

## Fear and Practice Modifications among Health Practitioners due to the Coronavirus (COVID-19) Pandemic

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### Abstract

**Introduction:** The COVID-19 pandemic has brought many, but healthcare professionals, including dentists, have been affected most by it because they are exposed to a higher risk of infection due to close contact with infected patients. The aim of this study is to assess and measure fear and practice modifications among health practitioners due to the coronavirus (COVID-19) pandemic in Saudi Arabia.

**Methods:** A cross-sectional study was conducted via an online survey of 318 healthcare participants from all around Saudi Arabia. Statistical analysis was performed using SPSS version 20.

**Results:** Of those surveyed, 65.1% were afraid of becoming infected with COVID-19 from a patient or co-worker, and 80.6% feared infecting their family. Only 19.2% were anxious about the cost of treatment if they became infected, and 17.3% wanted to close their medical or dental practice until the number of COVID-19 cases started to decline. The majority (92.1%) of participants knew the mode of transmission of COVID-19. While 61% thought an N-90 mask should be routinely worn during the pandemic, only 53.1% had ever worn an N-90 mask during the pandemic. The majority (72.09%) of dentists did not ask patients to rinse with anti-bacterial mouthwash before treatment.

**Conclusion:** There has been considerable fear among healthcare workers during the pandemic, and despite their high level of knowledge about the pandemic, practices and precautions need to be improved. More educational and training programs are needed to improve the practices of health practitioners during the COVID-19 pandemic.

**Keywords:** Health Practitioners; Coronavirus; COVID-19

### Introduction

At the end of December 2019, a viral epidemic of unknown etiology emerged, posing a very real threat to global health, economic stability, and the functioning of societies and governments across the world [1-3]. It spread fast across the globe within only a few months to become one of the most significant public health crises of the century. The term “COVID-19” was coined to refer to the disease caused by the virus SARS-CoV-2 [1-5]. The potentially fatal outcomes and contagious nature of this disease meant that it influenced all aspects of life for many people around the world [1]. The lifestyle changes it brought included avoidance of public places, social distancing, the wearing of face masks in public, and frequent hand washing [4]. These changes were sometimes associated with stress-inducing factors, such as working from home; temporary unemployment; a lack of physical contact with family members, friends, and colleagues; homeschooling of children; and worry that loved ones might become infected [4,6]. The changes brought by the COVID-19 pandemic, including the threat of unemployment and sudden school closures, have had psychological effects, and may have led to mental health conditions and added stress among all inhabitants of the world [7-11].

Healthcare workers are more vulnerable to infection because they are in close contact with COVID-19 patients [10], and among healthcare practitioners, dentists are the most likely to be infected while performing their job because not only are they in close contact with patients but also, and more importantly, they are exposed to droplets and aerosol particles from patients’ oral cavities [10-13]. Therefore, healthcare workers are at high risk of becoming infected by patients and spreading the virus to their families, peers, and other patients. Under these circumstances, it is natural for healthcare workers to develop a fear of being infected by their patients [6,10,13]. Anxiety is a predictable and normal response to the current pandemic. Mild anxiety is natural; it helps people to perform their tasks and may foster preventive behaviors [14,15]. However, severe anxiety can lead to a state of panic and cause irrational behavior, especially in high-risk professions [16,17]. Severe anxiety is also associated with physical symptoms, such as hyperventilation, muscle tightening, sweating, trembling, increased heart rate, fatigue, trouble sleeping, gastrointestinal disorders, and impaired cognitive skills [18,19]. Persistent severe anxiety may affect a person’s mental and physical well-being [20,21].

A systematic review of the psychological effects of the COVID-19 pandemic on healthcare workers versus non-healthcare workers worldwide found that healthcare workers had significantly higher incidences of depression, anxiety, occupational stress, and insomnia compared to non-healthcare workers [22]. In addition, a cross-sectional study of the psychological status of the medical workforce in China during the COVID-19 pandemic found that fear among medical staff was very high (70.6%) [23]. In Turkey, dentists reported extremely high stress levels during 2020, ranging from 5 to 10 on a scale of 0 to 10 [24]. Moreover, a study of fear and practice modifications in response to the COVID-19 outbreak among dentists from 30 countries found that more than three-quarters of general dental practitioners (78%) were scared and anxious about the devastating effects of COVID-19 [6].

However, previous studies have not compared fear and practice modifications among different healthcare practitioners (medicine, dentistry, and physiotherapy).

### Aim of the Study

The aim of this study is to assess and measure fear and practice modifications among health practitioners due to the coronavirus (COVID-19) pandemic in Saudi Arabia.

### Methods

This is a cross-sectional study based on a questionnaire that assessed fear and modifications to healthcare practice among health practitioners due to the coronavirus (COVID-19) pandemic in Saudi Arabia. A convenient sampling technique was used to recruit participants from all over Saudi Arabia. Recruiting was conducted via social media platforms (Snapchat, Instagram, Twitter, WhatsApp, and Facebook).

This is due to the social distancing measures in place in Saudi Arabia during the data collection period. Data collection was conducted between June 2021 and August 2021. The inclusion criteria are all healthcare workers and interns whether they are currently working or not in Saudi Arabia.

The questionnaires were in English. They were self-administered and sent online by the research team. Participants answered anonymously and voluntarily in their free time. Participants had to provide informed consent at the beginning of the questionnaire, which stated that by answering the questionnaire, they agreed to participate. All participants who did not sign the consent form were excluded from the study. Completing the questionnaire took approximately 5 to 11 minutes.

The questionnaire used in this study was derived and modified from a validated questionnaire used in a previous study [6]. The questionnaire contained 34 questions organized in four parts. The first part concerned demographic data of the participants, including gender, age, category of practice, type of practice, experience, region, place and city where they worked, and nationality. The second part contained eight questions investigating the fear and anxiety experienced by healthcare professionals. The third part, which contained thirteen questions, assessed the knowledge and healthcare practices of healthcare workers regarding COVID-19. Finally, the fourth section contained three questions on the clinical practice of dentists during the COVID-19 pandemic. The questions in sections two to four had “yes” or “no” answers.

The data were collected and analyzed using version 21 of SPSS (IBM Corp., Armonk, NY, USA). Statistical analysis was conducted using t-tests, linear regressions, chi square and ANOVA, and a probability value of less than 0.05 indicated statistical significance. Ethical approval was obtained from Taif University with the NO. (HAO-02-T-105).

**Results**

A total of 318 respondents participated in this study. The participants’ mean age was 26.84 (SD 6.08), and mean years of experience was 2.33 (SD 5.04). The participants’ demographic data are summarized in table 1.

Variables		Number (N)	Percentage (%)
Gender	Male	134	42.1
	Female	184	57.9
Category of practice	Dentistry	86	27.0
	Medicine	195	61.3
	Physiotherapy	37	11.6
Type of practice	Intern	164	51.6
	GD/GP/Resident	98	30.8
	Specialist/Consultant	56	17.6
Graduation from	Governmental	259	81.4
	Private	59	18.6
Current work	Governmental	259	81.4
	Private	59	18.6
Region	West	107	33.6
	East	76	23.9
	Central	65	20.4
	South	27	8.5
	North	43	13.5
Nationality	Saudi	300	94.3
	Non-Saudi	18	5.7

**Table 1:** Demographic data.

Participants were asked eight questions that assessed their fear and anxiety levels (Table 2). Of those surveyed, 65.1% were afraid of becoming infected with COVID-19 from a patient or co-worker. The majority of participants (80.6%) feared that they could carry the infection from their medical or dental practice back to their family, but only 19.2% were anxious about the cost of treatment if they became infected. Only 17.3% wanted to close their medical or dental practice until the number of COVID-19 cases started to decline.

Questions assessing fear and anxiety among healthcare professionals	Number (%)	
Are you afraid of becoming infected with COVID-19 from a patient or co-worker?	Yes	207 (65.1)
	No	111 (34.9)
Are you anxious when providing treatment to a patient who is coughing or suspected of being infected with COVID-19?	Yes	199 (62.6)
	No	119 (37.4)
Do you want to close your medical/dental practice until the number of COVID-19 cases starts to decline?	Yes	55 (17.3)
	No	263 (82.7)
Do you feel nervous when talking to patients in close contact?	Yes	134 (42.1)
	No	184 (57.9)
Do you fear that you could carry the infection from your medical/dental practice back to your family?	Yes	257 (80.8)
	No	61 (19.2)
Are you afraid of having to quarantine if you become infected?	Yes	157 (49.4)
	No	161 (50.6)
Are you anxious about the cost of treatment if you become infected?	Yes	61 (19.2)
	No	257 (80.8)
Do you feel afraid when you hear that people are dying because of COVID-19?	Yes	201 (63.2)
	No	117 (36.8)

**Table 2:** Questions assessing fear and anxiety among healthcare professionals (n = 318).

Participants were asked thirteen questions that assessed their level of knowledge and their practices regarding the COVID-19 pandemic (Table 3). The majority (92.1%) of participants knew the mode of transmission of COVID-19. However, only 61% thought that an N-90 mask should be routinely worn in medical and dental practices due to the current pandemic, and only 53.1% had ever worn an N-90 mask while treating a patient in their medical or dental practice.

Questions assessing the knowledge and practices of healthcare workers regarding the COVID-19 pandemic	Number (%)	
Are you aware of the mode of transmission of COVID-19?	Yes	293 (92.1)
	No	25 (7.9)
Are you up to date with the current CDC or WHO guidelines on cross-infection control regarding COVID-19?	Yes	230 (72.3)
	No	88 (27.7)
Are you currently asking for every patient’s travel history before performing medical/dental treatment?	Yes	186 (58.5)
	No	132 (41.5)
Are you currently taking every patient’s body temperature before performing medical/dental treatment?	Yes	231 (72.6)
	No	87 (27.4)
Are you deferring medical/dental treatment of patients showing suspicious symptoms?	Yes	210 (66)
	No	108 (34)
Do you think a surgical mask is enough to prevent cross-infection of COVID-19?	Yes	120 (37.7)
	No	198 (62.3)
Do you think an N-90 mask should be routinely worn in medical/dental practice due to the current pandemic?	Yes	194 (61)
	No	124 (39)
Have you ever worn an N-90 mask while treating a patient in your medical/dental practice?	Yes	169 (53.1)
	No	149 (46.9)
Do you routinely follow universal precautions for infection control for every patient?	Yes	262 (82.4)
	No	56 (17.6)
Do you wash your hands with soap and water/use sanitizer before and after treatment of every patient?	Yes	272 (85.5)
	No	46 (14.5)
Are you aware of which authority to contact if you come across a patient with suspected COVID-19 infection?	Yes	259 (81.4)
	No	59 (18.6)
Do you think that people do not want to go to a medical/dental clinic because they are afraid of COVID-19 infection?	Yes	215 (67.6)
	No	103 (32.4)
Do you think that COVID-19 affected the income of your private practice or the flow of patients in your public practice?	Yes	226 (71.1)
	No	92 (28.9)

**Table 3:** Knowledge and practices of healthcare workers regarding the COVID-19 pandemic (n = 318).

Dentists were asked three additional questions regarding their clinical practice during the COVID-19 pandemic (Table 4). The majority (72.09%) of dentists did not ask their patients to rinse with anti-bacterial mouthwash before treatment.

Questions assessing the practice of dentists in the clinic during the COVID-19 pandemic		Number (%)
Do you use rubber dam isolation for every patient?	Yes	42 (48.84)
	No	44 (51.16)
Do you use high-volume suction in your practice for every patient?	Yes	49 (56.98)
	No	37 (43.02)
Do you ask every patient to rinse his/her mouth with anti-bacterial mouthwash before treatment?	Yes	24 (27.91)
	No	62 (72.09)

**Table 4:** Questions assessing the clinical practice of dentists during the COVID-19 pandemic (n = 86).

### Discussion

This is a cross-sectional study that measures fear and health practice modifications among health practitioners due to the coronavirus (COVID-19) pandemic. Two-thirds of participants were afraid of becoming infected with COVID-19 from a patient or co-worker, and more than four-fifths of the participants feared that they could carry the infection from their medical or dental practice back to their family. Only 19.2% worried about the cost of treatment if they became infected, and only 17.3% of the participants wanted to close their medical or dental practice until the number of COVID-19 cases started to decline. Regarding the level of knowledge and the practices of health-care workers regarding the COVID-19 pandemic, the majority of the participants knew the mode of transmission of COVID-19. Around two-thirds of them thought they should wear an N-90 mask routinely, but only around half of them wore it while treating their patients. Dentists were asked some special questions, which showed that around half of them did not use a rubber dam or high-volume suction for every patient, and only a third of them asked every patient to rinse his or her mouth with anti-bacterial mouthwash before treatment.

A previous study conducted in 30 different countries across the world [6] found that dentists had more fear, anxiety, and nervousness (92.1%) regarding the COVID-19 pandemic while treating patients in their clinics than reported in our study (65.1%). A cross-sectional study that measured the psychological status of the medical workforce in China during the COVID-19 pandemic showed that medical staff experienced moderate to severe fear (70.0%), and more than 25% of them showed moderate to severe anxiety [23]. Moreover, a systematic review of the psychological effects of COVID-19 on healthcare workers globally showed that healthcare workers had a significantly higher incidence of insomnia than workers in other jobs [22]. In sum, all the above studies reported that COVID-19 has a psychological effect on healthcare workers. However, this effect may differ from one worker to another and from one country to another depending on multiple factors. It was interesting to find that fear about infecting family members was greater than healthcare workers' anxiety about themselves. This might reflect cultural relationships in Saudi Arabia.

It is interesting to note that only 19.2% were anxious about the cost of treatment if they became infected. This percentage is lower than that found in a previous study (73%) conducted in over 30 countries [6]. This may be since the Saudi healthcare system provides free treatment, especially for COVID-19 patients. It is also interesting to note that only 17.3% wanted to close their medical or dental practice until the number of COVID-19 cases started to decline. This is in contrast with the findings of a previous study (66%) [6]. This might be since the majority of participants in this study were from the public sector whose salaries are paid by stakeholders. This is in contrast with the previous study, which was conducted globally where dentistry is more likely to be a private business.

Regarding healthcare workers' knowledge of and practices regarding the COVID-19 pandemic, most of those surveyed were aware of the mode of transmission of COVID-19 (92.1%) and were up to date on the current Center of Diseases and Control (CDC) or World Health

Organization (WHO) guidelines for cross-infection control regarding COVID-19 (72.3%). However, only 58.5% of them asked for every patient's travel history before performing medical or dental treatment. Only 37.7% thought that a surgical mask was enough to prevent cross-infection of COVID-19, and only 61% of them had worn an N-90 mask while treating patients. In the survey of over 30 countries mentioned above [6], the knowledge and practices of healthcare workers regarding the COVID-19 pandemic were better than in our study except with respect to the wearing of N-90 masks while treating patients (10%) and the knowledge of which authority to contact in the case of a patient with suspected COVID-19 infection (80%). On the other hand, the current study shows that Saudi healthcare workers showed greater knowledge and better practice regarding the COVID-19 pandemic than healthcare workers in Turkey [24]. This might reflect the variability in the level of knowledge and practice regarding COVID-19 precautions around the world.

For the questions assessing the clinical practice of dentists specifically during the COVID-19 pandemic, our findings showed that a higher proportion used rubber dam isolation, high-volume suction, and anti-bacterial mouth wash rinse than both the previous study of over 30 different countries across the world [6] and the previous Turkish study [24]. However, our results were like another study conducted across over 28 countries around the world, including Saudi Arabia [25]. It seems that there is a desire among dental healthcare workers in Saudi Arabia to implement procedures to combat COVID-19.

Further research in this area is recommended to discover which specialists experience more anxiety and fear due to the COVID-19 pandemic and to tailor more programs to those specialties. It would also be useful to establish educational and training programs for students and newly graduated healthcare workers on how to deal with COVID-19, as this would improve knowledge and attitudes toward the pandemic.

This study is the first to be conducted in Saudi Arabia that includes all types of healthcare workers, not only dental or medical workers. However, one of the limitations of this study is the low number of participants. Studies on a national scale might provide more generalizable results on how healthcare workers are dealing with the consequences of COVID-19.

### Conclusion

Most participants had moderate anxiety and fear while dealing with patients or co-workers, but they had high fear and anxiety about carrying the infection to their families. Most practitioners had a high level of knowledge about the COVID-19 pandemic, and many of them followed guidelines for cross-infection control regarding COVID-19. However, the percentages were unsatisfactory, especially for healthcare workers. Only half of the participants wore an N-90 mask while treating patients. Regarding dentists, a considerable percentage of them do not use rubber dam isolation, high-volume suction, or anti-bacterial mouthwash rinses before treatment. It is recommended that psychological support programs for healthcare workers in Saudi Arabia be established to reduce the levels of fear and anxiety and teach them how to deal with problems related to the COVID-19 pandemic. More educational programs to improve healthcare workers' practice regarding COVID-19 precautions are also recommended.

### Conflict of Interest

No conflicts of interest exist.

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