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Misconceptions about COVID-19 among Healthcare Workers in Saudi Arabia

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Abstract

Introduction: In the context of the COVID-19 pandemic, it is crucial to ensure that healthcare workers have accurate and up-to-date information about the transmission, prevention, and management of the disease. This knowledge is essential for effectively containing the epidemic and reducing morbidity and mortality rates. However, there are many misconceptions and myths surrounding COVID-19 that can impede these efforts. The aim of this study was to identify the prevalent misconceptions about COVID-19 among healthcare workers in Saudi Arabia.

Methods: This is a cross-sectional observational study design conducted in among healthcare workers in primary healthcare centers in Saudi Arabia. Convenience sampling was used for this study, with an online survey link sent to healthcare workers in Meccah city. The survey instrument was a structured online questionnaire, consisting of three sections. Section A contained questions about the sociodemographic factors of healthcare workers, Section B contained 12 questions to assess the knowledge of COVID-19, and Section C contained questions about common myths and misconceptions.

Results: A total sample of 384 health workers in PHC centers responded to the questionnaire, of them 59.5% were males. About 31% were general practitioners, 24.2% were specialists, 15.2% were laboratory technicians, and the remaining 30% distributed into, pharmacists, dentists, nurses, and medical specialists. The source of information was significantly related to the knowledge about the COVID-19 ($p=0.009$). Respondents who get the information about COVID-19 from reading materials, such as books or internet, and health staff have a higher level of knowledge than those who depend on educational lectures or those who get information from friends or relative.

Conclusions: Level of knowledge about COVID-19 is good among health workers, in comparison to other populations, however, there are areas of improvement. Lack of accurate information and spreading of rumors that jeopardize trust on the vaccine are the main reasons of low knowledge and high vaccine hesitancy.

Keywords: COVID-19, Awareness, Practices, Knowledge, Health workers, Saudi

Introduction

COVID-19, caused by SARS-CoV2, has spread at an exponential rate since its identification in Wuhan, China in December 2019. To date, over 27.5 million cases have been confirmed with over 897,575 reported deaths. On March 11th, 2020, the World Health Organization declared COVID-19 a global pandemic, leading many countries to implement unprecedented control measures such as social distancing, closure of public gathering places, travelers' quarantine, and intensive health education campaigns [1].

Coronaviruses, the causative agents of three pandemics, including severe acute respiratory syndrome coronavirus (SARS-CoV) in 2003 [2], Middle East respiratory syndrome coronavirus (MERS-CoV) in 2013 [3], and COVID-19, are responsible for the current global health crisis. While only 15% of infected individuals present with symptoms, such as fever, fatigue, headache, dry cough, myalgia, dyspnea, and anosmia, complications occur in a small percentage of patients (4%), and death is reported in 1.0 - 3.3% of the patients, as stated in [4,5].

There have been numerous studies in the literature examining the knowledge and awareness of COVID-19 among healthcare workers. For example, in China, 89% of healthcare workers were found to have a good level of knowledge and practices related to COVID-19, but a high level of fear was also reported, according to [6]. Similarly, a survey study conducted in Pakistan revealed that more than 80% of healthcare workers exhibited good knowledge, a positive attitude, and good practices, as mentioned in [7]. However, in Iran, approximately 43% of nurses had poor knowledge regarding sources, transmission, clinical features, management, and prognostic outcomes of COVID-19, with the main sources of information being the Ministry of Health, World Health Organization, and social media, as stated in [8]. According to [9], fear associated with the sudden rise in cases and deaths of COVID-19 has led to the dissemination of numerous rumors and misinformation among the public. Social media played

a significant role in accelerating the spread of misconceptions, which have been further exacerbated by the implementation of strict and unprecedented measures of social distancing. Even a considerable proportion of health professionals have fallen prey to these myths and misconceptions. Common misconceptions surrounding COVID-19 include the belief that the virus only infects old people [10], that antibiotics can effectively kill the virus [9], and that people in developing countries are more immune to the virus than those in developed countries [11]. Furthermore, there are widespread myths regarding COVID-19, such as the 5G conspiracy theory [12], the use of the virus as a biological weapon by certain countries [13], and the involvement of big pharmaceutical companies in the production and dissemination of the virus to make profits by selling already available vaccines. To address this issue, educational campaigns aimed at healthcare workers should focus on both dispelling rumors and disseminating evidence-based information about COVID-19.

To design a successful educational campaign, it is important to first assess the knowledge gaps among healthcare workers and identify common misconceptions and myths about the disease. The aim of this study was to identify the prevalent misconceptions about COVID-19 among healthcare workers in Saudi Arabia.

Methods

This is a cross-sectional observational study that aimed to identify prevalent myths and misconceptions about COVID-19 among healthcare workers in primary healthcare centers in Saudi Arabia. The study sample was selected from healthcare workers, including medical practitioners, nurses, pharmacists, radiology staff, laboratory specialists, and dental staff, who met the inclusion criteria. However, managerial and financial staff without medical backgrounds were excluded from the study, along with healthcare staff who did not respond to the questionnaire. The sample

size for this study was calculated using the equation of proportion estimation assuming a prevalence of 50% COVID-19 misconceptions among health staff in Saudi Arabia, with a confidence level of 95% and estimation error of 0.05. Based on this calculation, the required sample size was 384 participants.

Convenience sampling was used for this study, with an online survey link sent to healthcare workers in Meccah city. The survey instrument was a structured online questionnaire, consisting of three sections. Section A contained questions about the sociodemographic factors of healthcare workers, Section B contained 12 questions to assess the knowledge of COVID-19, and Section C contained questions about common myths and misconceptions. The questionnaire was validated based on interim guidance and information for health workers published by the CDC and was previously used in China. Correct answers were scored 1 point and incorrect or unknown answers were scored 0 points, with a total knowledge score ranging from 0 to 12. The questionnaire was distributed to the mobile phones of healthcare workers through an online link, and their responses were automatically collected into an excel sheet. Reminders were sent to motivate healthcare workers to participate.

The study variables included healthcare workers' knowledge about COVID-19 and the prevalence of common myths and misconceptions. The independent variables consisted of gender, age, occupational category, nationality, marital status, experience in years, previous training on COVID-19, and source of information about COVID-19. Data were analyzed using SPSS version 26, with descriptive statistics such as frequencies and percentages calculated to summarize nominal and ordinal data, and means, medians, and standard deviations used to describe numerical variables. Chi-squared tests were applied to evaluate the association between determinants and outcome variables, and T-tests were used to compare the means of knowledge scores. A p-value less than 0.05 was considered statistically significant. A pilot study was conducted with 20 participants to identify any difficulties and the time required to complete the questionnaire, and the questionnaire was revised by an epidemiologist to improve its methodological quality.

Written consent was obtained from the participants, and confidentiality was maintained for all information collected.

Results

A total sample of 384 health workers in PHC centers responded to the questionnaire, of them 59.5% were males. The vast majority of the health workers were Saudis (95.9%), while a half of the health workers have middle income (5,000-15,000 Saudi Riyal). About 88% of the health workers have a high level of education as university or postgraduate studies and 83% were married. About 31% were general practitioners, 24.2% were specialists, 15.2% were laboratory technicians, and the remaining 30% distributed into, pharmacists, dentists, nurses, and medical specialists. Only 40.2% of the health workers do regular physical exercise at least one time per week (Table 1). Regarding distribution of the factors related to the knowledge of COVID-19. Different sources of information were reported by the respondents but the health staff followed by friends or relatives were the most common sources of information about COVID-19 (Table 2). Table 3 shows the Association between respondents' characteristics and knowledge about the COVID-19. Gender, educational level, nationality, and income were no significantly associated with the knowledge about the COVID-19 ($p>0.05$). However, source of information was significantly related to the knowledge about the COVID-19 ($p=0.009$). Respondents who get the information about COVID-19 from reading materials, such as books or internet, and health staff have a higher level of knowledge than those who depend on educational lectures or those who get information from friends or relative.

Discussion

One of the most common misconceptions surrounding COVID-19 is the wide variability in fatality rates between countries [10]. This leading to confusion and different opinions on the severity of the virus. Some individuals believe that COVID-19 is extremely dangerous, with a high fatality rate (such as the reported 10% in Italy), while others view it as relatively harmless, with a low fatality rate (less than 0.001 in Qatar), and therefore consider social

distancing measures and lockdowns to be unnecessary. Additionally, there are some who believe that the psychological effects of stress are the main cause of death from COVID-19, rather than the virus itself. These individuals suggest that stress weakens the immune system and makes patients more vulnerable to complications and death. In a strange rumor, it has been suggested that the transmission of the virus is through beards, and therefore, beardless people are safe [14].

As reported in [15], as of the first week of August, Saudi Arabia had reported more than 322,000 cases and 4,137 deaths. A study conducted by the Faculty of Medicine at King Abdulaziz University (KAU) in Rabigh investigated the prevalence and predictors of misconceptions about COVID-19 among the health workers. Despite the good level of knowledge and positive attitudes among study participants, the study found that about 67% of health workers had various misconceptions about COVID-19, highlighting the widespread nature of these misconceptions even among those with good knowledge.

Misconceptions surrounding COVID-19 have resulted in low vaccine acceptance rates, particularly in developing countries. To assess vaccine acceptance and associated misconceptions among adults in Saudi Arabia, this study utilized both quantitative and qualitative approaches, as vaccine hesitancy can compromise pandemic control efforts. Vaccine hesitancy is defined as a delay in accepting or refusing vaccination despite the availability of vaccination services [12].

In Saudi Arabia, the health authority has strictly indicated the need for COVID-19 vaccination, resulting in a high uptake rate (90%) among health workers. A systematic review of 17 studies found low willingness among parents to vaccinate their children, which may impact vaccination against COVID-19 during upcoming campaigns [13]. In a previous national web-based study conducted in Saudi Arabia at the beginning of the vaccination campaign in 2020, a lower acceptance rate of 64.7% was reported among the health workers [18]. However, the current study was conducted at the end of the first vaccination campaign in 2021, and it is unclear if the acceptance

rate has increased over time due to potential differences in population characteristics. Participants in the present study were found to have high awareness, as a positive attitude towards vaccination in general was reported by 91.1% of respondents. Additionally, 82.6% were willing to recommend the COVID-19 vaccine to friends or family members.

Another study conducted by Alfageeh et al. found even much lower acceptance rate (48%) among 2,319 participants in Saudi population during 2021 [19], while another study, conducted by Magadmi and Kamel, found the same acceptance rate (48%) among 3,101 participants in 2020 [20]. Several international studies have reported higher levels of COVID-19 vaccine acceptance among the health workers compared to the present study. For example, in many Asian countries such as China, Indonesia [21], and Malaysia [22], vaccine acceptance rates were reported to be 90% or higher. The high level of acceptance in these countries has been attributed to public trust in their respective governments. In Latin America, vaccine acceptance was relatively similar to that reported in the present study, with acceptance rates of 70% reported in Brazil and Ecuador [23].

Conclusions

Level of knowledge about COVID-19 is good among health workers, in comparison to other populations, however, there are areas of improvement. Lack of accurate information and spreading of rumors that jeopardize trust on the vaccine are the main reasons of low knowledge and high vaccine hesitancy.

Conflict of interests

The authors declared no conflict of interests.

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Table (1): Demographic characteristics of the health workers

<i>Characteristics</i>	<i>Frequency</i>	<i>Percent (%)</i>
Gender (n=338)		
<i>Male</i>	201	59.5
<i>Female</i>	137	40.5
Marital status (n = 348)		
<i>Married</i>	289	83.0
<i>Single</i>	57	16.4
<i>Divorced</i>	2	0.6
Education (n = 384)		
<i>Secondary School or less</i>	111	29.0
<i>University level</i>	201	52.1
<i>Postgraduate level</i>	72	18.9
Nationality (n=343)		
<i>Saudi</i>	329	95.9
<i>Non-Saudi</i>	14	4.1
Income (n=332)		
<i>< 5000</i>	63	19.0
<i>5000-15000</i>	167	50.3
<i>> 15000</i>	102	30.7
Physical exercise (n = 348)		
<i>Rarely</i>	178	51.1
<i>1-2 Times/Week</i>	91	26.1
<i>> 4 Times/Week</i>	39	11.2
<i>3-4 Times/Wek</i>	10	2.9
<i>None</i>	30	8.6

Table (2): Distribution of the factors related to the knowledge and source of information about COVID-19

Factors	Frequency	Percent (%)
<i>Knowledge about COVID-19</i>		
Good knowledge	189	52.1
Poor knowledge	159	47.9
<i>Source of information about COVID-19?</i>		
Reading Materials (Books or Internet)	10	2.9
Friends or Relatives	141	40.5
Health staff	194	55.7
Educational Lectures	3	0.9

Table (3): Association between health workers' characteristics and knowledge about the COVID-19

Health workers' characteristics	knowledge about the COVID-19		Chi-square	P value
	Good knowledge	Poor knowledge		
Educational level				
High school or lower level	45	65	1.48	0.224
	40.9%	59.1%		
University or higher level	114	124		
	47.9%	52.1%		
Gender				
Male	90	111	0.05	0.911
	44.8%	55.2%		
Female	63	74		
	46.0%	54.0%		
Source of information				
Reading Materials (Books or Internet)	6	4	10.66	0.009*
	60.0%	40.0%		
Friends or Relatives	50	91		
	35.5%	64.5%		
Health Staff	102	92		
	52.6%	47.4%		
Educational Lectures	1	2		
	33.3%	66.7%		
Nationality				
Saudi	153	176	0.07	0.789
	46.5%	53.5%		
Non-Saudi	6	8		
	42.9%	57.1%		
Income				
< 5000	25	38	2.55	0.280
	39.7%	60.3%		
5000-15000	75	92		
	44.9%	55.1%		
> 15000	53	49		
	52.0%	48.0%		

