بسم الله الرحمن الرحيم

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بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: ....

Perception of Health Care Personnel in Ain Shams University Hospitals toward COVID-19 Vaccine and the Intention for Vaccination

Thesis

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Abb.	Full term
CDC	Centres For Disease Control and Prevention
COVID-19	Coronavirus Disease-2019
HBM	The Health Belief Model
HCP	Health Care Personnel
HCWs	Health care workers
MERS-CoV	Middle East Respiratory Syndrome Coronavirus
MOHP	Ministry Of Health and Population
RT-PCR	Reverse Transcription Polymerase Chain Reaction
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
WHO	World Health Organization
NAAT	Nucleic Acid Amplification Test
Antigen-RDT	Antigen Rapid Diagnostic Test
HCoV	Human Coronavirus
RBD	receptor-binding domain
ACE2	Angiotensin-Converting Enzyme 2
R_0	Basic Reproduction Number
PaO_2/FiO_2	Arterial Oxygen Partial Pressure to Fractional Inspired Oxygen
EDA	The Egyptian Drug Authority

Abstract

Background: Vaccination has significantly decreased the burden of infectious diseases. Its role in disease control has been well recognized, countries prioritize vaccinating health care personnel against COVID-19 because of their susceptibility to the virus. However, vaccine hesitancy remains a barrier to reach that aim.

Objective: This study was designed to estimate the rate of agreement to receive or not receive the available COVID-19 vaccine and to assess the perception of health care personnel toward available COVID-19 vaccine and to determine the factors affecting the behaviour of health care personnel toward available COVID-19 vaccine.

Methods: A cross sectional study was conducted at Ain Shams University Hospitals from the first of April 2021 till end of August 2021. An anonymous self-administered questionnaire designed to cover topics wanted to be addressed in the study.

Results: Out of 337 health care Personnel, 228(67.7%) intend to receive COVID-19 vaccine, 59(17.5%) do not intend to receive it while 50(14.8%) were unsure "hesitant". Among 228 who intend to receive the vaccine 136(59.6%) were physicians, 57(25.0%) were nurses, 35 (15.4%) were workers. The reasons for unwillingness to receive the vaccine were unconvinced with vaccination (62.7%) and fear of side effects of the vaccine (59.3%), the reasons for vaccine hesitancy were fear of side effects of the vaccine (74.0%) and not sure about effectiveness of the vaccine (50.0%).

Conclusion: Acceptance of the COVID-19 vaccine is an essential determinant of vaccine uptake and the likelihood of controlling the COVID-19 pandemic. Developing strategies to decrease public hesitation and increase trust is vital for implementing vaccination programs.

Keywords: SARS-CoV-2, Vaccine hesitancy, Vaccine acceptance, Health care workers.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a novel illness caused by a pathogen named ‘‘severe acute respiratory syndrome coronavirus 2” (SARS-CoV-2) emerged in Wuhan city, China and spread rapidly throughout China **(*Tovani-Palone and Siddiqui, 2021*)**. On 11 March 2020, the World Health Organization (WHO) declared severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as a pandemic that causes novel coronavirus disease 2019 (COVID-19) **(*WHO, 2020a*)**.

By 14 April 2020, around **1,844,683** confirmed cases with **117,021** deaths were reported from at least **213** countries, areas, or territories **(*WHO, 2020b*)**. As of February 22, 2022, more than **426** million cases of COVID-19 have been reported globally, including more than **5.8** million deaths **(*WHO, 2022*)**.

In Egypt, there have been **512,000** confirmed cases of COVID-19, with **24,522** deaths till April 14, 2022. The Ministry of Health and Population (MOHP) exerts great efforts to provide the COVID-19 vaccines and sort the vaccination as a priority for health care personnel and older people, especially with chronic diseases. To overcome the expected upcoming challenge of vaccination hesitancy **(*Fares et al., 2021*).**

The centres for disease control and prevention (CDC) reports over **378,000** cases of COVID-19 in U.S. health care personnel (HCP) with **1,286** deaths **(*CDC, 2021*).**

The transmission of SARS-CoV-2 among humans occurs via close contact with an infected individual that produces respiratory droplets while coughing or sneezing within a range of about 6 feet **(*Ghinai et al., 2020*)** Severe cases of infection cause pneumonia, severe acute respiratory syndrome, kidney failure, and death **(*Chen et al., 2020a*)**.

Suspected patients get diagnosed for SARS-CoV-2 infection by collecting various specimens, including nasopharyngeal or oropharyngeal swabs, nasopharyngeal or oropharyngeal aspirates or washes, bronchoalveolar lavage, sputum, tracheal aspirates, and blood. Specimens can be stored at 4 C for up to 72 h after sample collection and may be stored at 70 C for longer periods of time **(*CDC, 2020a*).**

The current preventive strategies of SARS-CoV-2 infection relies on personal protective measures such as covering of nose/mouth when coughing or sneezing, use of FFP3 or N95 mask, use of tissues to contain respiratory secretions and dispose of these in nearest waste receptacle, and hand hygiene after contact with contaminated objects/materials or respiratory secretion **(*CDC,2020c*)**.

Vaccination has significantly decreased the burden of infectious diseases. Its role in disease control, elimination, or eradication

has been well recognized, and its benefits extend beyond the prevention of particular diseases in individuals **(*Andre et al., 2008*)**. The vaccine is expected to introduce herd immunity for at least one year **(*WHO, 2020C*).**

Health care personnel in hospitals is a high-risk group during the epidemic. Healthcare workers' infection risk could be amplified during the ongoing epidemic due to various factors, including continuous exposure to patients, shortages of supply of personal protective equipment (PPE), and inadequate infection control training **(*Kwok et al., 2021*).**

Healthcare professionals are at the highest risk of getting SARS-CoV-2 infection from infected patients and therefore extreme precaution needs to be taken while handling COVID-19 patients. International travellers presenting any symptoms of SARS-CoV-2 should be isolated and quarantined to prevent further infections **(*Gostic et al., 2020*).**

Therefore, Health care workers (HCWs) are the primary focus for vaccination promotion and advocacy. The CDC and WHO had prioritized HCP to receive the COVID-19 vaccine, particularly when limited resources are a concern **(*Dooling et al., 2020*)**. As they are the most likely to contract and subsequently transmit the disease **(*Gómez-Ochoa et al., 2021*).**

COVID-19 vaccination hesitancy has been recorded worldwide **(*Lazarus et al., 2021, Kabamba Nzaji et al., 2020, Detoc et al., 2020*).** Vaccine hesitancy was identified by the World Health

Organization as the reluctance or refusal to vaccinate despite the availability of vaccines and one of the top ten global health threats of 2019 ***(WHO, 2019)***.

Vaccine hesitance among HCWs was assessed using the Health Belief Model (HBM). Behavioural change theories such as HBM have been used as a tool to define and affect human health behaviours. They have shown successful outcomes in influencing HCWs' behavioural practices **(*Corace et al., 2016*)**

In spite of development of many vaccines low rates of COVID-19 vaccine acceptance were reported in the Middle East, Russia, Africa and several European countries. The low COVID-19 vaccine acceptance rate recorded in various countries may present major challenges in global efforts to control the current COVID- 19 pandemic **(*Sallam, 2021*)**.