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Graduate School of Health
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Master of Science Thesis

**EVALUATION OF ADULTS' ATTITUDES, BEHAVIOR AND BELIEFS
TOWARD COVID-19 VACCINE**

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**Evaluation of Adults' Attitudes, Behaviors And Beliefs Toward
COVID-19 Vaccine**

BY

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ETHICS STATEMENT

The thesis entitled “**Evaluation of Adults' Attitudes, Behaviors And Beliefs Toward COVID-19 Vaccine**” which was prepared and presented as a thesis, was written by myself and in accordance with the scientific, academic rules and ethical conduct. The idea/hypothesis of my thesis solely belongs to my supervisor and to me. The research pertaining to the thesis was conducted by myself and therefore, all of the used sentences and interpretations within the work belongs to me.

I declare the aforementioned issues to be correct.

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ABSTRACT

Evaluation of Adults' Attitudes, Behaviors And Beliefs Toward COVID-19 Vaccine

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Master of Science in Nursing

Advisor: Assoc. Prof. İlknur GÖL

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Aim: To evaluate the attitudes, behaviors, and beliefs of adults toward the Covid 19 vaccine.

Method: The research is a cross-sectional study done in hospitals in the Al-Hboubi District and Al-Rifai General Hospital in Dhi Qar governorate, Iraq.

Results: The mean age of the participants was 33.24 ± 10.83 , 52.6% were male and 58.5% were married. 59.2% of the research group had Covid, 87.9% had first-degree relatives with a previous covid-19 pregnancy and 33.1% had a family or relatives of death from covid-19. 66.5% of the participants were vaccinated against Covid 19. In the research group, 42.6% stated that they saw regulation against Covid 19 vaccines, 54.4% of their relatives did not approve the emergence of the covid 19 vaccine, 21.7% did not support the vaccines, and 29% stated the provisions of natural immunity. The proportion of those who received the vaccines among those with a previous history of Covid 19 disease was further investigated ($p \leq 0.05$). In addition, it is aimed that the rate of covid 19 vaccination is higher among those who have had the flu vaccine and other vaccines and those who have stated that the vaccines have been treated ($p \leq 0.05$).

Conclusion: Although more than half of the research group had been vaccinated against Covid 19, 42.6% had a history of vaccinations. It has been tried to show a more positive attitude towards the covid 19 vaccine, which includes those who have the flu and other vaccines. This study suggests that the units, the importance of general inclusive donation, and the disclosure of information on vaccines and emphasizing the safety of vaccines will have a broadly positive impact on attitudes and broadly towards the covid 19 vaccine.

2023,69 pages

Keywords: Covid 19, Covid 19 vaccine, Attitude, Behavior.

ÖZET

Yetişkin Bireylerin COVID-19 Aşısına Yönelik Tutum, Davranış Ve İnançlarının Değerlendirilmesi.

Sajjad Jabbar Jasim ALSHUWAILI

Hemşirelik, Yüksek Lisans

Tez Danışmanı: Doç. Dr. İlknur GÖL

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Amaç: Yetişkin bireylerin Covid 19 aşısına yönelik tutum, davranış ve inançlarını değerlendirmek.

Yöntem: Araştırma kesitsel tipte tanımlayıcı bir çalışmadır. Irak Dhi Qar valiliğindeki Al-Hboubi Bölgesindeki Al-Rifai hastanesinde yürütülmüştür.

Bulgular: Katılımcıların yaş ortalaması 33.24 ± 10.83 , %52,6'sı erkek ve %58,5'i evlidir. Araştırma grubun %59,2'sinin kendisinin, %87,9'unun da birinci derece yakınlarının daha önce covid-19 hastalığına yakalandığı ve %33,1'inin aile veya akrabalarında covid-19 kaynaklı ölüm öyküsü olduğu saptanmıştır. Katılımcıların %66,5'inin Covid 19'a karşı aşılanmıştır. Araştırma grubunun, %42.6'sı Covid 19 aşılara karşı güvensizlik duyduğunu, %54.4'ü yakınlarının covid 19 aşısı olmasını onaylamadığını, %21.7'si aşıları desteklemediğini ve %29'u doğal bağışıklığı desteklediğini ifade etmiştir. Daha önce Covid 19 hastalığı öyküsü bulunanlar arasında aşıları destekleyenlerin oranı daha fazladır ($p \leq 0.05$). Ayrıca, grip aşısı ve diğer aşıları yaptıranlar ile aşıları desteklediğini ifade edenler arasında covid 19 aşısı yaptırma oranlarının daha fazla olduğu belirlenmiştir ($p \leq 0.05$).

Sonuç: Araştırma grubunun yarıdan fazlasının Covid 19'a karşı aşı yaptırmış olmasına rağmen %42.6'sı aşılarla karşı güvensizlik duymaktadır. Grip ve diğer aşıları yaptıran katılımcıların covid 19 aşısına karşı daha olumlu tutum gösterdiği belirlenmiştir. Bu bulgular, bireylerin, genel anlamda bağışıklamanın önemi ve aşılar konusunda bilgilendirilmesinin ve aşıların güvenlik profilini vurgulanmasının covid 19 aşısına yönelik tutum ve davranışları olumlu yönde etkileyeceğini düşündürmektedir.

2023, 69 sayfa

Anahtar Kelimeler: Covid 19, Covid 19 aşısı, Tutum, Davranış

PREFACE AND ACKNOWLEDGEMENTS

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Sajjad Jabbar Jasim ALSHUWAILI

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%	percent
N	Number
P	The level of marginal significance within a statistical hypothesis test
SD	Standard deviation



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LIST OF ABBREVIATIONS

COVID-19	coronavirus, first identified in December 2019
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
ARDS	acute respiratory distress syndrome
SARS	severe acute respiratory syndrome
NK	natural killer
NINDS	National Institute of Neurological Disorders and Stroke
HcoVs	human coronavirus
ER	emergency room
RTPCR	Real time polymerase chain reactio
FDA	Food and Drug Administration
CDC	Centers for Disease Control and Prevention
DNA	Deoxyribonucleic acid

1. INTRODUCTION

The current coronavirus disease (COVID-19) outbreak is a worldwide emergency, as its rapid spread and high mortality rate have caused severe disruptions. The number of people infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of COVID-19, is rapidly increasing worldwide. Patients with COVID-19 can develop pneumonia, 1,2 severe symptoms of acute respiratory distress syndrome (ARDS), and multiple organ failure (Sharma *et al.* 2020).

According to increasing evidence, 2–4 virus-infected patients' immune patterns appear to be closely linked to their disease progression. Patients with severe acute respiratory syndrome have a decreased number of specific subsets of T cells in their peripheral blood (SARS) (Chen *et al.* 2005). Peripheral T cell subsets are rapidly restored in SARS-recovered patients, making the peripheral T cell count an accurate diagnostic tool. 5 In a separate study, a similar phenomenon was observed, where the immune system was found impaired during SARS. 6 In another study, natural killer (NK) cell number was found decreased in patients with Ebola compared with healthy donors. 7 Proinflammatory cytokines were elevated after Ebola virus disease symptom onset, whereas recovered patients showed low cytokine levels. 8 The discovery of the link between COVID-19 and immune responses has led to the recognition of immune characteristics as potential biomarkers for disease progression and potential therapeutic targets for COVID-19. SARS-CoV-2-induced changes in the immune system, their effect on disease outcomes, and their implications for potential COVID-19 treatments are all discussed in this review (Schultze and Aschenbrenner 2021).

The COVID-19 virus is spreading at a rapid pace in all regions of the world, especially Latin America, with 416,600 daily infections recorded this week from the year 2022 in February. In contrast, daily deaths slowed slightly. Obtaining any time at in any transforming countries (Ylli *et al.* 2020). Among the countries that recorded at least a thousand daily infections during the first week of July 2021, Greece, where the outbreak of the epidemic accelerated the most this week (+200 percent, 1400 new daily infections) (Karlinsky and Kobak 2021).

The next two worst-hit countries were Burma (up 140%, 3,000 daily injuries) and Vietnam (up 129%, 1,000 daily injuries). Zimbabwe (+125 percent, 1,800 daily infections) and Mozambique (+117 percent, 1,100 daily infections) (John *et al.* 2018).

Among the countries with the highest number of injuries, despite recording an additional slowdown in the epidemic (-10%), Brazil remains the country with the highest number of new infections in absolute terms for July 2021 (48,600 daily infections), ahead of India (42,600 daily injuries, -9%) (Seralini and Douzelet 2021).

The country with the highest number of new infections relative to its population is still the Seychelles (1119 cases per 100,000 people), although it is one of the most advanced countries in terms of vaccination, with 68 percent of its population fully vaccinated with the Sinopharma and AstraZeneca/Oxford vaccines (Lansford 2015).

As for the countries with the largest number of deaths, Brazil still leads by a large difference in the number of daily deaths, as it recorded 1441 daily deaths for the same month of 2021, ahead of India (796) and Russia (698) (Bloom and Cadarette (2021).

The spread of the COVID-19 virus in Iraq, especially the mutant "Omicron," prompted the educational authorities to suspend schools in the northern province of Kirkuk due to the outbreak of a major epidemic among students and educational staff (Doghonadze *et al.* 2020).

A statistic for the World Meter website, which specializes in monitoring new infections of the Corona virus around the world, during the month of January, according to the official Iraqi News Agency, showed a new arrangement in the sequence of countries with the most recorded cases of COVID-19 infections (Bunyan *et al.* 2020).

According to the new ranking, Iraq ranked 27th globally and first in the Arab world in terms of the total number of coronavirus infections (Al-Gorany 2021).

Commenting on the significant rise in Corona injuries and the wide spread of "Omicron," the

Director General of the Kirkuk Health Department, Nabil Hamdi, said in an interview with "Sky News Arabia": "Unfortunately, the country in general and Kirkuk in particular, is witnessing a frightening rise in the number of infections with the Corona virus, especially Omicron, where the daily infection rate in Kirkuk, for example, reaches a thousand cases, and for this, we decided to suspend the official and school hours in the governorate for several days to reduce the severity of the wave, but we hope that work will resume in the next few days (Tongat *et al.*2021).

The Iraqi health official added that "there is a large-scale outbreak of the Omicron mutant in the country, which is characterized by its rapid spread, but fortunately the complications of infection in general are less severe compared to the previous mutant, where we witness, for example, entire families who were infected with it, but, thank God, they recover within a few days (Lauer *et al.*2020).

And about the reason why Iraq topped the Arab countries in terms of the high number of coronavirus infections, "Unfortunately, the most prominent reason is the weak pace of vaccination in general in Iraq and the lack of demand for vaccinations, and there are those who spread lies and rumors to scare Iraqis and alienate them from receiving anti-virus vaccines, and all of this is not the fault of the Iraqi government." And the Ministry of Health, which provides free vaccinations to citizens (Alwahaibi *et al.*2020).

Epidemiologists expect that the new "Omicron," the virus, will have many of its characteristics (Jeon *et al.*2022).

And public health data, as of Saturday, the 5th of (2022), show that the total number of injuries in Iraq is close to two million and 150 thousand cases, while the number of deaths is higher (Gajendran *et al.* 2022).

There is a review of medical reports on Corona patients that shows the virus does not only harm the lungs, but its complications also affect the kidneys, liver, heart, brain, nervous system, skin, and digestive system. Medical teams around the world have been reporting on their own experiences with the influx of patients at New York City's Columbia University Irving Medical Center during the spring. All major body systems are targeted by the virus, with direct damage to organs and blood clots among the most common side effects. The heart loses its normal rhythm, the kidneys leak blood and protein, and the skin develops rashes. Along with classic respiratory symptoms such as cough and fever, it causes headache, dizziness, muscle and stomach aches, and other symptoms (Richardson *et al.* 2020).

Dr. Akriti Gupta, a fellow cardiologist in Columbia who was involved in the assessment work, said in a statement: "Clinicians need to think of COVID-19 as a multisystem disease...There has been a lot of attention paid to thrombosis, but it's also important to realize that a significant number of these patients have kidney, heart, and brain damage, and doctors must treat these conditions in addition to the respiratory disease (Mazloomzadeh *et al.* 2021).

It appears that the virus's affinity for a receptor, which is a type of molecular entry into cells known as ACE2, plays a major role in the damage it causes. According to a review published in Science and Nature Medicine, cells lining blood vessels in the kidneys, liver, and pancreas, as well as respiratory tract linings, all have ACE2 receptors that the virus can use to manipulate and infect cells (Yang *et al.* 2020).

It seems that we are facing an epidemic that is still confusing scientists due to the magnitude of its deadly effects that are slowly unfolding, starting with its effects on the lungs and respiratory system and reaching the heart, brain, and nervous system. While the loss of the senses of smell and taste is among the most common direct neurological symptoms of "Covid-19," in addition to its impact on the heart and the rest of the body's organs outside the lungs, a study conducted by researchers at the National Institute of Neurological Disorders and Stroke of the US National Institutes of Health (NINDS) monitored A lethal effect occurs indirectly in the brain (Bourdrel *et al.* 2021).

COVID-19 may damage the small blood vessels in the brain. The researchers discovered signs of damage caused by thinning and leaking blood vessels in the tissues of patients who died shortly after contracting the disease, but they did not see any signs of the virus in the tissue samples, indicating that the damage was not due to a direct viral attack on the brain (Fotuhi *et al.* 2020).

The results of the study indicate that this phenomenon may be caused by an inflammatory reaction of the body in the face of the attack of the emerging corona virus, and it is likely that the discovery will improve treatments for the disease (Abd El-Aziz and Stockand 2020).

1.1 Importance of theses

COVID-19 remains one of the most serious problems for society and public safety. The vaccine plays a crucial role in preventing infection with this virus, and the commitment to prevention and the health guidelines stipulated by the World Health Organization are very important. Knowing the benefits of the vaccine and spreading these benefits through the use of all means using visual, audio, and social media for the purpose of urging people to take the vaccine (Ong *et al.* 2020).

Nurses and middle cadres are among the most important groups in society that have the responsibility to spread health awareness to prevent COVID-19, as well as health education about taking the vaccine, thus enabling us to reduce the transmission of this virus, increase safety, and save lives through health awareness and knowledge of this vaccine (Dwinantoaji and Sumarni 2020).

In addition, this current study helps determine knowledge and beliefs about the COVID-19 vaccine for adults (Islam *et al.* 2021). The results will serve as a basis for detecting misinformation about the vaccine and the ability to diagnose defects and direct money and measures toward developing awareness programs to combat the spread of this virus through the vaccine, especially among the most dangerous people when infected. They are the elderly and people with diseases accompanied by weak immunity, such as cancer, diabetes, and others (Collett *et al.* 2020).

1.2 The purpose of thesis

Determining Adults' Attitudes, Behaviors, and Beliefs toward the COVID-19 Vaccine in Hospitals in Dhi Qar Governorate, Iraq.

1.3 Reserch questions

What is the level of adults' attitudes, behaviors, and beliefs toward the COVID-19 vaccine in hospitals in the Dhi Qar Governorate, Iraq?

1.4 Study limits

The study sample was limited to 272 adults referred to hospitals in Dhi Qar Governorate, Iraq. Accordingly, the results of the study cannot be generalized to the two practices within hospitals. The research is limited to the date it was conducted, the data collection form used for the purpose, and the answers it provided.

2. LITERATURE OF REVIEW

2.1 Definition

COVID-19 is an infectious severe acute respiratory syndrome caused by coronavirus 2 (SARS-CoV-2). The first known case was discovered in Wuhan, China, in December 2019. The ailment spread globally, resulting in the COVID-19 pandemic. The majority of individuals with COVID-19 recover without specific therapy (Actor *et al.*, 2020). Others, on the other hand, are at a higher risk of developing a serious condition. Individuals with serious health issues, such as heart disease and lung disease, or kidney health issues, such as diabetes and cancer, as well as a weaker immune system, are at greater risk. Serious diseases include potentially fatal pneumonia and organ failure. Efforts are being made to treat COVID-19 and prevent the SARS-CoV-2 infection. Similarly known as coronavirus sickness 19 (Park *et al.* 2020),

2.2 Etiology

Coronaviruses (CoVs) have a crown-like appearance when viewed through an electron microscope due to spike glycoproteins in the envelope (coronam is the Latin word for crown) (Caraballo *et al.* 2022). Orthocoronavirinae are a subfamily of the Virinae. The family of coronaviruses (order Nidovirales) has four CoV genera:

- Alphacoronavirus (alphaCoV)
- Betacoronavirus (betaCoV)
- Deltacoronavirus (deltaCoV)
- Gammacoronavirus (gammaCoV)

The genus BetaCoV is subdivided into five subgenera, or lineages. Characterization of the genomes of alpha- and beta-CoVs suggests bats and rats are the most dangerous animals and the most likely gene sources for these viruses (Abdalqader *et al.* 2020). In contrast, avian species appear to be the genetic sources of deltaCoVs and gammaCoVs. CoVs have emerged as the leading cause of new respiratory illness

epidemics. Multiple This virus can infect a wide range of animal species through their respiratory system as well as their digestive system, liver, and nervous system. enormous The viral family These infections can cross species barriers for unexplained reasons and cause a range of illnesses. Human illnesses range from the simple cold to life-threatening diseases such as MERS and SARS. There have been discovered There are seven human COVs (HCoVs) that can infect people. Some HCVs were found in the 1960s, while others weren't found until the turn of the century. In general, it is thought that 2% of healthy people carry COVs and that these viruses are responsible for Acute respiratory infections affect 5% to 10% of the population, necessitating the treatment of COVID-19 and the prevention of SARS-CoV-2 infection. Similarly known as coronavirus sickness 19 (Tilokchandani *et al.* 2020),

2.2.1 Common human CoVs

HCoV-OC43, HCoV-HKU1, and HCoV-229E (betaCoVs of the A lineage) (alphaCoVs). In immunocompetent humans, colds and self-limiting upper respiratory tract infections can be caused by several viruses, which are common in the United States. However, these viruses put immunocompromised people and the elderly at risk of developing lower respiratory tract infections (Ye *et al.* 2020).

2.2.2 Other human CoVs

MERS-CoV and SARS-CoV-involved parties (betaCoVs of the B and C lineages, respectively) More virulent strains of these viruses can cause epidemics with respiratory and non-respiratory symptoms of varying clinical severity, making them more dangerous than other strains (Forni *et al.* 2016).

2.3 Symptoms regarding covid-19

Are diverse, The symptoms might range from moderate to severe. to a life-threatening illness. Frequent symptoms include coughing, fever, and the inability to smell or taste. Less common symptoms include Itchy eyes, a stuffy nose, as well as

headaches, aches and pains in the muscles, a sore throat, nausea, and watery eyes are symptoms of the common cold. Other symptoms include swollen or purple toes, and difficulty breathing in situations that range from mild to severe. People who have COVID-19 might exhibit a variety of symptoms, which may fluctuate over time. There have been three frequent clusters of symptoms: In addition to three distinct groups for the respiratory and muscular-skeletal systems—pain in the muscles and joints, headaches, and exhaustion—there are also three groups for the digestive system—abdominal cramps, vomiting, and diarrhea. More than eight in ten cases of COVID-19 symptomatic symptoms in people without a history of ear, nose, or throat illnesses are accompanied by a loss of taste or smell (Najafloo *et al.* 2021).

On imaging, only 14% of patients (with dyspnea, hypoxia, or lung involvement) have severe symptoms greater than 50%, requiring hospitalization; 5% develop critical symptoms; and the remaining 81% have only a few minor aches and pains (up to mild pneumonia), from which may emerge respiratory failure, septic shock, or multiorgan dysfunction necessitating hospitalization in the intensive care unit. A third of people who become infected with the virus go on to succumb to its effects. do not display any signs or symptoms at all. Other infected individuals can develop symptoms later, referred to as "pre-symptomatic," or will experience minor symptoms that can possibly be present at the time of infection. As is typical, there is a lag time between contracting an illness and experiencing the first symptoms. The average wait time for COVID-19 is four to five days, with one to four of those days potentially being infectious. Almost all symptomatic individuals will experience symptoms within 12 days of exposure, which usually occurs between 2 and 7 days later (Schulson *et al.* 2020).

The majority of individuals recover from the acute phase of an illness. Prolonged-term organ damage has been reported; more than 50% of young adults who were home-isolated as children experience a variety of symptoms, such as weariness, for months after recovery; this condition is known as long COVID. The disease's possible long-term repercussions are currently the subject of multiyear investigations (Blomberg *et al.* 2021).

2.4 Emergency symptoms

Symptoms that require an immediate visit to the emergency room (ER) include:

- difficulty breathing
- persistent chest the feeling of tightness or discomfort in the chest
- confusion
- difficulty waking up or staying awake
- cyanosis, which causes blue lips or a blue face.

2.5 Causes of infection a COVID-19

Inhaling respiratory droplets in the air is the most prevalent route to contracting COVID-19. Tiny droplets are expelled when a person with COVID-19 breathes, coughs, or sneezes. are expelled into the air from their lips and nose. These drops cannot be seen. If you're within six feet of the person, you can approach them. inhale their droplets. Not at all. Be aware of your actions. However, you may contract the microorganisms that cause COVID-19 (Colmenero *et al.* 2020).

COVID-19 can also be transmitted by touching an infected person's surface. Door knobs, elevator buttons, and shopping carts are examples. Afterwards, if you touch your eyes, nose, or mouth, the pathogens can enter your body (Zhang *et al.* 2020).

2.6 Diagnosis

RTPCR is a diagnostic technique that utilizes nose swabs, tracheal aspirates, and BAL specimens, which are a type of bronchoalveolar lavage. First of all, the recommended procedure for a diagnosis is a set of symptoms and nasopharyngeal and oropharyngeal swabs for upper respiratory samples. It is not recommended to utilize bronchoscopy to diagnose COVID-19 because the aerosol created offers a major danger to patients as well as health care providers. Intubated patients should

only be considered for bronchoscopy. when upper respiratory samples are negative and alternative diagnostic techniques would substantially alter clinical care. Nevertheless, when clinical and safety requirements are met, a bronchoscopy may be warranted. satisfied, as well as when the diagnosis is ambiguous. Alternately, tracheal aspiration and nonbronchoscopic BAL may be employed to obtain intubated patients' respiratory specimens (Ashraf *et al.* 2020).

2.7 Risk factors

COVID-19 seems to have the following risk factors (Rod *et al.*2020).

2.6.1. Close proximity to a COVID-19 carrier (within 2 meters or 6 feet).

2.6.2. Being exposed to an infectious person's coughing or sneezing.

2.8 Complications

Even though most people who have the disease can cause COVID-19 to have mild to moderate symptoms, Some people die as a result of serious health problems. People who are older or already have health problems are more likely to get very sick from COVID-19 (Long *et al.* 2020).

The following are examples of complications:

- Pneumonia and a hard time getting air in and out
- A number of organs have begun to fail.
- Heart problems
- A serious lung ailment that results in a lack of oxygen reaching your organs' bloodstreams. (acute respiratory distress syndrome)Blood clots
- Kidney damage that has occurred suddenly
- Infection with more viruses and bacteria

2.9 Prevention

In the United States, an emergency use of several COVID-19 vaccines has been approved by the Food and Drug Administration (FDA). The Food and Drug Administration (FDA) is an authorized Now renamed Comirnaty, the BioNTech COVID-19 vaccine, manufactured by Pfizer, is used to keep people 16 years of age and older from getting COVID-19. The FDA has given Pfizer-BioNTech permission to give COVID-19 shots to children ages 5 to 15 in an emergency. The FDA has given the Spikevax vaccine, formerly known as Moderna, the green light to protect people 18 and older from COVID-19 (Kesselheim *et al.* 2021).

Because of the danger of a blood clot that could be a life-threatening issue, the FDA restricts the use of the Janssen/Johnson & Johnson vaccination to some adults over the age of 18. A severe adverse reaction to the mRNA COVID-19 vaccine or an inability to get the mRNA COVID-19 vaccine are candidates for this vaccine. Examples include a lack of availability or personal or religious beliefs. If you get this shot, you should know about the dangers and warning symptoms of blood clot disorder (Lythgoe and Middleton 2021).

A vaccination can stop you from contracting the COVID-19 virus or lessen the severity of your illness if you do contract the virus. In addition, the COVID-19 vaccine may provide more protection than COVID-19 illness. According to a recent study, unvaccinated individuals and COVID-19-infected individuals are more than twice as likely to become infected. Individuals with complete vaccination are less likely to be reinfected with the virus (Vasireddy *et al.* 2021).

After getting a shot, you can do many things again, a task that you might not have been able to achieve over the course of the outbreak. On the other hand, if you live in a region where the CDC says there are a lot of COVID-19 patients in hospitals and new COVID-19 cases, it suggests that you wear a mask inside. After two weeks following a second dose of the Janssen/Johnson & Johnson COVID-19 vaccine or a single dose of the mRNA COVID-19 vaccine, you are deemed completely

immunized. When you become eligible, you are considered immunized when you have received all prescribed COVID-19 vaccinations, plus any necessary maintenance dosage (Rosenblum *et al.* 2021).

A second main dose of the COVID-19 vaccine is indicated for immunized individuals whose immune response may not have been robust enough. On the other hand, there are people who have been vaccinated but whose immune response has diminished over time. According to research, a booster dose of the COVID-19 vaccine can lower the chance of getting sick and getting a serious disease (Krause *et al.* 2021). Those with moderately or severely compromised immune systems should receive an additional main vaccination as well as a booster. In some circumstances, the CDC advises extra vaccinations against COVID-19, both the first and booster doses:

2.9.1 Additional dose

According to the CDC, you should take a third of the mRNA COVID-19 vaccination for a select few individuals with compromised immune systems, for example, organ transplant recipients. People with compromised immune systems may not develop sufficient protection after receiving the COVID-19 mRNA vaccine in two doses. COVID-19 levels may rise as doses are increased (Ferdinands *et al.* 2022).

At least 28 days should pass between the second and third doses of the mRNA COVID-19 vaccination. The extra dosage should be the same brand as the first two doses of the mRNA COVID-19 vaccine. As a third dose, either brand of mRNA COVID-19 vaccination can be administered if the previous brand is unknown (Barda *et al.* 2021).

2.9.2 Booster dose

If you are at least 12 years old, have received both doses of the Pfizer-BioNTech COVID-19 vaccine, and at least five months have passed, you can receive a single booster dose. 12 to 17-year-old adolescents shouldn't receive any more vaccinations

other than the Pfizer-BioNTech COVID-19 vaccine booster. In most circumstances, Moderna COVID-19 vaccine boosters or Pfizer-BioNTech vaccine boosters are chosen for those 18 years of age or older (Bar *et al.* 2021).

If you have had the two Moderna COVID-19 dosages of vaccination and it has been a minimum of five months since your last dose, you should receive a single booster dose. In the majority of instances, contemporary-style boosters for the COVID-19 vaccination or Pfizer-BioNTech vaccine boosters are chosen (Keshavarz *et al.* 2021).

If you are among those who have received one dose of the COVID-19 vaccine and are at least 18 years old, you are eligible. from Janssen, Johnson & Johnson, and it has been at least two months since your initial vaccination, you should receive a single booster dose. In the majority of instances, those who have received one dose of the COVID-19 vaccine and are at least 18 years old are eligible (Xia *et al.* 2022).

Pregnant women can also receive a COVID-19 booster. Injection, If you have a compromised immune system and have had two doses of the vaccination containing MVA COVID-19 and an extra main injection at least three months ago, you should receive a single booster dose. MRNa-based COVID-19 vaccines are recommended. Get a single booster dosage. When your immune system was compromised, a single dose of the COVID-19 vaccination was administered to you. manufactured by Janssen/Johnson & Johnson, and an extra main injection of the MMR NA COVID-19 vaccine at least two months ago, In addition, it has been at least two months since the supplementary injection. MRNa-based COVID-19 vaccines are recommended (Olson *et al.* 2021).

2.9.3 Second booster dose

A second dosage of mRNA as a booster The COVID-19 vaccination is suggested for those with compromised immune systems and those aged 50 and older. This second booster dosage may be administered four months after the individual has received their first booster dose of any COVID-19 immunization that has been authorized or approved for those who are eligible (Barda *et al.* 2021).

2.10 A vaccine for COVID-19

There are three COVID-19 vaccinations. Moderna and Johnson & Johnson (Janssen) are only permitted for emergency usage in the United States, but Pfizer-BioNTech has been granted full FDA approval. The AAFP and CDC recommend the Pfizer-BioNTech coronavirus vaccination for people aged 5 and up, as well as vaccines from For people 18 and older, Moderna and Johnson & Johnson are good choices. In the majority of cases, the mRNA vaccines from Pfizer and Moderna are selected. Booster doses of the COVID-19 vaccination are now suggested for people aged 12 and older to enhance protection. People between the ages of 12 and 17 may only take a booster dosage of Pfizer (Le *et al.* 2020).

2.11 Vaccines for COVID-19 Can Cause Side Effects

2.11.1 Common side effects of COVID-19 vaccines

The majority of COVID-19 vaccine side effects are minimal or moderate and resolve within a few days. Clinical research has shown that more severe or long-lasting side effects are possible. Adverse reactions to vaccines are monitored on a regular basis (Saeed *et al.* 2021).

The majority of reported adverse reactions to COVID-19 vaccinations were mild to moderate in severity and lasted no more than a few days. Typical adverse reactions include injection-site discomfort, fever, tiredness, headache, muscular soreness, chills, and diarrhea. Depending on the vaccine, the likelihood that any of these adverse effects may develop following immunizations differs from person to person. Immunizations with the COVID-19 vaccine only offer protection against SARS-CoV-2 (Kaur *et al.* 2021).

2.11.2 Less common side effects

A person should be obliged to remain 15–30 minutes at the area where they received their immunization after getting the vaccine. This will allow medical workers to

respond to any immediate adverse effects that may occur. If a person receives an immunization and then experiences unanticipated side effects or other health problems as a result of the vaccination, such as side symptoms that persist for more than three days, they should contact the health specialists in their area. Anaphylaxis and other severe allergic reactions have been documented as uncommon side effects of several COVID-19 immunizations; however, this reaction is extremely uncommon (Shimabukuro *et al.* 2021).

Authorities at the national level and international groups, especially the World Health Organization, are actively monitoring the use of the COVID-19 vaccination for any unforeseen adverse effects (Holm and Poland 2021).

2.11.3 Effects that last a long time

Vaccine side effects often manifest during the first several days. Hundreds of millions of vaccine doses have been delivered since the first mass immunization program began at the start of December (2020) (Subbaraman 2020).

Concerns have been raised about COVID-19 immunizations causing COVID-19 infection. But none of the licensed vaccines contain the COVID-19 virus in its live form, so COVID-19 immunizations are not available. cannot induce COVID-19 illness (Trunk *et al.* 2021).

It typically It usually takes the body a few weeks to adjust. develop immunity COVID-19 is caused by a virus called SARS-CoV-2 and follows immunization. Therefore, it is feasible for a person to get SARS-CoV-2 right before or right after getting an immunization and still get COVID-19. This is because the vaccination did not have enough time to provide protection. After getting an immunization, COVID-19 is caused by a virus called SARS-CoV-2. It usually takes a few weeks for the body to build up a defense against this virus. So, a person could get SARS-CoV-2 before or after getting an immunization and still get COVID-19. This is due to the shot not lasting long enough to protect (Weintraub *et al.* 2022).

2.12 Psychological support

Those affected may suffer from psychological distress due to restrictions on travel, treatment side effects, and fear of the infection itself. The Chinese National Health Commission was set up to deal with these worries. issued national recommendations for dealing with psychological crises on January 27, 2020.

Numerous COVID-19 victims had pre-existing health conditions like high blood pressure, diabetes, and heart disease. In an early case study, the estimated median time between symptom onset and mortality ranged from six to forty-one days, with a median of two weeks. According to a survey conducted by the National Health Commission of China, the death rate for men was 2.8% and 1.7% for women. The likelihood of mortality for individuals under the age of fifty does not exceed 0.5 percent; however, it exceeds 8 percent for patients beyond the age of seventy. Death rates may be influenced by the area's and country's access to medical care, as well as socioeconomic status. Histopathological examination of pulmonary samples taken from patients postmortem showed diffuse alveolar damage and fibromucosal infiltrates in both lungs (Ertan *et al.* 2020). The cytopathic effects appeared in the lung cells. In general, the general picture of the lung samples showed an appearance similar to that of acute respiratory distress syndrome. Scientists do not yet know whether previous infection with the virus provides long-term immunity to the infected person after recovering from the disease. The acquisition of Based on how other coronaviruses usually act, it is likely that the person will have immunity, but some recoveries from COVID-19 have subsequently reported positive laboratory results for the virus after recovery. It is not yet known whether this positivity was the result of re-infection, a recurrence of the previous disease, or an error in the laboratory analysis. The Hong Kong Hospital Administration found Two or three out of twelve people who got better had a 20–30% drop in their total lung capacity. Those recovering complain of shortness of breath when walking too fast. Scans of the lungs carried out on nine patients at Princess Margaret Hospital showed that they had suffered organ damage. In a study of children in China with confirmed or suspected COVID-19 cases, children of all ages were found to be vulnerable to the disease without any sex differences. Among the cases, 4.4% of all children had no

symptoms, and 50.9% of the cases had no symptoms. of the infected had mild symptoms, 38.8% had moderate symptoms, 5.2% were severe, and the critical cases represented 0.6%. In the studied human group, one death occurred in a fourteen-year-old child (Lunz *et al.* 2021).

2.13 The vaccine

In addition to Pfizer-Biontech, Moderna, AstraZeneca, Sputnik, Sinovac, Sinopharma, and Johnson & Johnson, there are presently eight approved COVID-19 vaccines. Previous research and studies on the SARS-CoV (a virus that causes severe acute respiratory syndrome) vaccine indicate that it is useful because it is similar to the emerging virus (SARS-Cove 2) in many of its properties and both types use ACE2 as a route to invade human cells. Scientists are studying three vaccine strategies (Babakir 2020).

2.13.1 The First strategy

The researchers are attempting to construct a new type of machine. complete viral vaccine. The purpose of using this virus, whether it is suppressed or killed, is to stimulate an immediate When the body gets a new infection with COVID-19, the immune system fights it off (Yang *et al.* 2020).

2.13.2 The second strategy

vaccinations that target specific sections of the virus, such as subunit vaccines, in order to stimulate the immune system. SARS-CoV-2 research is focused on the S-protrusion protein, which aids the virus in inserting itself into ACE-2 (Kumar *et al.* 2021).

2.13.3 The third strategy

is DNA-based vaccines (DNA and DNA vaccines, which are a new technology for formulating vaccines). Experimental vaccines from any of these technologies should have their efficacy and safety evaluated. The first clinical trial of the virus will begin in Seattle on March 16th, 2020, with four volunteers. The vaccine is made up of a harmless genetic code derived from the pathogen (Evans and French 2021).



3. METHODOLOGY

3.1 Study design

This is a descriptive cross-sectional study aimed at evaluating the knowledge and beliefs of adults in hospitals in Dhi Qar Governorate about the Corona vaccine.

3.2 Study preparations

The study was conducted at Al-Haboubi Teaching Hospital and Al-Rifai General Hospital in Dhi-Qar during the period from 15.10.2021 to 15.8.2022. The study sample included only 272 patients in the two hospitals using non-probability sampling.

3.3 Study Sample

The research was conducted in the hospitals of Dhi Qar Governorate (Al-Haboubi Hospital and Al- Rifai General Hospital), where a large number of adults visited and were placed in those hospitals. The number of participants in the study was 272 people who agreed to conduct the research and expressed their desire to participate and benefit from the study. They said that a small number of adults did not agree to participate in the study for reasons of their own. The data was collected through a questionnaire prepared by the researcher, and during a period of 15 minutes for each participant, before starting to answer the parts of the questionnaire, the researcher explained the questionnaire. A research sample consisted of 272 adults. It was selected for its accurate and honest data. The participants in the study ranged in age from 18 to 65 years.

3.3.1 Instrument

Data were collected using a questionnaire that determined the social and demographic characteristics of individuals and an assessment tool for knowledge and beliefs about the COVID-19 vaccine.

3.3.2 Sociodemographic model

The first part includes questions about age, gender, marital status, education level, and occupation, and economic status.

3.3.3 COVID-19 Vaccine Cognitive Assessment Tool

Three pillars were created to measure the knowledge, beliefs, and attitudes of adults about the COVID-19 vaccine: (1) demographic and cognitive information of the adult vaccine (11 questions about medical information with answers of yes and no); (2) what is your perception of the vaccine? And your vaccine beliefs are evaluated based on your responses to eight questions about your perceptions and attitudes toward the COVID-19 vaccine (with the answers "yes" and "no"); three questions about your vaccine beliefs (with the answers "yes" and "no"); and two questions about your vaccine attitudes and trends (with the answers "yes" and "no").

3.5 Data collection method

Data were collected using the questionnaire and interview methods. The average data collection time was 15 minutes.

3.6 Search Variables

The dependent variable is the level of knowledge, beliefs, and attitudes about a vaccine, and the independent variables are age, gender, marital status, education level, occupation, and economic status.

3.7 Data Analysis

Analysis of the data in the study was obtained in SPSS and to determine whether the objectives of the study were achieved, Descriptive statistics (frequency and percentages) were used to evaluate the data.

3.8 Ethical dimension

Approval was obtained from the Ethics Committee in the Dhi Qar Health Department (Training and Development Department) via the official letter No. 328, which involves approval to facilitate the task of conducting the research for the period (15/10/2021–15/8/2022), provided that the researcher adheres to ethical considerations while conducting the research (Appendix 7).

To obtain an official permit for conducting the study, the researcher had to present the study questionnaire (the tool) to the central apparatus of the Ministry of Planning as well as to the technical department in the Dhi-Qar Health Directorate.

The Planning Department of the Ministry of Health granted permission to the Hospitals in Dhi-Qar (Al-Haboubi Teaching and Al-Rifai General) to begin data collection. The permission obtained by the researcher to conduct the study is shown in Appendix (7). Each patient gave their oral informed consent to take part in the study. Before participating, the researcher explained to the participants the purpose of the study and pointed out that their participation in the study was completely voluntary and that they could withdraw at any time. According to the subject agreement paper, the researcher informed them that the integrity of the data would be secured and that it would be preserved safely before and after analysis.

4. RESULTS

The data collected for the research were analyzed using the SPSS (Statistical Package for Social Sciences) for Windows 25.0 program. Descriptive statistical methods were used while evaluating the data (number, percentage). Chi-square analysis was applied to test the relationship between the variables.

Table 4.1: Distribution of participants by descriptive characteristics.

Variables		Frequency (N)	Percent (%)
Age ($\bar{X} \pm SS$, 33.24 $\pm$ 10.83)	33 years and under	177	65.1
	34 years and older	95	34.9
Gender	Female	129	47.4
	Male	143	52.6
Marital Status	Single	113	41.5
	Married	159	58.5
Education Level	Illiterate	20	7.4
	Literate	15	5.5
	Primary school graduate	12	4.4
	Secondary school graduate	28	10.3
	High school graduate	22	8.1
	Graduated from a University	50	18.4
	Bachelor or higher	125	46.0
Profession	Student	111	40.8
	Worker	71	26.1
	Retired	7	2.6
	Self-employed	47	17.3
	Not working	36	13.2
Economic Level	Low income	25	9.2
	Average income	232	85.3
	High income	15	5.5
Have you caught the Covid-19 disease?	Yes	161	59.2
	No	111	40.8
Has anyone else in your family and/or relatives had Covid-19?	Yes	239	87.9
	No	33	12.1
Have you died in your family and/or relatives due to Covid-19?	Yes	90	33.1
	No	182	66.9
Have you been vaccinated against Covid-19?	Yes	181	66.5
	No	91	33.5
If you were vaccinated, did you catch Covid-19 before or after you were vaccinated?	Before	35	12.8
	After	146	53.7
	I didn't get the vaccine	91	33.5
If you have not been vaccinated, what is the reason?	Lack of confidence in vaccines.	74	27.2
	The vaccine has been taken.	181	66.5
	The effect of the vaccine on future fertility	17	6.3
Total		272	100.0

The distribution of the participants according to their descriptive characteristics is given in the Table (4.1). It is seen that 65.1% of the participants are aged 33 and under, and 34.9% of them are aged 34 and over. It is seen that 47.4% of the participants are female and 52.6% are male. 41.5% of the participants are single and 58.5% are married.

When the educational status of the participants is examined, 7.4% of them are illiterate, 5.5% of them are literate, 4.4% are primary school graduates, 10.3% are secondary school graduates, 8.1% are high school graduates, 18.4% are graduated from a university and it is seen that 46% of them are bachelor or higher.

When the distribution of the participants according to their positions is analyzed, it is seen that 40.8% are students, 26.1% are workers, 2.6% are retired, 17.3% are self-employed and 13.2% are not working. It is seen that 9.2% of the participants have low income, 85.3% have average income and 5.5% have high income.

It is seen that 59.2% of the participants had covid-19 disease, and 40.8% did not. It is seen that 87.9% of the participants' families or relatives have had covid-19 disease, and 12.1% have not. It is seen that 33.1% of the participants died in their families or relatives due to covid-19 disease, while 66.9% did not die.

It is seen that 66.5% of the participants were vaccinated and 33.5% were not vaccinated. It is seen that 12.8% of the participants had covid-19 before vaccination, 53.7% were after vaccination and 33.5% were not vaccinated.

When the reasons for not being vaccinated of the unvaccinated participants are examined, it is seen that 27.2% gave the answer of lack of confidence in vaccines, 66.5% the vaccine has been taken and 6.3% answered the effect of the vaccine on future fertility.

Table 4.2: Distribution of questions about COVID-19 vaccines.

Variables		Frequency (N)	Percent (%)
Do you trust the statements about the vaccine?	Yes	156	57.4
	No	116	42.6
Do you think the entire population can be vaccinated?	Yes	124	45.6
	No	148	54.4
Would you like your relatives to have the covid 19 vaccine?	Yes	221	81.3
	No	51	18.8
Should children also be vaccinated?	Yes	112	41.2
	No	160	58.8
Did you et the flu vaccine last season?	Yes	51	18.8
	No	221	81.3
Will you be vaccinated against flu this year?	Yes	121	44.5
	No	151	55.5
Do you plan to get vaccinated against other infectious diseases?	Yes	175	64.3
	No	97	35.7
Do you support vaccinations?	Yes	213	78.3
	No	59	21.7
Do you think there is no need for vaccination because there is natural immunity?	Yes	79	29.0
	No	193	71.0
Total		272	100.0

Distribution according to questions about COVID-19 vaccines is given in the Table (4.2).

42.6% of the research group did not trust the statements about the vaccine, 54.4% thought that the entire population could not be vaccinated, 18.8% of the research group did not their relatives to have the covid 19 vaccine, 58.8% thought that Should not children also be vaccinated, 81.3% of the research group did not get the flu

vaccine last season, 55.5% thought that did not vaccinated against flu this year, 35.7% of the research group did not plan to get vaccinated against other infectious diseases, 21.7% did not support vaccinations, 71.0% of the research group did not think there is no need for vaccination because there is natural immunity.



Table 4.3: Relationship between participants' covid-19 disease status and questions about COVID-19 vaccines.

Variables		Yes		No		Test Value	p
		Frequency (N)	Percent (%)	Frequency (N)	Percent (%)		
Do you trust the statements about the vaccine?	Yes	92	57.1	64	57.7	0.007**	0.933
	No	69	42.9	47	42.3		
Do you think the entire population can be vaccinated?	Yes	77	47.8	47	42.3	0.797**	0.372
	No	84	52.2	64	57.7		
Would you like your relatives to have the covid 19 vaccine?	Yes	131	81.4	90	81.1	0.004**	0.953
	No	30	18.6	21	18.9		
Should children also be vaccinated?	Yes	64	39.8	48	43.2	0.331**	0.565
	No	97	60.2	63	56.8		
Did you get the flu vaccine last season?	Yes	34	21.1	17	15.3	1.452**	0.228
	No	127	78.9	94	84.7		
Will you be vaccinated against flu this year?	Yes	64	39.8	57	51.4	3.580**	0.058
	No	97	60.2	54	48.6		
Do you plan to get vaccinated against other infectious diseases?	Yes	108	67.1	67	60.4	1.293**	0.255
	No	53	32.9	44	39.6		
Do you support vaccinations?	Yes	125	77.6	88	79.3	0.104**	0.747
	No	36	22.4	23	20.7		
Do you think there is no need for vaccination because there is natural immunity?	Yes	47	29.2	32	28.8	0.004**	0.948
	No	114	70.8	79	71.2		
Total		161	100.0	111	100.0		

*p<0.05, ** Chi-square analysis

Chi-square analysis was applied to test the relationship between the covid-19 status of the participants and the questions about the COVID-19 vaccines. There is no statistically significant relationship between the covid status of the participants and the answers given to the questions ($p>0.05$).

Table 4.4: The relationship between the presence of covid-19 disease in the environment of the participants and questions about COVID-19 vaccines.

Variables		Yes		No		Test Value	p
		Frequency (N)	Percent (%)	Frequency (N)	Percent (%)		
Do you trust the statements about the vaccine?	Yes	138	57.7	18	54.5	0.121**	0.728
	No	101	42.3	15	45.5		
Do you think the entire population can be vaccinated?	Yes	110	46.0	14	42.4	0.152**	0.697
	No	129	54.0	19	57.6		
Would you like your relatives to have the covid 19 vaccine?	Yes	198	82.8	23	69.7	3.290**	0.070
	No	41	17.2	10	30.3		
Should children also be vaccinated?	Yes	100	41.8	12	36.4	0.359**	0.549
	No	139	58.2	21	63.6		
Did you get the flu vaccine last season?	Yes	44	18.4	7	21.2	0.149**	0.699
	No	195	81.6	26	78.8		
Will you be vaccinated against flu this year?	Yes	106	44.4	15	45.5	0.014**	0.905
	No	133	55.6	18	54.5		
Do you plan to get vaccinated against other infectious diseases?	Yes	161	67.4	14	42.4	7.861**	0.005*
	No	78	32.6	19	57.6		
Do you support vaccinations?	Yes	193	80.8	20	60.6	6.929**	0.008*
	No	46	19.2	13	39.4		
Do you think there is no need for vaccination because there is natural immunity?	Yes	66	27.6	13	39.4	1.952**	0.162
	No	173	72.4	20	60.6		
Total		239	100.0	33	100.0		

*p<0.05, ** Chi-square analysis

Chi-square analysis was applied to test the relationship between the covid-19 status of the participants' environment and the questions about COVID-19 vaccines. With the covid status of the participants in their environment "Do you plan to get vaccinated against other infectious diseases?" and "Do you support vaccinations?" There is a statistically significant relationship between the answers given to the questions($p \leq 0.05$).

Table 4.5: Relationship between death from covid-19 and questions about COVID19 vaccines in the participants' circle.

Variables		Yes		No		Test Value	p
		Frequency (N)	Percent (%)	Frequency (N)	Percent (%)		
Do you trust the statements about the vaccine?	Yes	55	61.1	101	55.5	0.777*	0.378
	No	35	38.9	81	44.5		
Do you think the entire population can be vaccinated?	Yes	44	48.9	80	44.0	0.591*	0.442
	No	46	51.1	102	56.0		
Would you like your relatives to have the covid 19 vaccine?	Yes	69	76.7	152	83.5	1.855*	0.173
	No	21	23.3	30	16.5		
Should children also be vaccinated?	Yes	40	44.4	72	39.6	0.593*	0.441
	No	50	55.6	110	60.4		
Did you get the flu vaccine last season?	Yes	21	23.3	30	16.5	1.855*	0.173
	No	69	76.7	152	83.5		
Will you be vaccinated against flu this year?	Yes	33	36.7	88	48.4	3.329*	0.068
	No	57	63.3	94	51.6		
Do you plan to get vaccinated against other infectious diseases?	Yes	61	67.8	114	62.6	0.694*	0.405
	No	29	32.2	68	37.4		
Do you support vaccinations?	Yes	72	80.0	141	77.5	0.226*	0.634
	No	18	20.0	41	22.5		
Do you think there is no need for vaccination because there is natural immunity?	Yes	25	27.8	54	29.7	0.105*	0.746
	No	65	72.2	128	70.3		
Total		90	100.0	182	100.0		

*p<0.05, ** Chi-square analysis

Chi-square analysis was applied to test the relationship between the deaths of the participants' environment due to covid-19 and questions about COVID-19 vaccines. There is no statistically significant relationship between the death status of the participants due to covid and the answers given to the questions ($p>0.05$)

Table 4.6: Relationship between participants' vaccination status and questions about COVID-19 vaccinations.

Variables		Yes		No		Test Value	p
		Frequency (N)	Percent (%)	Frequency (N)	Percent (%)		
Do you trust the statements about the vaccine?	Yes	122	67.4	34	37.4	22.342**	0.000*
	No	59	32.6	57	62.6		
Do you think the entire population can be vaccinated?	Yes	90	49.7	34	37.4	3.730**	0.053
	No	91	50.3	57	62.6		
Would you like your relatives to have the covid 19 vaccine?	Yes	161	89.0	60	65.9	21.057**	0.000*
	No	20	11.0	31	34.1		
Should children also be vaccinated?	Yes	80	44.2	32	35.2	2.040**	0.153
	No	101	55.8	59	64.8		
Did you get the flu vaccine last season?	Yes	41	22.7	10	11.0	5.407**	0.020*
	No	140	77.3	81	89.0		
Will you be vaccinated against flu this year?	Yes	86	47.5	35	38.5	2.009**	0.156
	No	95	52.5	56	61.5		
Do you plan to get vaccinated against other infectious diseases?	Yes	129	71.3	46	50.5	11.332**	0.001*
	No	52	28.7	45	49.5		
Do you support vaccinations?	Yes	158	87.3	55	60.4	25.707**	0.000*
	No	23	12.7	36	39.6		
Do you think there is no need for vaccination because there is natural immunity?	Yes	33	18.2	46	50.5	30.689**	0.000*
	No	148	81.8	45	49.5		
Total		181	100.0	91	100.0		

*p<0.05, ** Chi-square analysis

Chi-square analysis was applied to test the relationship between participants' vaccination status and questions about COVID-19 vaccines. Vaccination status of the participants, "Do you trust the statements about the vaccine?", "Would you like your relatives to have the covid 19 vaccine?", "Did you get the flu vaccine last season?", "Do you plan to get vaccinated against other infectious diseases?", "Do you support vaccinations?" and "Do you think there is no need for vaccination because there is natural immunity?" There is a statistically significant relationship between the answers given to the questions ($p \leq 0.05$).

5. DISCUSSION

5.1. Discussion of Demographic characteristics

The results of our study, which was conducted in the province of Qar in the adult category and based on demographic data in relation to the age variable, revealed that the category of individuals aged 33 and under topped the group with a percentage of 65.1% of the participants, which is similar to a study conducted previously (Santoli JM, 2020) in the country on individuals aged between 18 and >60 years, in which the male category topped the study sample with 66 percent. In terms of gender, men outnumbered women by 42.8 percent, but the number of married people was greater than the number of married people by 58.5% percent, while singles scored 41.5%. When the educational status of the participants was measured in terms of educational attainment, the individuals with a bachelor's degree or higher accounted for 46% of the total and were examined; 7.4% of them are illiterate, 5.5% of them are literate, 4.4% are primary school graduates, 10.3% are secondary school graduates, 8.1% are high school graduates, and 18.4% are graduates of a university. When the distribution of the participants according to their positions is analyzed, it is seen that 40.8% are students, 26.1% are workers, 2.6% are retired, 17.3% are self-employed, and 13.2% are not working. It is seen that 9.2% of the participants have low income, 85.3% have average income, and 5.5% have high income.

5.2. Discussing the assessment of the beliefs and behaviors of adults towards the covid-19 vaccine

The wrong beliefs and behaviors of adults among employees and auditors of health institutions in Dhi Qar governorate may lead to taking the vaccine below the required level for adults and negative health results, as well as increasing the chance of infection with this virus. Knowing that Chi-square analysis was applied to test the relationship between the participants' ages and questions about COVID-19 vaccines, depending on the age of the participants, "Do you trust the statements about the vaccine" "Would you like your relatives to have the COVID-19 vaccine?" "Should children also be vaccinated?" "Did you get the flu vaccine last season?" "Do you plan

to get vaccinated against other infectious diseases?" and "Do you support vaccinations?" There is a statistically significant relationship between age and questions about COVID-19 vaccines and the answers given to the questions ($p < 0.05$), which is similar to a study conducted previously (Santoli 2020). In contrast to our study, lower results were found (Chew *et al.* 2004; Kukreti *et al.* 2021).

In our study, there was a statistically significant relationship between the answers given to the questions ($p \leq 0.05$), relationship between participants' gender and the questions about COVID-19 vaccines, which is similar to a study conducted previously (Gür 2019; December 2020); in contrast, lower results were found in another study (Khubchandani *et al.* 2021).

In our study, there is a statistically significant relationship between the answers given to the questions ($p \leq 0.05$), the relationship between participants' marital status and questions about COVID-19 vaccines, which is similar to a study conducted previously (Thunstrom *et al.* 2020), (Fu *et al.* 2020) In contrast to our study, lower results were found (Akarsu *et al.* 2021).

In our study, there was no statistically significant relationship between the COVID-19 disease status of the participants and the answers given to the questions ($p > 0.05$), which is similar to a study conducted previously (Krammer *et al.* 2021). In contrast to our study, lower results were found (Dutta 2020).

In our study, there is a statistically significant relationship between the answers given to the questions ($p \leq 0.05$), the presence of COVID-19 disease in the environment of the participants, and questions about COVID-19 vaccines, which is similar to a study conducted previously (Larson *et al.* 2016). In contrast to our study, lower results were found (Coccia 2022).

In our study, there was no statistically significant relationship between the death status of the participants due to COVID and the answers given to the questions ($p > 0.05$). relationship between death from COVID-19 and questions about COVID-19 vaccines in the participants' circle, which is similar to a study conducted previously (Thomas *et*

*al.*2019) (NCHS 2020) In contrast to our study, lower results were found (Zhou *et al.* 2005).

In our study, there is a statistically significant relationship between the answers given to the questions ($p \leq 0.05$) and the relationship between participants' vaccination status and questions about COVID-19 vaccinations, which is similar to a study conducted previously (Dutta *et al.* 2020; Reiter *et al.* 2020; Yilmazbaş *et al.*2020). And in contrast to our study, lower results were found: a systematic review of COVID-19 vaccine acceptance rates in different parts of the world revealed high acceptance in Malaysia, Indonesia, and China and very poor acceptance rates in Italy, Russia, the United States, and France. A multi-country survey conducted in June 2020 before the availability of the vaccine showed that there was a wide heterogeneity of factors in various countries that determined vaccine acceptance. Whereas the elderly were more likely to accept the vaccine in France and Germany, the young were more likely to accept it in China (Murphy 2021; Lazarus *et al.* 2020; Sallam *et al.* 2021).

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Our study concluded that the role of the beliefs and behaviors of adults who take the vaccine is significant in limiting the spread of the COVID-19 virus and in preventing it. The increase in the spread of the COVID-19 virus leads to an increase in the danger to adults and the spread of infection among the community. Improving beliefs and behaviors by urging adults to take the coronavirus vaccine is increasing in relation to the aspects mentioned above.

According to the results, the study concluded to the following:

- The study discovered that there is a statistically significant relationship between the answers given to questions about COVID-19 vaccines ($p \leq 0.05$) and the ages of the participants, and it was found that the largest percentage of the participants are 34 years old or younger.
- The study discovered that there is a statistically significant relationship between the answers given to the questions and the gender of the participants, as it was found that the response of men is higher than that of women.
- The study discovered a statistically significant relationship ($P \leq 0.05$) between participants' marital status and questions about COVID-19 vaccines.
- The study discovered no statistically significant relationship ($p > 0.05$) between participants' COVID-19 status and questions about COVID-19 vaccines.
- The study discovered a statistically significant ($p \leq 0.05$) relationship among questions about COVID-19 vaccines. with the COVID status of participants in their environment.
- The study discovered no statistically significant relationship between the participants' death status due to MERS-CoV and the answers given to the questions ($p > 0.05$).

- The study discovered a statistically significant relationship ($p \leq 0.05$). between participants' vaccination status and questions about COVID-19 vaccines.

6.2 Recommendations

Based on the results, the study recommends the following:

1. Activating educational programs and watching for encouragement to take the vaccine against the COVID-19 virus will reduce the spread of this epidemic.
2. Conducting an evaluation of the implementation of programs to combat and prevent infection with the COVID-19 virus by more experienced and impartial practice bodies to improve and increase the preventive capacity of infection with the COVID-19 virus in adults in primary health care centers in Dhi Qar Governorate.
3. conducting more research on the COVID-19 virus and how to comprehensively prevent it and using its results in health assessment programs for all adults in Dhi Qar to prevent infection with the COVID-19 virus and limit its transmission among the community.
4. Employing highly experienced trainers to organize training workshops to correct behavior and beliefs among adults about taking the COVID-19 virus vaccine and preventing the risks of transmission of the COVID-19 virus among adults in Dhi Qar Governorate.
5. Effective confirmation and monitoring of the use of personal protective equipment, fumigation, and sterilization tools in all corridors of primary health centers, malls, and public transportation to prevent transmission of the Corona virus among adults and avoid infection.
6. Activating the role of the media and the Ministry of Health through awareness programs about the COVID-19 virus and its transmission and introducing the risks and benefits of taking the COVID-19 virus vaccine.

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APPENDICES

APPENDIX 1. Sociodemographic and Characteristics Form Socio-demographic.

APPENDIX 2. Attitudes, Behaviors and Beliefs COVID-19 Vaccine Scale II.

APPENDIX 3. Sociodemographic and Characteristics Form Socio-demographic(Arabic).

APPENDIX 4. Attitudes, Behaviors and Beliefs COVID-19 Vaccine Scale II(Arabic).

APPENDIX 5. Permission for using the COVID-19 Vaccine Scale II.

APPENDIX 6. Ethics Committee University of Baghdad in Iraq Approval.

APPENDIX 7. Ethics Committee for approval (from the Ministry of Health in Iraq).

APPENDIX 1. Sociodemographic and Characteristics Form Socio-demographic.



APPENDIX 2. Attitudes, Behaviors and Beliefs COVID-19 Vaccine Scale II



**APPENDIX 3. Sociodemographic and Characteristics FormSocio
demographic(Arabic).**



**APPENDIX 4.Attitudes, Behaviors and Beliefs COVID-19 Vaccine Scale
II(Arabic).**



APPENDIX 5. Permission for using the COVID-19 Vaccine Scale II.



Appendix 6. Ethics Committee University of Baghdad in Iraq Approval



Appendix 7. Ethics Committee for approval from the Ministry of Health in Iraq





CURRICULUM VITAE

Full Name : SAJJAD JABBAR JASİM ALSHUWAILI

Sex :

Nationality :

Place and date of birth :

Marital status :

Address :

Language :

Certificates :

