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Research Article

COVID-19 Immunization Perceptions and Acceptance among Dental School Health Care Employees

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Abstract

Background: The novel corona virus of 2019 (COVID 19) has emerged as an emerging public health emergency condition and it has been classified as a pandemic by the World Health Organization (WHO). Knowing that social isolation and quarantine may help to slow the spread of the virus, but that these measures may not be enough. When it comes to controlling infectious diseases, vaccination is frequently the most effective method available; it allows for immunization and has successfully reduced the global burden of illness and death. Public confidence in vaccines, on the other hand, can be undermined by a variety of factors, including potential side effects, the safety of new vaccines, the quality, content and dissemination of educational information about the covid-19 vaccine, among others.

Aim of the Study: The aim is to determine the acceptability of the COVID-19 vaccine among healthcare workers (HCWs) in dental colleges, because they are the ones who have the greatest amount of direct exposure to the disease. The general public's and healthcare workers' acceptance of vaccines appears to play a critical role in the successful control of the pandemic, according to recent research.

Methodology: A 16-question formulated electronic questionnaire was developed, and HCWs from Vision colleges in Jeddah (doctors, undergraduate students, interns, and laboratory technicians) were eligible to participate in this study. Participants' willingness to accept the COVID-19 vaccine was assessed through a questionnaire that included sections on sociodemographic information as well as knowledge and perception about COVID-19 as well as trust in the health-care system.

Result: The findings of this study were based on the participation of 357 people. According to the results, 225 respondents (63%) agreed to receive the vaccination, while 83 (23.27%) said they had not yet decided and 49 (13.74%) said they would not accept the vaccination. Main reasons for hesitancy are the fear of side effects and the uncertainty about the safety of the medication.

Conclusion: When it comes to implementing immunization programs during this COVID-19 pandemic, vaccine hesitancy is proving to be a significant roadblock. It is critical to understand the perception and prevalence of hesitancy among dental college employees The study participant has stated that the willing to accept the vaccine. Is related to the Participants' perceptions of risk and their level of trust in the health-care system.

Keywords: *COVID-19; Vaccination; Dental Students; Acceptance; Healthcare Workers*

Introduction

The pneumonia virus from Wuhan spread to most other nations worldwide as a novel. The coronavirus (2019-nCOV), the seventh member of the coronavirus family to infect humans, was discovered in March 2019.

In late December 2019. The new coronavirus 2019 (COVID 19) has emerged as a public health emergency, with the World Health Organization (WHO) has classified the outbreak as a pandemic [1].

Even though social isolation and quarantine can help slow the spread of the virus, they may not be enough to stop COVID-19 entirely. Vaccination is the most efficient strategy for preventing infectious diseases since it allows for immunization and successfully reduces disease and death worldwide [2].

COVID-19 vaccine development can be a difficult task. However, given the speedy creation and trial of a new vaccine, as well as the shortest time to develop a new vaccine, this may be called into question, leading to apprehension about accepting the new covid-19 immunization [3].

However, there is no information on the public's feelings about the COVID-19 vaccine. Some folks are still on the fence about getting the COVID-19 vaccine. Although vaccination services are readily available, vaccine hesitancy refers to the delay in accepting or refusing a vaccination.

Furthermore, vaccine experience has been consistently connected with the frequency of vaccines found in the general population [4].

Furthermore, concerns about potential adverse effects, the safety and efficacy of new vaccinations, standards, content and disseminating educational information about the covid-19 vaccine can all undermine public confidence in vaccines [3].

Only a few research have investigated the prevalence and factors that influence COVID-19 vaccine acceptability. It is necessary to understand vaccine frequency in various situations better.

Even in a pandemic, vaccine hesitancy remains the most significant barrier to vaccine deployment. The degree of vaccine frequency among health care professionals has been systematically associated with the level of vaccine frequency observed in the general population (HCPs) [5].

Although apprehension about receiving a vaccine is understandable, information regarding specific vaccines, their efficacy and safety has aided health care workers' confidence in vaccines and desire to prescribe them to others [6].

Objective of the Study

One of the objectives of this study is to determine whether health care workers (HCWs) at the vision College of Dentistry and nursing will accept a COVID-19 vaccination and what factors influence their decision-making. HCWs at the vision College of Dentistry and nursing have the highest direct exposure to the disease.

Materials and Methods

An anonymous online google-form questionnaire was used to collect data based on the COVID-19 vaccination context. The survey questionnaire was created in Google Docs and includes sections on socio-demographic data, COVID-19 knowledge, and perceptions of the healthcare system, as well as participants' willingness to accept the COVID-19 vaccine, were all considered.

Health care personnel in Vision Colleges/Jeddah provided samples (teacher, undergraduate students, health care providers). Before participation, all health care workers were informed of the study's goals and consented to sign a consent form. The study was approved by the Vision Colleges / Jeddah Ethics Committee (permission letter N 0 21-1/4).

To construct summary tables of research variables, descriptive statistics were used.

Results

There were 357 participants in this study, with 188 (52.7%) females and 169 (47.3%) males. Most of the participants were Saudis, with 232 (65%). Figure 1 depicts the distribution of participation.

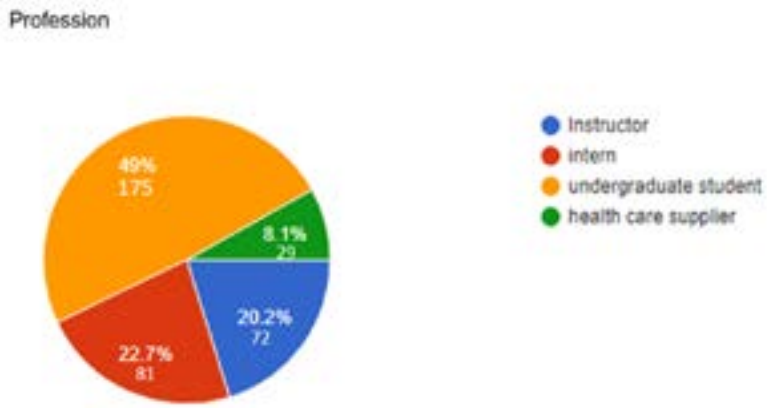

Figure 1: *Depicts the participation dispersion.*

Figure 2 Participant education level.

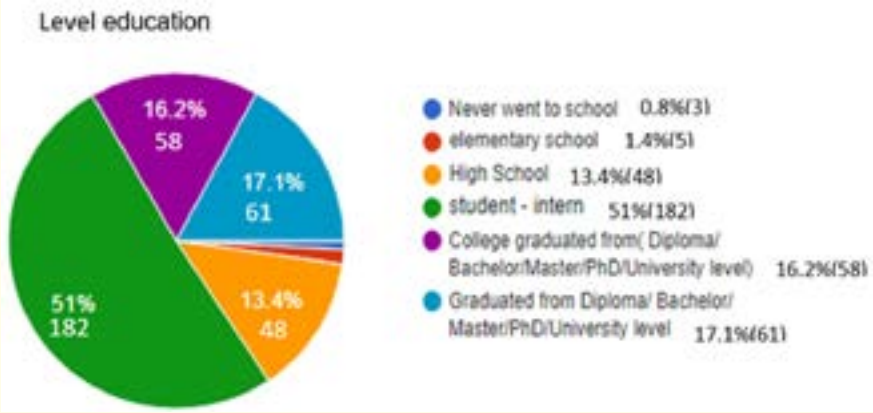

Figure 2: *Shows the participants' educational level.*

COVID-19 was reported by around a third of the 131 people who responded (36.7%). While two-thirds of the 220 respondents (61.6%) emphasized the need for more information concerning the Covid-19 disease immunization, this demonstrates hesitancy in making the ultimate decision to take the vaccine.

Figure 3 illustrate the most widely accepted sources of information for acquiring vaccination-related information.

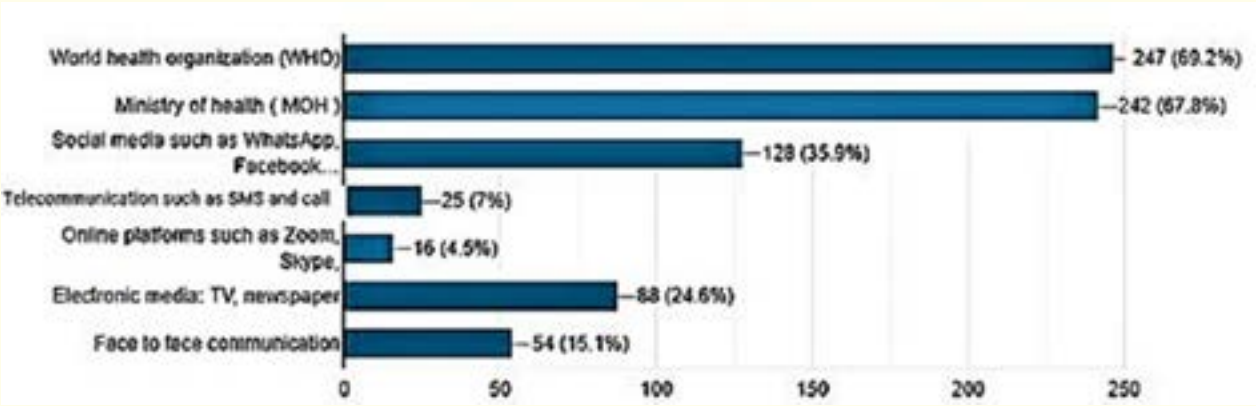

Figure 3: *Shows the sources of information about the COVID-19 vaccination.*

Furthermore, 225 (63 percent) of respondents agreed to vaccination, whereas 83 (23.27%) were undecided and 49 (13.74%) refused immunization (Figure 4).

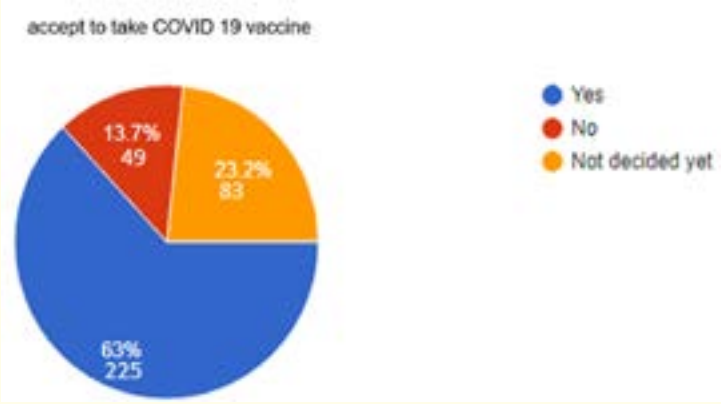

Figure 4: *Vaccination acceptance.*

Figure 5 illustrate the participants' reasons for acceptance, indicating a high level of trust in WHO and the Ministry of Health.

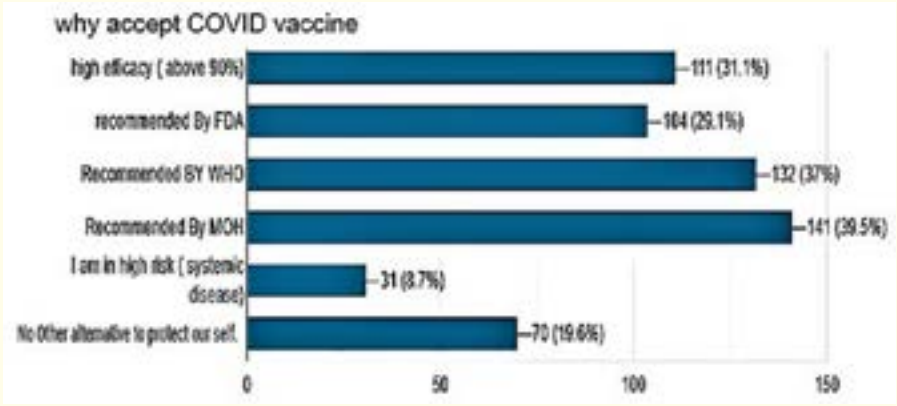

Figure 5: *Reasons for vaccination acceptance.*

The reasons for refusing vaccination, on the other hand, are depicted in figure 6.

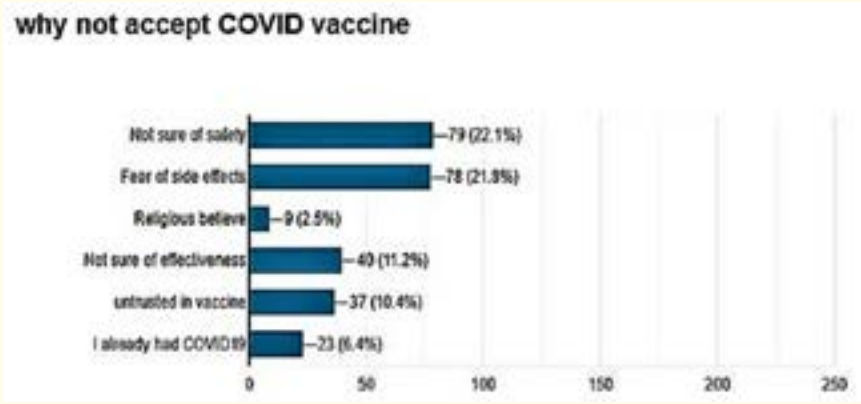

Figure 6: *Reasons for refusing to be vaccinated.*

Participants with varying degrees of anxiety and reluctance who had not yet decided were also clear that consulting with health professionals was the first option [206 (57.7%)] to assist them to make a decision (figure 7).

On the other hand, based on the replies of those who had the immunization, this will have a good impact on the return to normalcy (figure 8).

Finally, most participants (77%) agree that getting vaccinated has little impact on infection control measures when working with patients (figure 9).

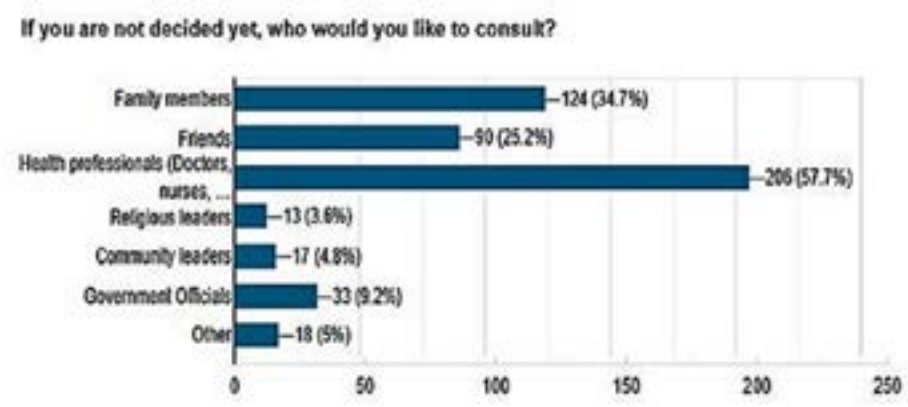

Figure 7: *Counseling can help you make better decisions.*

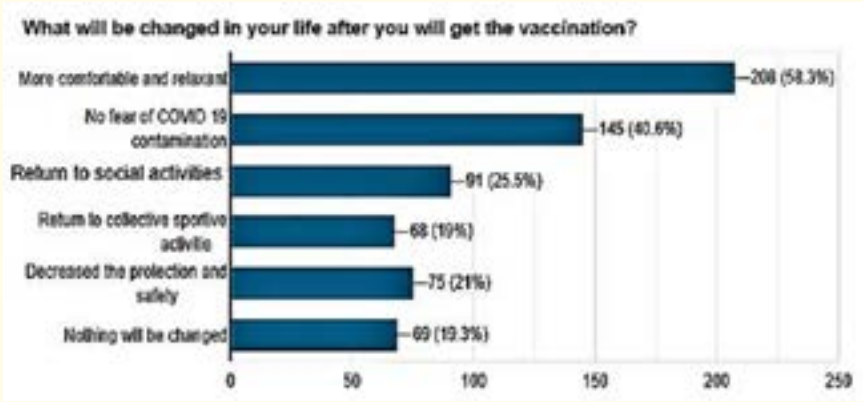

Figure 8: *Shows how people's lives have changed once they were vaccinated.*

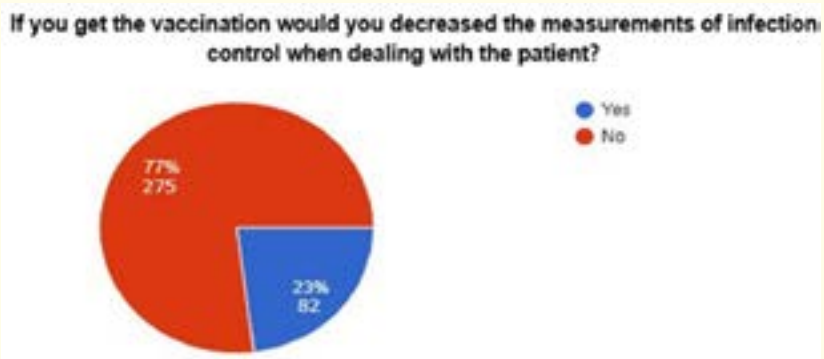

Figure 9: *After vaccination, infection control is reduced.*

Discussion

Only a few research have investigated health-care employees' willingness to take the COVID-19 vaccine. To better understand vaccine frequency, we'd like to create an ideal vaccine with the following characteristics [7].

Even among immunocompromised people, the vaccination must be safe. The vaccination must be highly efficient and promote "sterile" immunity to the best of its ability. The vaccine should be thermally stable, eliminating the need for costly cold chains. Immunity for a long time. The vaccine should cost less than 50 cents per dosage, according to the WHO Expanded Program on Immunization.

There are three stages to human testing in clinical trials. Vaccine safety is a top priority during all stages of clinical studies. Vaccine efficacy is assessed in a variety of methods during the study process. Early-stage trials are looking for antibodies to the virus, while late-stage trials are looking to see if a vaccine protects people from getting sick.

Why should I trust a coronavirus vaccination that was developed in such a short period of time?

There are several reasons for developing vaccines quickly: First, production began before Clinical trials in the third phase have been completed. Second, there has been a great deal of interest in volunteering to help with vaccine distribution. efficacy trials, which has sped up the process. Researchers frequently must wait several months, if not years, for people to volunteer to participate in clinical trials [8].

Vaccines have been demonstrated to cut deaths and help terminate epidemics, but some individuals are hesitant to acquire them because of the speed with which coronavirus vaccines have been developed in the past. Two vaccines were given emergency approval based on two months of Phase III testing data. So, with such limited clinical exposure, how can new vaccinations be considered safe? [9].

Complete virus, protein subunit, viral vector, and nucleic acid vaccines are the four types of vaccines (RNA and DNA) (See table 1) [10,11].

Type of vaccine	Consideration	Example in human use	Example in treatment COVID-19
Viral vector	-Use SARS-CoV-2 genetic materials (Harmless virus) -Generate strong immune response -Need to be stored at low temperature	AstraZeneca Ebola Vaccine	Gannsen Gamaleya Cansino Sputnik
Genetic Vaccine (Nucleic Acid Vaccine)	- Genetic material from the SARS-CoV-2 virus is contained within the capsule (RNA, DNA) -Generate strong immune response -Need to be stored at low temperature	Pfizer-BioNTech Moderna	Pfizer-BioNTech Moderna
Inactivated Vaccine	-Contain killed SARS-CoV-2 -May need to be administrated with an adjuvant to boost immune response	Influenza vaccine Polio	Sinovac Sinopharm
Live Attenuated Vaccine	-Contain weakened SARS-CoV-2 -A well-known approach which require time and extensive testing -The immune response resembles the natural infection	Oral polio vaccine Chickenpox	Codagenix

Table 1: *Type of vaccine.*

Whole virus: Whole viruses are used in many conventional vaccinations to elicit an immune response. There are two primary approaches. The first is that live attenuated vaccines employ a weakened virus that may proliferate indefinitely without producing sickness. Second, inactivated vaccines use viruses that have had their genetic material destroyed but still could stimulate an immune response.

Subprotein: To induce an immune response, use portions or fragments of a viral protein. As a result, not only does this lower the danger of adverse effects, but it also weakens the immune response.

Virus vector: It works by giving cells genetic instructions to make antigens, but unlike DNA vaccines, it does so with the help of a harmless virus.

DNA (RNA and DNA): Provide genetic material (RNA or DNA) to cells with antigen-making instructions. RNA vaccines must also be stored at shallow temperatures, such as -70°C or below, which might be challenging to achieve in cold storage (See table 2).

	Pfizer-BioNTech	**Moderna**	**AstraZeneca Oxford**	**Janssen**	**Novavax**	**Russia's Sputnik**	**Sinovec-Bioteck**
Type	mRNA	mRNA	Adenovirus	Adenovirus	Proteins	Adenovirus	Inactivated-Virus
Doses	2 IM	2 IM	2 IM	1 IM	2 IM	2 IM	2 IM
Authorization	11/12/20	18/12/20	12/1/21	Approved 1 Mars/21	Possibly: March/21	21/11/20	Possibly: March/21
Efficacy	95%	95%	70%	66%	89.3%	91.4	53.5-91.25
Stability	-94/d	-4/d			2-8/d		

Table 2: *Vaccines most commonly used.*

It's critical to boost confidence in the COVID-19 vaccine. We need to understand why people are afraid of the COVID-19 vaccine and why they are hesitant.

357 healthcare personnel took part in the study and answered a questionnaire. When compared to a similar survey in France, given that 77.6% of participants "probably likely" agreed "to be vaccinated against COVID-19," it is reasonable to conclude that the readiness of healthcare workers to be vaccinated against COVID-19 is satisfactory (63%) [13].

A 23% of participant said they were "determined" whether to have the COVID-19 vaccine. The Pfizer-BioNTech vaccine used in Saudi Arabia is to blame for this choice, and there are numerous concerns about the mRNA-based coronavirus vaccine. For one thing, an mRNA vaccine has yet to be licensed, and it's unclear how effective one would be against SARS-Cov-2 [14].

The damage caused by social networks and the propagation of disinformation could explain our study's moderate acceptance (63%). Since the first cases of COVID-19 were reported, the virus has spread through traditional and social media, resulting in what the World Health Organization has termed an "information epidemic" (i.e. excessive amounts of misinformation and rumors that make it difficult to identify reliable sources of information). As a result, coverage of the COVID-19 vaccine in the media may impact its uptake among the public [15,16].

We do not appear to be disciplined enough in the current pandemic to follow the essential preventative steps to eradicate COVID-19. To eradicate the disease, we must overcome reservations about the COVID-19 vaccination.

Conclusion

There has been little research on the intention to take a COVID-19 vaccination in the current situation. I hope that our findings have addressed the most common reasons for hesitancy and highlighted an important component of the proposed immunizations that will aid in the decision-making process for the COVID-19 vaccine.

The vaccination has a good chance of being accepted by the trial participant. Participants' It was discovered that participants' perceptions of risk and trust in the healthcare system were significant determinants of their willingness to receive the COVID-19 vaccine.

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