



1: Department of Surgery and allied, Dow University of Health Sciences, Karachi, Pakistan.

2: Emergency Medicine, FAGH, Saudi Arabia.

3: Department of Surgery and allied, Dow University of Health Sciences, Karachi, Pakistan.

4: Department of Surgery and allied, Dow University of Health Sciences, Karachi, Pakistan

5: Department of Surgery and allied, Dow University of Health Sciences, Karachi, Pakistan.

6: Department of Surgery and allied, Dow University of Health Sciences.

*=corresponding author
drhiraashfaq7@gmail.com

Perception of covid-19 vaccine among healthcare workers in Pakistan and Saudi Arabia.

Hira Ashfaq^{1*}, Sabin Zafar², Sundas Dastagir³, Bushra Kiran Naeem⁴, Imrana Zulfikar⁵, Raheel Ahmed⁶.

Abstract:

Introduction: COVID-19 vaccine was approved in late 2020 for healthcare workers and were made available for public in early 2021. Healthcare workers opinions and knowledge about vaccine safety directly impacts public perception about the vaccine.

Objectives: The aim of this study is to assess the perception of health care workers towards administration of COVID-19 vaccine and to access the awareness of COVID vaccine among healthcare workers in Pakistan and Saudi Arabia.

Methodology: This survey based study was conducted between February 2021 to April 2021. Total 405 health care professionals approached electronically and data collected, after taking consent, using a questionnaire. Analysis was done by SPSS version 21.

Results: 405 health care professionals participated in current survey. Female outnumber male participants. Although majority were willing to be vaccinated, those refusing were afraid of the side effects of the vaccine.

Conclusion: Healthcare workers, both from Pakistan and Saudi Arabia, have high acceptance ratio for COVID-19 vaccine. Fear of adverse effects and myths are the major factors for refusal of vaccine.

Keywords: Covid-19; SARS CoV-2; Healthcare workers; Vaccine

Introduction:

COVID-19, 130 million confirmed cases globally, primarily cause severe acute respiratory syndrome. COVID-19 virus has caused roughly 2.8 million deaths till April 2021 in different countries of the world including America and Europe. Vaccine for COVID-19 were approved in late 2020 for healthcare workers and were made available for public in early 2021. Awareness and information regarding social distancing and symptoms is the key to prevention and timely management of COVID-19 cases. 2 The virus remains active in the body for 2-14 days; therefore, isolation of 14 days is

advised for infected individuals.3 Although effective treatments for COVID-19 have been approved by FDA, but the number of deaths has been rising globally. The only hope to control this pandemic is effective vaccination as done previously for polio, smallpox, rabies and influenza (4). Over the last year, different vaccines have been developed and administered all over the world. Ideally the healthcare systems should investigate the acceptability of COVID-19 vaccine to plan strategies against COVID-19. It should also include the framework to strengthen individual's trust in the vaccine. A model for acceptance and uptake of vaccinations has been

developed and named as Health Belief Model (HBM) (5). The pandemic has affected every aspect of society and has led to restrictions to prevent virus spread. A recent study in Vietnam showed that 76% of healthcare workers showed willingness to get vaccinated (6). As the researchers have been working unprecedentedly on development of vaccines, compliance for vaccination programs is needed. Reasons behind vaccine hesitancy are socio demographic, psychological and mistrust towards biomedical science. The center for disease control and prevention issued guidelines prioritizing healthcare workers and people with preexisting medical conditions to get vaccinated. As healthcare workers are on the front line to provide care for COVID-19 affected patients, their vaccination will provide the healthcare system with a strong workforce to fight the pandemic (7). Surveys conducted on general population showed only 57-69% acceptance rate for vaccination which is quite low as compared to the pandemic spread (8). A strong message for vaccination by healthcare workers to general population, can only be provided if they themselves believe in the efficacy of COVID-19 vaccine. Potential concerns and acceptance of COVID-19 vaccine among healthcare workers should be addressed as guidance programs and counseling be provided to encounter vaccine hesitancy. Saudi Arabia had the highest number of COVID-19 confirmed cases and death on record till November, 2020 (9). Many surveys are conducted on vaccine acceptance in general population but very few on healthcare workers.

Objective:

To assess the perception of health care workers towards administration of COVID-19 vaccine and to assess the awareness of COVID vaccine among healthcare workers in Pakistan and Saudi Arabia.

Methodology:

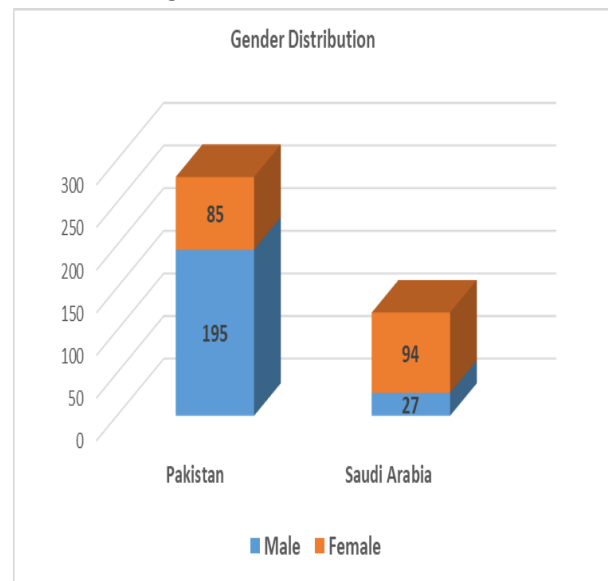
This online survey-based study conducted on health care professionals working in Pakistan and Saudi Arabia, during the duration of February 2021 to April 2021. By health care professionals we mean doctors, nurses, respiratory therapists, physiotherapists, technician, hospital administration staff and emergency service providers. Participants assured of anonymity of the data and online informed consent obtained. Data was collected by providing link of questionnaire to the healthcare workers via email. The questionnaire include biodata, level of education, nationality, comorbidities, history of

smoking and history of COVID-19 infection if any. Questions asked about COVID-19 vaccine includes; from where did you hear about the vaccine, it's availability in their country, route of administration, any concerns about the vaccine administration. The most important question asked to health care workers who was if they were willing to take the COVID-19 vaccine themselves. Lastly the healthcare professionals were inquired about which type of vaccines are available in their country, it's safety in pregnant and breastfeeding women, vaccine recommendation in recently treated COVID-19 patients and its allergic reactions.

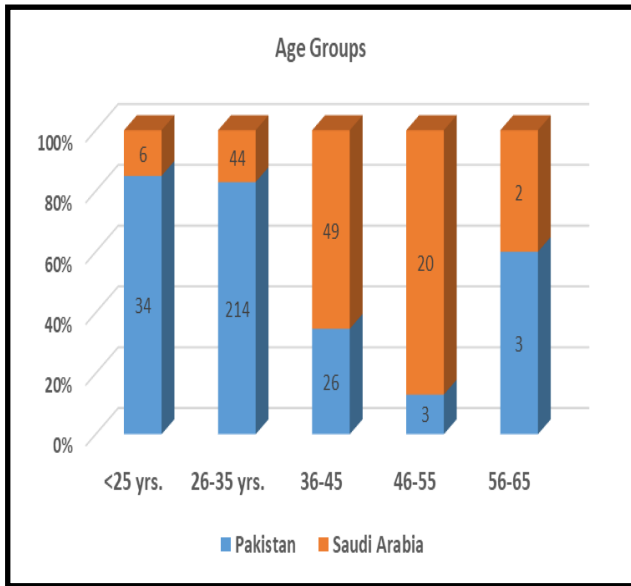
After data collection analysis was done by SPSS version 21. Descriptive statistics and frequencies were used to assess the knowledge and perception of health care workers regarding COVID-19 vaccine.

Results:

A total of 280 healthcare workers in Pakistan filled the online questionnaire during the study period amongst which 69.6% (n=195) were females and 30.3% (n=85) were males. From Kingdom of Saudi Arabia, 121 healthcare workers filled the online questionnaire, of which males were 27 (22.3 %) and female were 94 (77.6 %) as shown in fig 1.



The age range of participants was from 18-65 years, 76.4% (n=214) health care professionals from Pakistan were between 26-35 years of age. From Saudi Arabia 40.5% (n=49) participants were between 36-45 years; as shown in Figure 2. In Saudi Arabia, majority responses, 40.5% (n=49) was collected from age group 36-45 years.



In Pakistan, 242 out of 280 participants had no comorbidities. 13 (4.6%) participants were asthmatic and 8 (2.8%) were hypertensive as shown in table 1.

Table No 1: comorbidities in healthcare workers from Pakistan

Comorbid	Frequency (n)	Percentage (%)
Asthma	13	4.6%
Hypertension	8	2.8%

In Saudi Arabia comorbidities found in 24 (19.83%) participants. 12 were Hypertensive, 6 participants were Asthmatic (chronic obstructive pulmonary diseases), and Thyroid disorders were present in 6 participants as shown in table 2.

Table No 2: comorbidities in healthcare workers from Saudi Arabia

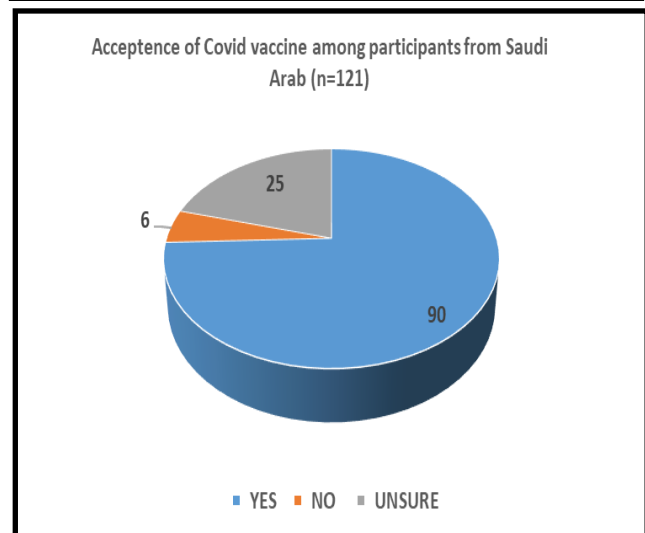
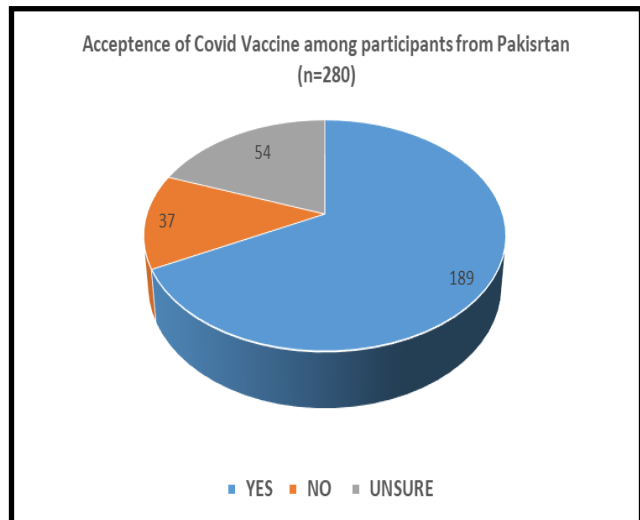
Comorbid	Frequency (n)	percentage (%)
Hypertension	12	9.9%
Asthma/COPD	6	5 %
Thyroid disorders	6	5%

Regarding education level, in Pakistan, 57.5% (n=161) were holding bachelor's degrees, 10% (n=28) were Master's and 21.8% (n=61) were fellowship, 1.1% (n=3) were PhD, while in Saudi Arabia, 43.8% (n=53) were holding bachelor's degree, 14% (n=17) were holding Master's degree, 3.3% (n=4) were awarded PhD and 24.8% (n=30) were awarded fellowship degree.

Table No 3: Education level in Pakistan and Saudi Arabia

Education level	Pakistan	Saudi Arabia
Bachelor's	57.5% (n=161)	43.8% (n=53)
Master's	10% (n=28)	14% (n=17)
PhD	1.1% (n=3)	3.3% (n=4)
Fellowship	21.8% (n=61)	24.8% (n=30)

In Pakistan, Regarding COVID-19 vaccine it was found that 67.5% (n=189) healthcare workers were willing to get the vaccine whereas 13.2% were not and 19.2% participants were unsure about getting it as shown in table-4. The main reason given for not getting the vaccine was fear of side effects in 15.3% healthcare workers. In 15.3% of healthcare workers, it was believed that the vaccine is ineffective against COVID-19 and few (n=5) think that it might affect the mRNA of their body.



Whereas, In Saudi Arabia, 74.4% were willing to take vaccine, while 20.7% were not sure about the vaccine and 5% were not willing to take COVID-19 vaccine. Most of the HCWs, 66.7% (n=22) were afraid of the side effects.

Table-8: willingness for covid-19 vaccine among healthcare workers from Pakistan.

Willingness to get covid-19 vaccine	Frequency (n)	Percentage (%)
Yes	189	67.5
No	37	13.2
Unsure	54	19.2

Table-9: willingness for covid-19 vaccine among healthcare workers from Saudi Arabia.

Willingness to get covid-19 vaccine	Frequency (n)	Percentage (%)
Yes	90	74.4%
No	6	5%
Unsure	25	2.7%

Health care workers when asked about the type of vaccine available in Pakistan, most were not sure about and only 36 participants responded that it is protein. While 39 health care workers from Saudi Arab were knowing that covid vaccine is a mRNA type vaccine. subtype.

Discussion:

Soon after launching of COVID 19 vaccine, multiple studies were conducted in various countries to assess its acceptance and perception of general population and healthcare workers. As health care workers are the first line service providers to infected individuals, they were the most prioritized group to be vaccinated. The perception of health care workers regarding the vaccine is very important as they carry great influence over general population. Healthcare workers are the best source of information to counsel hesitant patients regarding the benefit of vaccination. A recent survey has shown that male gender and being a health care worker is the promoting factor for vaccine acceptance by general population (18). Current study showed that healthcare workers in Pakistan has 67.5% acceptance rate of vaccine, 19.3% were not sure about its safety and therefore has some reservation; only 13.2% health

care workers were not willing for vaccine. This finding is in line with published national literature that reported 60% and 70% acceptance rate. [10] [11], whereas in Saudi Arabia, the willingness to take vaccine was 74.4%, with 20.6 were doubtful about efficacy and 5% do not want to be vaccinated against COVID-19. In Saudi Arabia, the reported acceptance rate among HCWs is 70% and 50.52% in surveys conducted earlier. [12] [13]. The major determinant of vaccine refusal, during current study, is concerns about the safety, efficacy and untoward side effects of Covid-19 vaccination; identical reports has been published previously.18 The fear of adverse events can be decreased among HCWs, provided safety of vaccine is promoted by highlighting surveys showing success stories of covid vaccination. The most widely spread myth regarding COVID-19 vaccine is the microchip insertion, genetic changes, and problems with conceiving in females (14).

Those refusing for vaccination may be unaware of the morbidity and mortality rate of COVID 19 which is comparatively alarmingly high when compared to adverse effects of covid vaccination [15] [16] [17] [18]. During current study responders having higher qualification were mainly from Kingdom of Saudi Arabia, as compared to Pakistan. Comparatively higher education level of health care workers from KSA may be responsible for higher acceptance of covid 19 vaccination (74.38% vs 67.5%). The acceptance of covid vaccine increases with increase in education level. On the other lower education level is associated with profound hesitancy for vaccination. This could be since healthcare workers with lower education don't read updated guidelines and research, while focusing more on the myths and adverse effects (15). The age group from Pakistan and Saudi Arab showed that in KSA most health care workers were between 36-45 years of age; in Pakistan, majority of health care workers were between 26 to 35 years. Greater is the age, higher is the acceptance rate for Covid 19 vaccine. This explains increased acceptance rate of vaccine in KSA as compare to Pakistan. Identical pattern has been reported in other studies [19] [20]. In a study conducted in Saudi Arabia, older adults are more likely to accept COVID -19 vaccination [21]. Survey among physicians in Greece showed 80% acceptance rate for the vaccine

and it increased proportionally with age (22). In China, an online survey among HCW showed 76.98% of healthcare workers accepted the COVID-19 vaccine, 18.28% workers were hesitant, and 4.74% workers were resistant [23]. In Bangladesh, the majority of the HCPs (97.99%) from the COVID-dedicated hospitals have a good perception and positive attitude towards vaccination; nevertheless, have a poor practice of prevention toward COVID-19.[24]. In India, 84.1% (525/624) supported COVID-19 vaccines, and 63.2% (141/223) of those unvaccinated at the time of survey administration were willing to accept a vaccine.[25]

Global prevalence of hesitancy for Covid-19 vaccination ranged from 4.3 to 72% (average rate of 22.51% hesitant individuals across studies). This wide range hesitancy prevalence among health care workers may be due to differences in population studied, sampling technique, type of study, professional education, and role in the healthcare setting (e.g., direct patient contact versus others) [26]

Regarding awareness and knowledge about vaccines among healthcare workers in both countries it was observed that majority of HCWs have heard about vaccine through TV and social media channels in both countries. This finding is also in line with the Australian study, where TV news channel and social media are popular choices [27]. Ministry of Health Kingdom of Saudi Arabia has arranged COVID-19 information in 7 different languages; While in Pakistan Covid-19 vaccination awareness campaign is running by setting vaccine alert message as caller tone through all cellular companies working in Pakistan. Awareness campaign through TV and social media platforms is needed to target the hesitant groups as indicated by other studies as well [28] [29] [30]. Majority of the HCWs from Saudi Arabia were knowing types of the vaccine available in Saudi Arabia, while in Pakistan, majority was unaware of the type of vaccine available. This could be attributed to the fact that different vaccines were already available in Saudi Arabia at the time of our study, while vaccines were not available in Pakistan at that time.

Major limitation of current study is that it is conducted online (google forms) and therefore results may not be generalized. Secondly, this research was conducted earlier this year when many countries didn't start vac-

ination yet; hopefully attitude of HCWs towards vaccination may change over time as human perception tends to change over time.

Conclusion:

We need effective strategies to promote awareness of vaccination among healthcare workers as they are the front-liners and are at increased risk of COVID infection and becoming a source of infection as well.

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