

## EFFECTIVENESS OF IRAQI HEALTH SYSTEM IN PROTECTING HEALTH CARE WORKERS

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### ABSTRACT

SARS-CoV-2 is a highly contagious disease, and most individuals are susceptible to the infection. Health care workers (HCWs) are the first line defender against the virus. Their protection remains a challenge for most countries, and it is considered as strategic response to COVID-19 crisis. **Aim:** To evaluate the effectiveness of preventive measures against COVID pandemic in Iraq. **Materials and methods:** A cross sectional study was conducted in Wasit governorate- Al Aziziya district. A total of 1027 health care workers participated in the study. A questionnaire was used in google form, and data were collected online. Chi square test was used to show the effect of preventive measures and vaccines on getting COVID infection. P value < 0.05 was considered statistically significant. **Results:** Non vaccinated HCWs significantly got COVID infection more than vaccinated ones (94.2%,  $\chi^2 = 19.33$ ,  $p = 0.001$ ). Using facemask or gloves only significantly did not provide any protection against the virus ( $p=0.6$ ,  $p= 0.7$  respectively). HCWs with PPE or gloves, facemask, and face shield significantly protect them against COVID-19 ( $p= 0.04$ ,  $p= 0.00$ , respectively). **Conclusions:** COVID infection was high among HCWs. Vaccines were effective in limiting COVID spread. PPE were necessary in protecting occupational workers.

**KEYWORDS:** COVID-19, SARS-CoV-2, health care workers.

### INTRODUCTION

SARS-CoV-2 is a highly contagious disease, and most individuals are susceptible to the infection.<sup>[1]</sup> Health care workers (HCWs) are the first line defender against the virus. Their protection remains a challenge for most countries, and it is considered as strategic response to COVID-19 crisis.<sup>[2]</sup> Vaccines were one of the most effective protective measure against the pandemic. Enormous global efforts for vaccinating people had been noticed. However, this international effort was hindered by vaccine hesitancy, which is a global prevalent phenomenon. Vaccine hesitancy is the world's top threat to public health safety, mainly in low middle-income countries. It might be due to a lack of knowledge,<sup>[3]</sup> false religious beliefs, or anti-vaccine misinformation.<sup>[3]</sup>

In February 2020, Iraq declared the 1<sup>st</sup> case of COVID 19.<sup>[4]</sup> Strict control measures (curfew, social distance, etc.) were applied. Infection among HCWs had been

highly noticed. Subclinical active infection and shortages of adequate personal protective equipment might be the cause. Besides, limited testing capacity was an obstacle for early identification and isolation of cases, which in turn leads to unnecessary occupational exposure among HCWs.<sup>[2]</sup> No literatures were published regarding the effectiveness of protective measures against the pandemic in Iraq. This was the impetus to carry out this study.

**Aim:** To evaluate the effectiveness of preventive measures against COVID pandemic in Iraq.

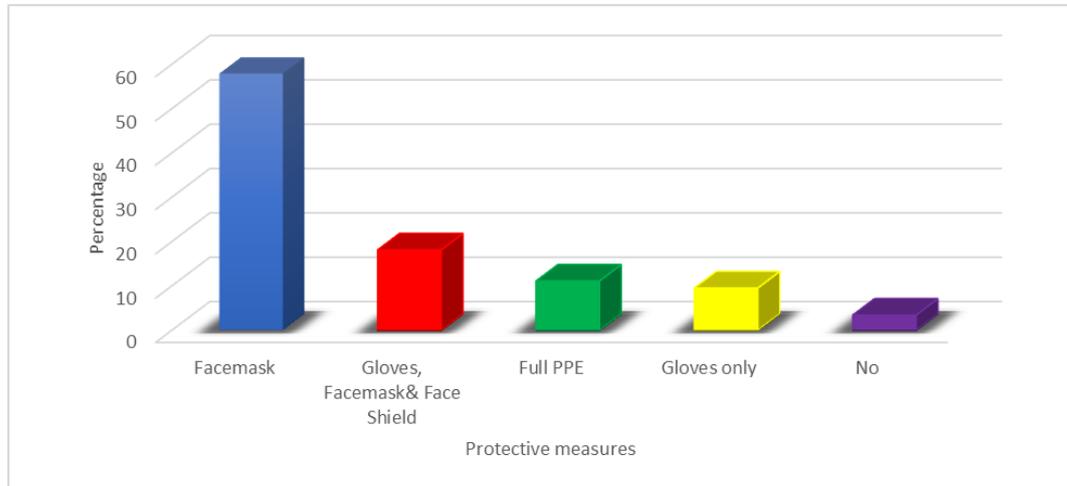
### MATERIALS AND METHODS

A cross sectional study was conducted in Wasit governorate- Al Aziziya district. A total of 1027 health care workers participated in the study. A questionnaire was used in google form.<sup>[5]</sup> based on the WHO survey "Health workers exposure risk assessment and

management in the context of COVID-19 virus” with some modifications. Pilot study was done to assess the validity and reliability. Data were collected online. Chi square test was used to show the effect of preventive measures and vaccines on getting COVID infection. P value < 0.05 was considered statistically significant.

**RESULTS**

Figure (1) shows distribution of protective measures used by participants. More than half of HCWs use facemask only (595; 57.9%), 114 participants used PPE (11.1%). Only 35 HCWs (3.4%) did not use any protective measures.



**Figure (1): Distribution of protective measures used by HCWs.**

Table (1) shows the distribution of COVID infection in relation to protective measures among HCWs. Non vaccinated HCWs significantly got COVID infection more than vaccinated ones (94.2%,  $\chi^2=19.33$ ,  $p = 0.001$ ). Using facemask or gloves only significantly did not

provide any protection against the virus ( $p=0.6$ ,  $p= 0.7$  respectively). HCWs with PPE or gloves, facemask, and face shield significantly protect them against COVID-19 ( $p= 0.04$ ,  $p= 0.00$ , respectively).

**Table (1): Distribution of protective measures and vaccination status among HCWs in relation to COVID infection.**

Variables	COVID -19 Infection	
	Freq.	%
Vaccination status		
Vaccinated	692	79.4
Not vaccinated	147	94.2
$\chi^2 = 19.3$ d.f. = 1 P = 0.001		
Protective measures		
Facemask	514	86.4
No protective measures	32	91.4
Fisher test = 0.7 P = 0.6		
Gloves	87	88.8
No protective measures	32	91.4
Fisher test = 0.1 P = 0.7		
Gloves & Facemask & Face Shield	141	76.2
No protective measures	32	91.4
Fisher test = 4.1 P = 0.04		
Full PPE	65	57
No protective measures	32	91.4
Fisher test = 14 P = 0.00		

**DISCUSSION**

The study revealed that 81.7% of HCWs got the infection. The observed figure is higher than that in UK (24.4%).<sup>[6]</sup> USA (13.7%).<sup>[7]</sup> and Spain (9.3%).<sup>[8]</sup> This

high figure of infection reflects the deterioration of the health system. Prevention of the nosocomial infection and specially HCWs infection is a crucial duty of the health authority. Several articles documented the devastation of health system.<sup>[9,10]</sup> It was documented that

wars, conflicts, and social strife are the causes of health system deterioration.<sup>[9,10]</sup>

The majority of HCWs who did not get the vaccine had significantly the infection more than vaccinated ones ( $p = 0.001$ ). This figure was in accordance with other literature.<sup>[11]</sup>

Using gloves or mask alone provides no protection against COVID -19 infection ( $p=0.6$ ,  $p=0.4$ , respectively). It seems logic that HCWs with only gloves or masks were at high risk with modes of transmission. This finding is in the line with that in literature showing measurement against COVID -19.<sup>[12]</sup>

PPE and gloves, facemask, and face shield provide complete protection against the virus ( $p=0.04$ ,  $p=0.00$ , respectively). literature demonstrated the impact of PPE on prevention of the infection.

## CONCLUSIONS

COVID infection was high among HCWs. Vaccines were effective in limiting COVID spread. PPE were necessary in protecting occupational workers.

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