aerosol.

In this context, with the provision of the necessary PPE and experience, the incidence of COVID-19 infection among HCWs decreased from 5.72% to 2.68% in about a month<sup>(22)</sup>.

How HCWs use PPE is crucial to reducing the spread of the infection. In one study, attention toward removing PPE was positively associated with the level of education. For this reason, training on removing PPE should focus on low-level HCWs<sup>(14)</sup>.

Problems encountered in the study area are as follows: 85.1% of patients were insensitive about COVID-19, 61.2% of them had difficulty in accessing protective equipment, 36.7% of the hospital assistants were not sensitive, and 4.6% of respondents reported no problems.

For example, in January 2020, there was incredible pressure on the health system in Wuhan, where the virus appeared. HCWs had to act quickly. Many HCWs did not have the necessary knowledge and experience in combating these infectious diseases, such as the proper use, replacement, and disposal of protective equipment (23). This study has some limitations. This is Turkey's only survey performed in Elazığ, so the results may not be generalizable to other hospitals and HCWs in the country. The study attempted to include all HCWs, but its success in this is not certain. Therefore, there is a need for comprehensive studies on the specialization areas of HCWs.

## Conclusion

Local and national authorities should explain standard guidelines and procedures to healthcare professionals to identify infectious diseases, pathogens, transmission routes and treatments in pandemic processes. The effective and correct use of PPE should be ensured so that the number of cases of COVID-19 does not increase in health personnel. In addition to PPE, it is very important for HCWs to protect their immunity and mental health.

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